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19th International Symposium of Adapted Physical Activity

19-23 July 2013, Yeditepe University - Istanbul

"Bridging The Gaps"

Invited speakers and selected papers from the

19th International Symposium of Adapted Physical Activity

HACETTEPE JOURNAL OF SPORT SCIENCES (H.J.S.S.) FORMATTING AND STYLE GUIDE

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2. Subjects or research group
3. Data collection instruments
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5. Data analysis
6. Shortly results
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From the Chairperson of ISAPA 2013

We are honored to host the 19th International Symposium of Adapted Physical activity (ISAPA), here in İstanbul. This day marks a first and the symposium opens its doors to THE Middle East for the first time in history. Our enthusiasm is not only due to organizing such a large scale symposium but also the fact that it will have impact in the lives of individuals with disabilities.

This very land that hosted glorious civilizations has been a bridge between cultures due to its unique geographical and political location. It is a bridge between Western and Eastern Civilizations. The city uniquely extends to European and Asian sides of the Bosporus, making it the only metropolitan that is located on two continents. The symposium theme is titled "Bridging the Gaps". In this, we aimed bridging between theory and practice, people of all abilities, academics from different disciplines, academia and practice from all over the world".

ISAPA 2013 is planned as a Project that includes a well-built scientific symposium and numerous social activities. Main partners of this project are International Federation of Adapted Physical Activity (ifapa.biz), Turkish Society of Adapted Physical Activity (ebfad.com), and Yeditepe University (yeditepe.edu.tr). We are also grateful for the support of the Ministry of Family and Social Policies and the Ministry of National Education. This partnership and support mechanism allowed for including APA professionals from various disciplines. With the strength that rose from this collaboration, ISAPA 2013 has granted full scholarships to 5 international participants from emerging economy countries. The International Volunteer Program enables volunteers to meet and work with academics and pioneers of adapted physical activity during their volunteer services. We proudly announce that as of now, We proudly announce that as of now, we have 22 volunteers from Taiwan, Amerika, Kanada, İngiltere, Güney Kore, İrlanda and Türkiye.

19th ISAPA is holding a photography and short movie contest, which aims drawing attention to the importance and significance of adapted physical activity and also to increase public awareness of

sport accomplishments of people with all abilities. A respective and diverse group of specialists established a jury that has spent many hours to evaluate all the products. The task was not easy and all photographers and directors deserved recognition. We appreciate their enthusiasm and we are delightful for the productions they shared.

Within the context of the Symposium's theme and also as a vision in our lives, the organization has taken care to include people with disabilities in all events at ISAPA 2013. We followed the motto; "Nothing about us without us!"

It is a great opportunity to emphasize adapted physical activity as science, profession, service and right! With this in mind, visibility and dissemination was given great importance. So all the symposium related processes and programs are published on the web site, proceedings book is published, selected articles has been published in a peer reviewed journal (Hacettepe Jounral of Sports Sciences). Event is announced at public transportation and TV and radio programs allowed us to share the importance of adapted physical activity.

On the national level, many companies and organizations were contacted during the preparations and many provided wholehearted support. Such contacts allowed strengthening a broad network of high level cooperation that will extend beyond ISAPA.

I would like to thank ALL who supported this event; regardless of its magnitude. They all meant a lot and made this event a "Project of All". Even the seemingly tiniest contribution helped ISAPA 2013 to succeed. We could not have accomplished without "YOU". Thank "YOU".

WELCOME TO ISAPA 2013...

Prof.Dr. Dilara ÖZER

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Perception of Disability and Physical Activity

Keynote

Akile GÜRSOY
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ABSTRACT

Physical activity, as a crucial reflection of healthy lifestyles continues to be a challenge for all populations throughout the world. Perceptions of disability and reaction to real or imagined difficulties seem to significantly affect the attainment of desired personal goals in physical activity levels. Personal attributes, social & cultural conditions as well as historic specificities seem to influence individual and communal behavior patterns related to physical activity. New theoretical understandings in both disability studies and the fields of sports and physical activity indicate the importance of appropriate and sustainable physical activity programs. With reference to country and community profiles and specific case studies, this presentation aims to explore the complexity of the above factors. In an age of modernity where the necessity of daily physical exercise and bodily movement is recognized and revered, it argues for the simplicity and beauty of reaching individual potentials of physical and spiritual enhancement.

I feel extremely honored to be addressing such a distinguished and skilled audience. I would like to welcome you all to this meaningful symposium, and would like to further welcome those who have travelled long distances to bridge the gaps and to be part of this most exciting meeting.

I wish to start by expressing my the sincere conviction that physical activity is the vital core of our well-being, of our constructive life long movement and worldly achievements. Similarly, I wish to say that, perhaps with the exception of a limited period during our younger lives - days of youth - as human beings we all experience

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varied perceptions of certain degrees of personal disability throughout our lives. Such perceptions may strongly influence our choices of, interest in, and performance of physical activity. Therefore, I feel that such an international meeting focusing on the varied issues emerging in the realm of adaptive physical education merits attention of the highest order.

Physical activity, as a crucial reflection of healthy lifestyles continues to be a challenge for all populations throughout the world. Nutritional anthropologist Geoffrey Bond who has devoted many years to studying human evolutionary development in tropical Africa, expresses the view that our sedentary modern lifestyles reflect a mismatch between the ways we live today and lifestyle designed for us in our evolutionary heritage. We walk much less, stretch much less and eat more of the wrong kind in more than needed quantities. In his popular radio/TV & social media lectures to physicians, he argues that this form of misadapted lifestyle is at the root of many modern diseases such as diabetes, altsheimer, cancer, osteoporos and heart diseases (Bond 2010).

Appropriate programmed physical activity can take many different forms, including inclusive and special physical education; recreation and leisure time; competitive and elite sports as well as rehabilitation and health exercise (IFAPA 2013). There is no doubt that appropriate physical activity seems to both prolong and add to the quality of life (Fahey et al, 1999).

Turkish freediver Şahika Ercümen, who recently broke the 110 meter swim under-ice world record in Austria, in the largest natural ice rink in Europe, is an example of individual determination to overcome physical limitations. Ercümen, born in 1985 holds more than 100 medals in national and international swimming and underwater competitions. Interestingly for us, she started life suffering from asthma and had acute breathing difficulties. However, she managed to train herself to overcome this obastacle and turned herself to be one of the most successful athletes of Turkey and Europe. She is a nutritionalist by university traning and today acts as a professional sports coach. Ercümen says that for her, happiness comes with diving and she emphasizes the role of positive thinking (Ercümen 2013).

Of course, we do not have to strive to be athletes, venturing out to compete with fellow sportsmen. However, striving for personal physical fitness is a challenge for all of us, whatever our age or bodily composition. Most adaptive physical education philosophy rests on the understanding that this is a training that leads to the acquisition, mastery and the maintenance of physical activity skills. Pedagogic methods are employed to maintain the motivation of students to ensure that they will reach their personal potentials. Despite differences in emphasis, there seems to be consensus that physical fitness is a result of a balanced combination of correct nutrition, excercise, hygiene and rest.

Furthermore, it has been noted that physical fitness rests on a culmination of factors that include mental, social, emotional health and economic well being. It looks like we need the support of a number of elements to achieve our goals of reaching our personal potential of physical fitness. State support in the form of sponsorship of programs and the inclusion of scientific research, the enlargement of university budgets for the integration of fields relevant to adjusted physical education are all necessary in order to achieve desired outcomes on a wide scale. The contribution of non governmental organizations and civil society is crucial, and most likely sets the base for exciting developments. However, the political climate and the role and the responsibility of the state in this regard cannot be over stressed. We need interdisciplinary and intersectoral cooperation.

Analysis of social determinants of health show that we have to take into account health inequalities and link wider social, economic and political forces to local experiences. Social scientists and sports specialists have to consider and take into account social location, in the forms of gender, ethniciy, nationality, citizenship, class, age, geography, sexual identity (Janes 2010, 408). Critical social science theories indicate that concepts like physical activity, sports, leisure time, the symbolism of the body, spaces allocated for sports are all reflexive of wider power structures inherent in the political systems of societies (Giulianotti 2004 and 2005; Jarvie & Maguire 2000).

The literature on sports and physical activity reflect a complex global picture. For example,

research in China shows that rural inahitabts are on the whole leading more physically active lives. However, research also shows that as far as leisure time is concerned, urban Chinese adopt more physically active leisures whereas rural people spend more sedentary off work hours (Ding et al 2011). Sports specialists in Turkey argue for more budget allocation of resources in formal education, and also make a note of the need to enhance public attitude for giving priority to physical education (Özşaker & Orhun 2005, 103-114). Expert analysis is needed to make sense of all the information given in research results to come up with appropriate and locally suitable social policy.

In recognition of the importance of individual bodily health, many nation states have highlighted the importance of physical activity even to the extent of making this the symbol of national pride. In the formation years of the republic of Turkey, the human body acquired a central position symbolizing the young republic, reflecting the aspiration of dynamism and health of the nation (Gürsoy 1998, 41). The founding leader, Atatürk in one of his speeches says, "Nations should not know sadness or sorrow. It is the duty of those who govern to lead people in a way so that they embrace life with joy" (Atatürk, 1942, 273).

Throughout ages, physical activity and bodily movement has been recognized to have a healing and life enhancing outcome. The *sema* spiritual dance of the whirling dervishes, the healing performance of shamans, yoga philosophy and practices are only some examples showing the combination of bodily movement and spiritual harmony. The architectural plans of many cities like Pergamon in antiquity, show the great emphasis given to physical education and sports, and rehabilitation centers. The fact that these spaces were connected by roads reflects the social philosophy of the time, elevating the full potential of the human body (Cutuk et al. 2005, 115-121). In addition, we can also cite universal bodily movement motions such as mothers holding their babies in their arms and rhytmically rocking them to sleep.

Interestingly, in recent years, psychologists are turning their attention to the study of positive moods, to understanding and explaining what we call happiness. Professor Seligman, the president of the American Psycgological Association has been asking psychologists to engage in the question of what are the enabling conditions that make human beings flourish? He urges scholars to look at what make people feel fulfilled, engaged and meaningfully happy. Mental health, it is asserted, should be more than the absence of mental illness. We have to understand that something that is akin to "vibrant and muscular fitness" of the human mind and spirit. In short, we have to decipher the scientific formulas of happiness (Wallis, 2005).

The underlying structure of what we feel to be happiness seems to be comlex, including factors that we traditionally associate with it, as well as factors we would not customarily include into the formula of happiness. There have been a number of alternatives proposed for explaining the opposite of what happiness is. One interesting proposal that caught the popular imagination is the concept of bordeom as the opposite of happiness. Thus, it is argued that excitement is the more practical synonym for happiness and that it is precisely this that we should strive to chase. Excitement has been described as the cure-all (Feriss 2011, 51).

Given the close link between happiness and physical fitness, we have to address the issue of what it is that keeps us excited and motivated about carrying out regular, appropriate physical activity. Why do some of us give up and end up having more sedentary lives while others are successful and keep up with life enhancing programs. This is food for thought for all of us. Psychologists, educationists, sports specialists and all of us as individuals who have the challenge of giving direction to our lives.

The challenge of choosing the appropriate physical activity program that fits individual situations is an important factor. This is often accomplished with professional guidance as well as personal dedication and persistence. Issues that confront this process include topics like creating one's own excersie program, realizing one's potential, support systems, managing and overcoming fatigue and other obstacles and building sustainable lifetime programs. For example, a cancer patient states, "as distressing and horrible as the cancer experience was, I gained insight, strength, and the courage to pursue my dreams, which helped me to set three bicycling

world records, win a national champoinship title and become a leader in research on excercise for people with cancer" (Amstrong 2004,7).

The many different forms of disabilities, physical or mental call for different specialized approaches to meet our daily needs of physical activity. Individuals who are challenged by visual, hearing or physically limiting conditions will require different forms of adjusted physical activity that is designed to meet their special conditions. Similarly, those with chronic diseases, or the elderly popoulation whose body is naturally different from children or young people will again require programs adjusted for their special needs.

The world of science is offering us profound guidelines. However research is filled with controversial approaches and different schools of thought that have different interpretations of the relationship of our bodies to movement and physical activity. Different paradigms point to altering formulas that provide us understandings and rules for adjusting physical activity to our lives. It is a challenge for both professionals and individual lay persons like myself to follow the new theories, the shifting paradigms in science and to be aware of the limits of science. I believe this symposium will be a most fertile ground for enhancing our understanding of these diverse views. How much physical activity do diffferent age groups need? How much rest do we need? What nutritional intakes do we need? There seem to be no single answers to all these practical and simple sounding questions. The challenge is to be able to make informed individual decisions concerning our lives and bodies.

For the professional instructors, the body of knowledge to be mastered is considerable. In addition to basic anatomy and physiology of the human body, the body of knowledge on excercise and fitness, the special conditions, ability, needs and requirements of the participants, pedagogic knowledge and coaching strategies, health and safety awareness of the physical activity environment, awareness of social and cultural factors as well as the special knowledge dependent on the particular form of physical activity. For example, in the case of exercising in water, further knowledge such as properties of water and their effects on the body and how they affect movement is required (Lawrence 2008, v). All this indicates to very specialized types of professional knowledge pool, that also includes understanding of the tools and instruments employed. Furthermore, the specialist must comprehend the physical activity "as but one part of the life of a growing and changing person". The role of the trainer is described to be one of a practical art, based on careful appraisal of all relevant knowledge. A balance is needed, where the trainer is not just "enamoured of practice without science" (Dick 1989, 1-2).

However, scientific theories and science itself is constantly being challenged and contested. As a research professor in biochemistry, Rupert Sheldrake, owner of numerous awards, in his 2013 released book dwells on questions like: Is nature mechanical? Is the total amount of matter and energy always the same? Are the laws of nature fixed? Is matter unconscious? Is nature purposeless? Is all biological inheritance material? Are memories stored as material traces? Are minds confined to brains? Are psychic phenomena illusory? Is mechanistic medicine the only kind that really works? (Sheldrake, 2013). As the boundaries of science is progressively widened, and as scientists are striving to see the whole picture as well as the minutest of details, the breadth of knowledge demanding our attention is vast. This then is a time for listening to experts as well as strengthening our inner voice and personal understanding of ourselves.

Ethical concerns in the field of sports and physical education, among other criteria, strongly emphasize the principles of equity, non-discrimination, fairness; the need to place the individual at the center of the program; informed participation; mutual respect and support; and the highest attainable standard of health (David 2005, 238-39). The International Federation of Adapted Physical Activity sees their goal to be directed toward persons of all ages underserved by the general sports sciences, disadvantaged in resources, or lacking power to access equal physical activity opportunities and rights (IFAPA Official Website). As such, they are embracing all members of society and serving both the well being of society as a whole and the goal of human rights for all.

I would like to congratulate the organizers of this symposium and members of IFAPA, and stress that I am very proud and priviledged to be a part of this excellent endeavour.

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Inclusion: What is Needed to Make it Work for All Children with Disabilities

Keynote

Martin E. BLOCK
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ABSTRACT

The concept of inclusion in physical education is based on a belief that educating children with and without disabilities together has mutual benefits to both groups of children (Block, 2007, 1994). Limited research suggests including children even with severe disabilities can be very successful (e.g., Block & Zeman, 1995; Klavina & Block, 2008; Obrusnikova, Block, & Valkova, 2003). However, other research suggests inclusion in physical education may not always be carried out appropriately resulting in negative experiences for children with disabilities (Blinde & McCallister, 1998; Hutzler, et al 2002). Why the disparity in research findings? The inherent philosophy of inclusion as well as anticipated benefits of inclusion are not wrong. Rather, it the preparation of physical educators (Chandler & Greene, 1998; Meegan & MacPhail, 2006; Vickerman, 2009) and peers (Klavina & Block, 2008) as well as implementation of inclusion in physical education that appears to be flawed (Block, 1999). It seems that there are three main factors that positively or negatively influence the success of inclusion in physical education: (1) preparation of general physical educators, (2) supports needed to make inclusion work including the preparing peers, and (3) the provision of partial inclusion in unique situations with children with more severe disabilities. The purpose of this presentation is to discuss research and offer suggestions on how to deal with each of these key factors relative to inclusion in physical education.

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INTRODUCTION

Research focusing on inclusion of students with disabilities in general physical education has been mixed. On the one hand, several studies show including children with disabilities can be successful (e.g., Block & Zeman, 1996; Klavina & Block, 2008; Obrusnikova, Block, & Valkova, 2003; Vogler, Koranda, Romance, 2000). On the other hand, other research suggests inclusion in physical education may not always be carried out appropriately resulting in negative experiences for children with disabilities (Blinde & McCallister, 1998; Goodwin & Watkinson, 2000; Hutzler, et al., 2002). Why the disparity in research findings? The inherent philosophies of inclusion as well as anticipated benefits of inclusion are not wrong. Including students with disabilities into general physical education provides many social opportunities (e.g., interactions with peers without disabilities, develop new friendships, and learn appropriate behaviors). In addition, peers without disabilities have an opportunity to learn and appreciate their peers with disabilities (Block, 2007; 1998; Sherrill, 2004). Rather, it is the preparation of physical educators (Chandler & Greene, 1998; Meegan & MacPhail, 2006; Vickerman, 2009) and peers (Klavina & Block, 2008) as well as implementation of inclusion in physical education that appears to be flawed (Block, 1999). It seems that there are three main factors that positively or negatively influence the success of inclusion in physical education: (1) preparation of general physical educators, (2) supports needed to make inclusion work including the preparation of paraeducators and peers, and (3) the provision of partial inclusion in unique situations with children with more severe disabilities. The purpose of this paper is to discuss research and offer suggestions on how to deal with each of these key factors relative to inclusion in physical education.

PREPARATION OF GENERAL PHYSICAL EDUCATORS

Problem – Lack of Preparation: Perhaps the most critical factor in successful inclusion and yet one that has received the least amount of research is the preparation of physical educators for inclusion. Since most school districts in the US and around the world do not have adapted physical education (APE) specialist, the job of accommodating and teaching students with disabilities in general physical education rests with the general physical education teacher. In the US physical education teacher education PETE) programs require one course in APE (Piletic & Davis, 2010). While there are no clear data in other countries regarding coursework in APE, anecdotal reports from colleagues around the world suggest many university PETE programs do not require even one course in APE. Unfortunately, even this one course is not adequate to truly prepare PETE students for inclusion as these courses tend to present only cursory information about disabilities, the laws, assessment and teaching strategies. In the US many of these courses include a practicum in which PETE students are assigned to work with a child with a disability one-on-one for a few hours per week during a 10-14 week course (Piletic & Davis, 2010). This hands-on experience with a child with a disability is certainly a positive step in preparing PETE students. However, one has to wonder if the basic introductory course along with working with a child one-on-one for a few hours a week truly prepares a physical educator for inclusion? In fact, lack of preparation of PETE students has been confirmed in several studies in which physical educators say they do not feel adequately prepared or competent to include students with disabilities in general physical education (e.g., Coates, 2012; Hardin, 2005; Meegan &MacPhail, 2006; Morley et al., 2005; Vickerman & Coates (2009).

Solution – An Infusion Approach: If one course in APE is not adequate to prepare PETE students for inclusion, what is a better approach? In the 1990s in the US several APE scholars suggested an "infusion approach" to preparing PETE students for inclusion (DePauw & Goc Karp, 1994; Kowalski, 1995; Rizzo, Broadhead, & Kowalski, 1997). Infusion refers to systematically presenting theoretical and practical information about disability throughout all PETE coursework. While the introductory APE course was still viewed as an important component of a PETE program, infusing practical and specific information about disabilities in all PETE coursework would better prepare students for the specific challenges

faced by inclusion. For example, a course in team sports would include discussions and presentation of strategies to help PETE students understand how to accommodate students with any number of disabilities in volleyball, basketball and football. Similarly, a course in exercise physiology could include information on unique physiological aspects of individuals with spinal cord injuries or Down syndrome as it relates to exercise including unique exercise regimens and restrictions.

Limited research showed the infusion approach improved PETE teachers' attitudes towards working with students with disabilities in general physical education (Apache & Rizzo, 2006; Kowalski & Rizzo, 1996). Unfortunately, only a handful of university PETE programs implemented an infusion approach to disability. While the model makes sense conceptually, training PETE professors to infuse concepts of disability into their coursework or having an APE specialist come into all PETE courses to provide information about disability can be daunting. Nevertheless, there has been a renewed interest in the infusion approach in Europe (Kudláček, Ješina, & Flannagan, 2010) and the US (Shapiro et al., 2012). One way to alleviate the problem of training PETE professors on concepts of disability is to use an online supplement to provide specific information about disability into PETE coursework. For example, imagine PETE students in a team sports class learning and mastering volleyball skills as well as how to teach volleyball. At the end of the unit students would go to a web-based program that presents information on how to accommodate students with a variety of disabilities and functional challenges (e.g., lack of strength to serve ball over the net, lack of coordination to bump or set a ball). The supplement would include videos showing children with disabilities successfully playing volleyball in an inclusive physical education setting. Special Olympics is moving towards this web-based, video intensive model for their coaching guides (see http://www.specialolympics.org/sports.aspx) for examples). This web-based infusion approach could be made available world-wide ensuring all future and current physical educators would have access to information that would help them accommodate their students with disabilities.

SUPPORTS NEEDED TO MAKE INCLUSION WORK

Problem – Lack of Trained Support: Having knowledge and skills necessary to include students with disabilities into general physical education is critical for successful inclusion. However, even the best training and best intentioned physical educators cannot successfully accommodate students with disabilities in large classes without extra support (LaMaster, 1998; Lienert. Sherrrill, & Myers, 2001). Many general physical education programs in the US have 2 or 3 classes in the gymnasium at the same time (50 or more students), so including a student with a disability into these large classes can be formidable. Even including children with disabilities into smaller class can be challenging, particularly with students with autism who display challenging behaviors that require one-on-one attention (Obrusnikova & Dillon, 2011). The obvious solution is to provide support to the student with a disability through trained paraeducators or peer tutors (Block, 2007; Davis et al, 2007; Lieberman, 2007). Unfortunately, there seems to be some confusion as the exact role of paraeducators in physical education and the role of the general physical educator in directing paraeducators (Bryan, McCubbin & van der Mars, 2013; Davis et al., 2007; Haycock & Smith, 2011; Obrusnikova & Dillon, 2011). While paraeducators know the child with a disability, they rarely know how to modify physical education activities to help their student be successful. On the other hand, physical educators know their environment, but as noted earlier they often do not have the training to accommodate students with disabilities into general physical education. As a result, physical educators may be hesitant in directing paraeducators, and paraeducators are left to figure out on their own how to help their student with a disability (Davis et al, 2007). The same is true for peer tutors. Research clearly shows that peer tutors can be an effective method for supporting students with disabilities in general physical education. However, peer tutors are most effective when they receive proper training and support from the general physical educator and paraeducators (Houston-Wilson et al, 1997; Klavina & Block, 2008; Lieberman et al., 2000. This leads

to the same problem noted above – who is going to train and supervise these peer tutors?

Solution – Train Support: The typical model of hoping paraeducators or peer tutors will somehow know what to do to help students with disabilities in general physical education does not work; clearly paraeducators and peer tutors need training to be effective. Training should include information about roles and responsibilities, lines of communication, strategies for common situations (e.g., warm ups, dealing with behaviors, ways to facilitate social interactions with peers), and finally ways to modify activities to accommodate particular students challenged with limited speed, strength, endurance and/or coordination (see Block, 2007; Lieberman, 2007; Lieberman & Houston-Wilson, 2009; Klavina & Block, 2008, for training suggestions). Who should conduct this training? One model worth exploring is a collaborative team approach to training. That is, rather than one person presenting to paraeducators and peer tutors, people who know relevant information about the student all share information and participate in a team discussion. This team meeting should take place before the school year begins and then again periodically during the school year. When appropriate, the student with a disability should participate in the meeting sharing his/her suggestions for accommodations. Brady (2005) coined the term "pre-inclusion model" for this approach to prepare physical educators for inclusion, and this model can easily be adapted when preparing paraeducators and peer tutors as well. For example, physical educators could share their expertise about the organization and content of their program and activities that might pose particular challenges to students with certain disabilities (e.g., soccer on the field with a student who uses a manual wheelchair; volleyball with a student with a visual impairment). Special education teachers and paraeducators could share their expertise about the student's unique strengths and weaknesses, how to communicate with the student, and how certain situations may present particular challenges (e.g., student with autism getting upset in loud or busy environments such as during group dodging and fleeing activities). Physical and occupational therapists could share specifics about physical challenges, possible accommodations, and contraindications for students with physical disabilities (e.g., how to make the environment safe for students with cerebral palsy who uses a walker and has balance problems). This team approach could evolve into a discussion amongst various team members. For example, the physical educator might share his concern for this child with cerebral palsy and balance issues when he does team sports such as soccer and basketball, and everyone on the team can then discuss possible accommodations.

PARTIAL INCLUSION FOR STUDENTS WITH SEVERE DISABILITIES

Problem – Full Inclusion is not Safe or Meaningful for Student: While all students with disabilities should be given the opportunity to be included in general physical education with their peers, there are some students who present such severe disabilities or severe behavior challenges that full inclusion is not feasible – even with properly trained support. Even strong supporters of inclusion realized that there may be times when a student with a disability may be better served by being pulled out into a separate setting (Block, 2007; Block & Krebs, 1992; Brown et al., 1991). It is easy to see how a child who is medically fragile with multiple disabilities cannot participate safely in the vast majority of general physical education activities. Similarly, children with severe autism may balk at the large, noisy gymnasium with students running around without any purpose or control (at least in the eyes of the student with autism).. Even in the US, where the Individuals with Disabilities Education Act (IDEA) favors inclusion through the "least restrictive environment" mandate, the law also allows placement away from general education through the "continuum of placements" clause (Block, 1996).

Solution – Partial Inclusion: While full time inclusion into general physical education may not be feasible, it should be possible to find at least some parts of the physical education class where students with even severe disabilities can be included. The benefits of inclusion, particular social aspects of inclusion and learning how to behave

and maintain control in a large class setting, are too powerful to simply deny a student at least some exposure to the general education setting. If the ultimate goal of an educational program (including physical education) is to prepare a student with a disability for a life after school, then exposing a student to large, sometimes noisy, and sometimes stimulating environments should be a critical part of the overall program. The solution then is partial inclusion into general physical education when activities can be appropriately modified to safely and meaningful accommodate a student with a disability.

For example, warm up activities often begin with some stretching and running laps around the gymnasium. Students with severe, multiple disabilities such as cerebral palsy can work on their stretching goals with the support of their paraeducator or even physical therapist alongside peers without disabilities. During laps the student can be pushed by their paraeducator or peer tutor around the gymnasium alongside their peers, who can be encouraged to run with and talk to the student with a disability. In some cases lap time is a great time to work on goals such as keeping one's head upright, looking around at the environment including looking at peers, and in some cases even practicing walking with a gait trainer or other assistive device. Similarly, during skill work the student with severe, multiple disabilities could work on individual goals alongside peers who are working on the skill of the day (Block, Klavina & Flint, 2007). Picture a student working on grasping and releasing objects and perhaps pushing a ball down a ramp with the ultimate goal of bowling or playing boccia with a ramp. This student can work on these important skills alongside peers who may be working on throwing and catching for a team handball or basketball unit. A peer can be assigned to assist the student to push the ball down the ramp, and other peers can assist by retrieving the ball, all the while talking to and interacting with the student with the disability. Even games could be modified to include students with severe, multiple disabilities. For example, in soccer the student with a severe disability can be on the sidelines and pushed by a paraeducator or peer tutor along the playing field. When the ball goes out of bounds the paraeducator or peer tutor retrieves the ball, places it on the student's ramp and assists him/her in pushing the ball back into play. In the meantime peers on the field are yelling "pass the ball to me" to encourage more interaction and enjoyment by the student with the disability.

Students with severe autism who dislike the noise and chaos of the general physical education setting can still benefit from partial inclusion. Again, these students need to get used to group and noisy settings if they will have any chance to participate in integrated community environments as an adult. As noted above, warm ups activities such as stretching and strength exercises can be a perfect time to ease a student with autism into general physical education. If the student gets agitated, then he/she can be taken out of the setting to calm down and then brought back. Even a few minutes in the general setting is worthwhile. Other opportunities for partial inclusion include station work where the larger group is divided into smaller groups and partner work. Smaller groups and partner work give the student with autism opportunities to interact with peers without the stress of the entire group together. During large group activities the student with autism can be pulled off to the side of the gymnasium or even out in the hallway with his/her paraeducators and select peers. Here the student with autism would continue to have opportunities to interact with peers but away from the larger group.

In summary, the benefits of inclusion in general physical education warrant placement of students with disabilities into the general setting as often as possible. However, these benefits will only be achieved if physical educators, pareducators and peers are properly trained. In addition, the use of partial inclusion provides a nice compromise for students with more severe disabilities who cannot be appropriately placed for the entire physical education period.

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The Physical Education Environment: Is It Educationally Appropriate?

Keynote

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ABSTRACT

Internationally in education there continues to be a debate on the efficacy of the full inclusion philosophy. The purpose of this paper is to suggest another education service delivery model that incorporates the inclusion philosophy. There issues related to effectively implemently this more non-discriminatory service model is discussed which is termed the least restrictive educational (LRE) model.

INTRODUCTION

Internationally the efficacy of the generalized application of the full inclusion philosophy has been a debatable issue for both general and adapted physical education practitioners and university physical education teacher education personnel. While most believe in the philosophy of full inclusion of fairness, equality, and justice for all students; it is the full application of this philosophy that is being debated, particularly for general physical educators.

Proponents of full inclusion believe, while there may be different meanings translated into different languages and other contexts (D'Aessio & Watkins, 2009), in educating all students with various disabilities and degrees of disabilities across all classes in their home schools (Stainback & Stainback, 1992). Educational support services that are provided to a student with disabilities are provided in their classes throughout the school by professionals that may travel from school to school. Related to physical edu-

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cation with this service delivery model, a general physical educator must be competent to meet the educational needs of the weakest, as well as, the strongest physically and motorically student in class. There is some research support basically for students with mild and even moderate disabilities being provided their physical education programs within a general physical education class. It is not clear if it occurred in a full inclusion school or school district, the type of educational support that was individually provided the student with a disability, and how it was determined.

On the other hand, opponents of full inclusion believe that an one-size-fits all service delivery model is discriminatory for possibly the students with and without disabilities by excluding the implementation of other possible appropriate educational service delivery models. Further, the expectations of preparing a highly qualified (HQ) general physical educator to competently educate all students in one environment to meet all their educational needs are monumental.

For example, students who are disabled whose inappropriate behavior is at a low intensity level and infrequent may be placed into a full inclusion physical education class. This would also be true of students who are disabled whose behavior is at a high intensity level and very frequent. Would this include those students whose behavior has caused them to be judicated in the court system? Based on this philosophy though, the appropriate support services would be provided the general physical educator to conduct his or her classes.

Some students with severe intellectual, emotional, social, or neurological disabilities or whose disabilities may not be within the "medical margin of safety," cannot appropriately participate in the full inclusion delivery educational model (Block, Klarina, & Flint, 2007). Because of this and other issues, some experts suggested that full inclusion is only an educational illusion (Kaufman & Hallahan, 2004) or at the every minimum elusive. A continuum of service models, based on the students' education needs, must be provided in the least restrictive environment (Individual's with Disabilities Act, 2004).

Related to the example of the students with behavioral disorders, at least in Texas, these students can move between numerous appropriate educational service models, not one. This can range for services in the general classroom, part-time general and special education series, and full-time special education services in their neighbor school or district campus school. Those students who have been judicated have other educational service models that can range from boot camps after school, to daily classes during the day at a detention center, to being incarcerated in a minimum or maximum security faculty where their educational services are provided by special education faculty. The students must be provided physical activity/physical education services at all levels by United States' federal law. Could all of these students' educational needs be met in a full inclusion school? The failure of the application of the full inclusion model is supported when analyzing articles written in many countries in the world related to school-based inclusion (see Figure 1). In these countries, it has been reported that the government supports the full inclusion philosophy but only in words and/or has implemented only the placement of students with disabilities in general classes without adequately preparing physical educators at the preservice (Alsalhe, 2012) and inservice (Yun, 2011) levels.

Evidence-based Research: There is limited amount of evidence-based research related to the efficacy of implementing the full inclusion philosophy. Based on the results of a qualitative study by Curcic (2009), there are both some positive and negative outcomes of inclusion. It was concluded though that there is a lack of support to demonstrate that the necessary attitudes, accommodations, and adaptations are in place within most educational systems to provide the appropriate individualized education program in a full inclusionary environment (Bermejo, Castro, Martinez, & Gongora, 2009; Kavale, 2002). The gap between quality research and the practices in the classes is considerable (Barton, Lawrence, & Deunloo, 2010); particularly related to investigations that involve randomization of an appropriate sized population and a long term intervention that includes a control group. Specially related to research conducted on full inclusion in physical education, very few if any would reach the "Gold Standard" on the research designs used when rating the quality of evidence provided to the suggested recommendations (Newman, Weyant, & Hójoel, 2007).

Table 1. Status of Effective Full Inclusion in Selected Countries

Canada (Bélanger & Gougeon, 2009)	". . . it is surprising to still find teachers with reservations towards inclusion in todays' pro-inclusionary provincial atmosphere." (p. 301)
England (Coates, 2012)	Physical educators considered "their initial teacher education preparation related to inclusion ineffective.
England (Hodkinson, 2009)	Government needs to re-think radically its policy of inclusion to ensure that a coherent plan is formulated . . . (p. 277)
Ghana (Gyimah, Sugden, & Pearson, 2009)	"On the basis of the findings, conclusions were drawn the inclusion agenda should by subject to national and local interpretation, aimed at ensure" that policies and regulations on students with special education needs are fashioned to meet local situations and standards. (p. 787)
Greece (Coutsocostas & Alborz, 2010)	Forty seven of the teachers in this investigation ". . . were against the inclusion of all pupils with special education needs (SEN) in mainstream secondary schools." (p. 149)
Ireland (Rose, Sherlin, & O'Raw, 2010)	There is a commitment expressed for inclusion but there has little commitment to the implementation of this philosophy.
Norway (Wendelberg & Tøsseboro, 2010)	". . . even though if children with disabilities do attend regular primary schools, our results show than many of them do not participate fully in regular classroom activities and the levels of participation decrease as these children grow older." (p. 712)
Romania (Walker, 2010)	Related to inclusion, "today there is still a series of obstacles to the development of special education to the standards of developed countries . . ." (p. 165)
Russia (Godoivoikova, 2009)	There is ". . . a slight tendency toward a positive attitude in regard to integration." (p. 26)
Scotland (Florian & Rouse, 2009)	"If could be argued that there is a gap between the rhetoric of these policies ("e. g., related to inclusion) and the reality of practices in schools, which in many cases remain largely unchanged." (p. 600)
South Korea (Ministry of Education, Science and Technology, 2005)	Ninety-one percent of the students with disabilities are educated in special schools or special classes.
Spain (Bermejo, Castro, Martinez, & Gongora, 2009)	"In the everyday practice of the inclusive classroom, a high percentage of teachers confess that they are overwhelmed by their workload . . . " (p. 330)
Turkey (Melekoglu, Cakiroglu, & Malmgren, 2009)	There are "several challenges in the ongoing improvement of the quality of special education in Turkey." (p. 281)

The research designs used in the physical education environment related to inclusion were basically single subject or qualitative designs; and few involved students with severe disabilities where less positive results have been reported (Goodman & Williams, 2007). In addition, beyond 'attitudinal type' descriptive studies of perservice (Alsalhe, 2102) and inservice (Yun, 2012) general physical educators, there is little or no strong scientific evidence of the efficacy of numerous PETE model/demonstration programs for general physical educators internationally that is based on national (Kelly, 2006) or international standards to prepare these professional to appropriately function in a full inclusion environment.

In some cases, there are replications of studies conducted in other countries that may not meet the needs of students in these countries where the studies are conducted (i.e., cultural, religious, economic; Al-Senaidi, Lin, & Poirot, 2009; Melekoglou, et al., 2009). Further well controlled research in the laboratory environments to determine the effectiveness of the inclusion service educational model may be very difficult to effectively apply in an actual physical education environments (Goodman & Williams, 2007; Handiman, Guerin, & Fitzsimons, 2009; Rose, Shevlin, Winter, & O'Rao, 2010).

The purpose of the paper is to briefly discuss why many experts, specifically related to physical educators have a concern related to the application of the term full inclusion and not focusing on assuring students are appropriately placed and provided a continuum of educational services in the LRE. Full inclusion should be considered one model that is infused in a continuum of models related to the LRE, not just one. The appropriate educational services may be needed if there are compelling educational reasons to meet the unique learning styles of some students. This position seems to be supported by the Salamanca Statement and Framework for Action (UNESCO, 1994):

"We call upon all governments and urge them to: Give the highest policy and budgetary priority to improve their education systems to enable them to include all children regardless of individual differences or difficulties, adopt as a matter of law and policy the principle of inclusive education, enrolling all children in regular school, unless there are compelling reasons for doing otherwise" (p. ix).

Even in the United States Individuals with Disabilities Act of 2004, where there is wide support for inclusion, it is related to the LRE (Goodman & Williams, 2007). Curcic (2009) has provided a more operational definition suggesting we must drive toward the maximal appropriate participation of all students with the minimal exclusion and focused on continuous evidenced-based evaluation and appropriate educational alternatives that could lead a student back to total or part of an inclusive form of education (Abbott, 2010). It should be noted though, in some countries it is still common that students with disabilities to be excluded from physical education classes (Xafopoulos, Kudláèek, & Vaggelinou, 2009)!

There are numerous issues that can positively or negatively impact the process toward the effective implementation of the full inclusion philosophy and for that matter LRE. These issues are: Cultural and Religious, Economic, Media, Governmental Plan of Action and Implementation, and Preservice and Inservice Teacher Preparation.

Cultural and Religious: Culture and religious beliefs maybe two serious issues that must be considered before implementing the continuum of educational services philosophy in the physical education environment. For instance, will students with and without disabilities, as well as, the teaching staff, respect each other in school? The answer to this question may be begin to be determined by analyzing the limited amount and type of research studies previously conducted in other countries where the process of implementing the full philosophy, as LRE, has begun and what knowledge has been gained.

In addition, knowing the culture, experts maybe able begin use this knowledge as part of planning and implementing the LRE philosophy. For instance, the people from Saudi Arabian may not adjust to new ideas as fast as in some countries. They deal with new ideas very carefully. Therefore, experts in Saudi Arabia must determine the positive and negative impact to their culture related to the implementation of the full inclusion LRE philosophy. The Ministry of Education may need to begin the implementation of this philosophy through the process of including students with mild disabilities in their regular elementary schools. As the goal is achieved with both students with and without disabilities, as well as, the teaching staff accepts each other, there can be a systematic and evidence-base approach to expand to students in middle and then the high school levels.

Religious beliefs are powerful forces that drive culture. There are many habits, customs, folktales, stereotypes, hopes, and fears that occur because of the religious beliefs (Mdaa, 2008). In many countries religion is powerful and can influence the attitudes of millions of people

worldwide (Selway & Ashman, 1998). Therefore, the religious leaders may be able to encourage people to understand and begin to infuse to some degree the LRE philosophy that infuses full inclusion.

Economic: Implementation of the full inclusion philosophy, as the LRE philosophy, will and does require additional financial expenditures (Abosi & Koay, 2008; Melekog et al., 2009). With no exceptions, to move away from more restrictive educational service delivery models and move to integrated placements will cost more. This is due in part to modify attitudes in some cases and training general educators, special educators, parents, and paraeducators at the preservice and inservice levels to teach diverse populations in one environment. Many professionals will now work within an itinerant service delivery model where time is spent traveling to student' home schools, reduced class size, duplication of facility accommodations, provide educational and assistive technology within all the home schools as opposed at one or a few specialized schools to meet the unique of *some* students (Greenwood & French, 2000).

There needs to be time for teachers to collaborate. Specifically, related to the effective implementation of the LRE full inclusion as well as, the philosophy in physical education, Choi, French, and Silliman-French (2013) stated that time must be provided physical educators to knowledge share to continue develop their skills, as well as, share their knowledge and skills.

In addition, special education administrators cannot preach the initiation of placement of students in the full inclusion environment but hoard the funds or even reduce their budgets. The funds must follow the students with disabilities in the LRE continuum of educational services where just one is full inclusion. In support of this statement, Zaratto (2007, p. 10) stated that

> " . . . the Committee on Special Education tend to go with the least costly solution which usually is to mainstream students rather than hire qualified personnel to provide a more meaningful developmentally appropriate instruction programs for students in need."

Media: The effective use of the media is another issue. The media is a method that contributes to cultural change related to many issues (Thinkquest, 2009). Media such as television, radio, newspapers, and the internet could bring the issue of effectively implementing LRE philosophy with discussions on the pros and cons in their countries.

For example, the media is a great platform for the Saudi specialists in the special education to voice their thoughts and opinions. Further, through the media, governmental experts can clearly explain their proposed plans for the LRE implementation, in collaboration with parents and teachers so everyone understands the degree of impact on their culture.

Governmental Plan of Action and Implementation: Another issue is a clear government plan of service for the students with disabilities that includes the cost and where and when the general teachers will be trained or retrained to appropriately function in various LRE environments. Therefore, the Ministry of Education in different countries must provide schools the financial support to appropriately educate students with disabilities such as, specialized facilities, equipment, accessible bathrooms, wide doors, special parking for students with wheelchairs, rooms or tables, and specialists to collaborate with general educators. The Ministry of Education may also bring together panels of experts from within and outside their country who have experience and knowledge related various services for students with disabilities that are appropriate for use in the LRE environment. These general steps may increase the probability of a smooth transition, where students with disabilities will be able to receive the same high quality service that their peers without disabilities receive in the same environment in the public schools.

The policy internationally of initiating the LRE philosophy that includes the inclusion concept cannot begin and stop with dumping students into the general education classes. The next steps cannot be ignored in the process. Administrative financial support must be provided to secure the appropriate personnel and physical resources (Melekoglu, Cakiroglu, & Malmgren, 2009) to make this process an appropriate ed-

ucational experience for *all* students as well as the teaching staff, particularly in physical education.

Today there are still students with disabilities throughout the world that are not being provided physical education programs at all or not provided to meet their educational needs. This seems to be the practice. There generally is a lack of commitment and vision by individuals at the district, state, or national levels. This statement is supported by Hodkinson (2009) who stated that governments seemed to have changed very little without a coherent plan related to the actual placement of students with disabilities into the appropriate educational environments, basically there is still just rhetoric. Similarly, Curcic (2009) stated that school governmental agencies claim they are planning and implementing the full inclusion philosophy, but in many cases it remains only as written policies and guidelines.

Preservice and Inservice Teacher Preparation: Another essential issue that must be dealt with, that which was mentioned earlier, and mentioned in the late 1970's (Clark, 1978) in physical education, was teacher preparation. Many physical education teachers are capable of teaching some students with different educational needs, generally with mild disabilities, within the context of general physical education classroom and curriculum. However there is no evidence that all physical education teachers are capable of teaching all students effectively in the same context.

It is possible to find more disadvantages of the full implementation of inclusion philosophy for the general physical education teaching personnel. Undoubtedly, full inclusion must require special training and preparation; and in the absence of it, the educational process can hardly be successful, regardless of the academic preparation, the experience, and/or the talent of general physical educator.

Students with disability may require a special approach, and that is why physical education teachers in numerous public schools are against the implementation of full inclusion. The teachers state the critical need for additional support and improvements of the existing educational system that are necessary to make inclusive education somewhat successfully appropriate.

As school budgets are reduced, physical educators are asked to do more with less. Public schools struggle to provide the appropriate education to even students without specialized needs. Budgetary restrictions make it unrealistic to expect *all* students with disabilities will receive the attention they need and deserve within a general classroom environment. Moreover, many general physical educators have not received training in specialized educational techniques to appropriately teach all students with disabilities within their classes.

The universities also must prepare HQ future general physical educators who have the academic knowledge, appropriate attitudes, and practical skills to teach students with disabilities in their career within a full inclusion model. Therefore, before implementing the full inclusion philosophy in various countries, PETE faculty must be a critical component of the plan (Flores & Ferreira, 2009; Grenier, 2010; Hodge, Ammah, Casebold, & O'Sullivan, 2007; Vickman, 2012). Universities will need to train or retain faculty to develop special courses or infuse units of knowledge and educational experiences into the PETE undergraduate programs related to teaching all students with disabilities. These teachers must learn to work in collaborative teams to appropriately evaluate, design, and implement individual programs that can be effective in the general physical education classes.

Related specially to assessment the focus in the training must be on the initial evaluation process for placement and programming. As stated by Zuratt (2007) "More often than not the class in which the integration occurs is compromised due to the inappropriate placement." (p. 10). It is the believe of the authors that it is a fairytale to believe that general physical educators in a 4-year or even a 5-year PETE program can be HQ to function in a full inclusion model!

In addition, adapted physical educators must be trained to not only to provide direct services but consult and team teach in general physical education environments, use of appropriate behavior management techniques (Lavay, Henderson, French, & Gurthie, 2012), apply the Principles of Universal Design for Learning and

Instruction (Lieberman, Lytle, & Clarcq, 2008), and appropriately applying action research techniques (Darling-Haromond & Bransford, 2005).

Future, long term inservices or mini courses must be provided to general physical educators who are presently teaching to learn the new information and skills to infuse into their classes. These inservices or mini courses should lead to a certificate that is required by the state or national educational ministry.

This educational process must be standard-based. In the United States there are a few states that have developed standards. Nationally, there is the Adapted Physical Education National Standards with an accompanying examination. Those physical educators who have passed the examination become nationally Certified Adapted Physical Educators (Kelly, 2006).

CONCLUSION

Students with disabilities educational needs must be address of through appropriate use of a continuum of service delivery models. One service delivery model, full inclusion, is discriminatory by eliminating others that may be more appropriate to not only students with disabilities but takes into consideration the educational needs of all students. Further, based on Curcic (2009) there is no legal or factual bases the educational effectiveness of full inclusion. This is why the authors are proponents of the application of the LRE philosophy that incorporates inclusion.

The key to LRE is not to just place of students with disabilities in general physical education classes. Geographical placement is not a commitment! There must be an appropriate educational placement that includes addressing the issues of cultural and religious beliefs of a community; cooperation of administrators, teachers, and parents; preparation of the teachers at the preservice and inservice levels that includes not only general but adapted physical educators; and the use of appropriate educational and assistive technology. This process could begin with pilot projects to determine the most appropriate application of the LRE philosophy within a country. Clearly, "The glorious vision of inclusion which would allow students with disabilities to merge with other students has opened a Pandora's Box" (Crawford, 2007, p. 11).

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Play Unified, Live Unified – How Special Olympics is Bridging the Gap in Social Inclusion through Unified Sports and Non-sporting Partnerships

Keynote

Mary DAVIS
Regional President Special Olympics Europe Eurasia

ABSTRACT

Special Olympics Unified Sports brings together people with and without intellectual disabilities on the same team. It was inspired by a simple principle: training together and playing together is a quick path to friendship and understanding. In Unified Sports, teams are made up of people of similar age and ability, which makes training more fun and games more challenging and exciting. Having sport in common is just one more way that barriers are broken down and false ideas are swept away. The power of sport is transforming lives and relationships throughout the world on and off the playing field. Special Olympics athletes experience pride, courage and joy while inviting entire communities to join in the celebration. This phenomenon was recognized by Sport Accord, the umbrella organization for international sports, when Special Olympics was awarded the Spirit of Sport award. The award recognizes the commitment and humanitarian spirit of those who have used sports to make exceptional contributions to social change. Partnerships with non-sporting organizations contribute significantly to the social change Special Olympics strives to make. Powerful partnerships such as those with the European Union and UNICEF provide the resources and support Special Olympics needs to be able to bridge the gaps that make positive social change for people with intellectual disabilities a reality.

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INTRODUCTION/RECOGNITION

Distinguished participants and organizers of the 19th ISAPA Conference! It's a pleasure and an honour for me to be here and to be invited to speak to you. In particular since we are here in beautiful Turkey; in Istanbul, the city that connects the two parts of the SOEE region, Europe and Eurasia. I would like to use this opportunity to express congratulations to ISAPA for hosting this great conference, organizing everything perfectly and hosting all of us so warmly.

ABOUT SOEE

Before I start with some general thoughts and comments I would like to bring everyone on the same page with a few facts about SOEE- I know there are some people in the audience who have vast background and experience with SO and others who are new to the subject; please don't hesitate to ask if you would like to have more details later on, I think we will have time for questions. Special Olympics enables people with intellectual disabilities to develop physical fitness, demonstrate courage, experience joy and participate in a sharing of gifts, skills and friendship with their families, fellow athletes, volunteers and the community. SOEE works with accredited Special Olympic programmes with more than half a million athletes in 58 European and Eurasian countries supported by volunteers and coaches across 30 Olympic type sports. SOEE assists these National Programmes to become better known, better funded and more successful in both expanding and improving sports opportunities and other positive initiatives including Healthy Athletes (a public health programme), Athlete self advocacy programs and Families support network. Every four years, always in the non-Olympic years- the global Special Olympics movement representing more than 170 countries around the world conducts winter and summer World Games. The last summer games were in Athens/Greece in 2011, the last winter games took place in February 2013 in Korea. SOEE conducts regional summer games every two years, the next European Games will take place in Antwerp/Belgium 2014.

GENERAL CONFERENCE THEME-COMMENTS

With those encouraging impressions from the Special Olympics video now to this symposium that carries the theme of "bridging the gaps"- a theme that is extremely important to our work at SO: I have been thinking what to say to you having this prominent place of being a key note speaker of this conference. I have been thinking what I would like to address to you- as this is a rare opportunity to speak to an audience of experts in the field of disability sport, rehabilitation, adapted physical education and adapted physical activity. And there is really one thing which I believe is the most important to keep in our minds throughout the entire conference and beyond: we need to work in joint efforts to reach our goal: "inclusion and empowerment of people with disabilities" in and through sport, physical education and physical activity.

We need to approach our goal as a team in which everyone has a certain role and we can only be successful working together. We talk about disability sport, rehabilitation, adapted physical education and adapted physical activity. We talk about sport for people with physical and intellectual disabilities. We talk about research and practise. The different areas are overlapping, they are complimentary and in some cases depending on each other. We should always try to make use of the common ground we have and the links that exist as only then, in a joint effort, we have a stronger and louder voice to achieve positive change and progress. This is why this conference is so important- it gives all of us who represent the different areas I just mentioned the opportunity to get together. It's a platform, a unique opportunity to identify and increase the common ground between us, to build and expand networks, to tackle common challenges and identify common solutions- to jointly bridge existing gaps in sport for people with disabilities.

UNIFIED SUBJECT-TITLE OF THIS SESSION

Unified Concept as Such: Coming to the subject of my presentation "Play Unified, Live Unified – How Special Olympics is bridging the gap in social inclusion through Unified sports and non-sporting partnerships"._

Let's start looking into the actual Unified Sports concept: Special Olympics Unified Sports has proved to be a powerful mechanism for pro-

moting social inclusion through sports. Unified Sports is a Special Olympics initiative that provides opportunities for sportsmen/women with intellectual disabilities ("athletes") and without intellectual disabilities ("partners") to play on integrated sports teams. This experience allows athletes and partners to develop sports skills, having meaningful competition experiences, and create long-last friendships. The purpose of Unified sports is to experience inclusion as each athlete is ensured of playing a valued role on the team; socialize with peers and form friendships (the initiative provides a forum for positive social interaction between team-mates and often leads to long-lasting friendships); and participate in activities in their communities. Globally (covered by our internal annual census) in 2011 546,806 athletes and partners were involved in Unified Sports in about 120 countries; the participation numbers are growing steadily, e.g. from 2010 to 2011 by 10%. In SOEE, our region, 55,000 Unified athletes and partners are involved in 47 countries.

Background: Since 2004 SOEE has made Unified Sports development a focus- particularly for young people aged 12-25, the future generation that can build a more open and welcoming society- but also for other age groups. This was decided responding to the increasing demand for inclusion in European societies, reflected e.g. in the move to inclusive education and anti discrimination legislation for sport federations and clubs. Despite of high level commitments like through the UN Convention of Rights for people and national and international inclusion legislation a huge gap exists between theory and practice between intention and reality.

Most countries in the SOEE region still have mainly segregated education systems and in many cases Special Olympics Unified Sports offers a platform for interaction and integration of regular and special education students in a local community for the first time. EXAMPLES (no specific countries mentioned to avoid conflict with existing activities and people in audience from respective countries): we can see this in some countries where we have a strong Unified Sports Project involving some of the Regional or National Ministries of Education and often as well the respective sports federation. Or another model for some programs is to work municipalities to establish Unified Sports activities between mainstream and special schools. In those countries where an inclusive education system has been existing teachers are often lacking tools to facilitate integration inside and outside the classroom. Coaches in local sports clubs are facing similar challenges- in many European countries legislation makes integration in sports federations and clubs mandatory but hardly anyone has education or experience in integrating people with (intellectual) disability in a meaningful way. Special Olympics can offer a tool and the needed experience through its Unified Sports concept.

The Goals and Benefits

- Integration of people with intellectual disability in the local community
- High quality inclusive sports for people with and without intellectual disability
- Alliances of various community partners for long term sustainable inclusive sport structures

Unified Sports is not only about connecting people with and without intellectual disabilities; but it only works on the long run and successfully if the community partners are connected, if the gap existing between them can be overcome. Often it is not a wanted gap, but a gap that evolved over centuries. The environment of athletes and partners needs to overcome the traditional barriers and separations that are existing physically and in the minds of most people - like e.g. between special and mainstream schools, mainstream sport clubs, regular sport clubs, regular sports teams and mainstream sports teams, but also e.g. between federations, municipalities, Universities, institutions for people with disabilities. "People are finally brought around one table and talking to each other"- as one of our Unified Sports Coordinators from Finland stated once. The partnerships and networks are not only guaranteeing a solid recruitment and retention of players and coordinated efforts to have sustainable structures for coaching, facilities etc but also extends the inclusive atmosphere into the local community.

We worked with the University of Ulster in Belfast to evaluate the impact of Unified

Sports participation on the integration of athletes with intellectual disability in the local community.

Working in five countries across Europe (Hungary, Poland, Ukraine, Serbia and Germany) this evaluation carried out over two hundred qualitative interviews and gathered data on fifty-five Unified Sports Basketball and Football teams in 2010. The evaluation examined the Unified model as a context wherein the increased social inclusion of people with intellectual disabilities could be fostered. A primary aim was to identify the processes that promoted social inclusion within and in particular beyond Unified Sports.

Personal Development through Unified Sports: All the people we spoke with were clear that the young participants gain personally from their participation. This occurred in four main areas.

Sports Skills: Players reported improvements in their abilities on the sports field, as well as increased fitness and technical ability. They emphasised the importance of team-work and trust between players. Improved ability led to greater status in their schools.

Personal skills: Improvements in confidence, self-esteem and communication skills were reported by players. Partners also reported a positive change in attitude towards people with intellectual disabilities.

Access to places: Athletes reported increased access to community 'places' such as sports facilities and social venues. Further access to good quality sports facilities would be welcomed by the Teams.

Example quote: We go to the town square and talk, or to the games arcade, or we go for a drink in a café. The guys from the team know places to go and we go after training if we all have time. (Athlete, Serbia)

Relationships with People: Friendships were a central and vital aspect of taking part in the Teams. Friendships developed between athletes and partners as well as strong relationships between players and coaches. There is evidence of the successful growth of these relationships beyond the sports-field.

Unified Sports – a micro-culture within a wider dominant culture: Another aspect of our findings related to the relationship between the micro-culture of Unified teams and the wider community from which the participants came. There were important differences between the two cultures but Unified Sports provided a bridge towards social inclusion as the Figure shows.

Culture within Unified Sports: The community within Unified Sports forms a micro-culture based on an ethos of inclusion and integration of people with intellectual disabilities. The role of coaches, which is influenced by their background either in disability sports or mainstream sports, has a critical influence on the development of team attitudes and their social activities beyond the playing field. They have a key role in forging positive attitudes and creating alliances.

Culture outside Unified Sports: The wider societies in which Unified programmes operate continue to present both structural and attitudinal barriers to the inclusion and integration of people with intellectual disabilities. Parents and athletes spoke of the negative attitudes they had experienced.

I am ashamed to say that I used to laugh at these people (people with intellectual disabilities), now I will tell anybody to stop laughing if I see it and I will stand up for people if I can. It is wrong to laugh at these people, but I didn't know much before. I just did what everyone else did. (Partner, Hungary)

Barriers and bridges to social inclusion: Unified Sports presents challenges to the obstacles to social inclusion through gradual yet continual tests of negative actions, positive representations of people with intellectual disabilities and through enabling the development of parent alliance and advocacy.

There are stereotypes about people with intellectual disability that keep us away from each other, fears that they are difficult and so on, but if you take part in Unified Sports then

you can smash these stereotypes and see just that they are people. (Partner, Poland)

Coaches played a key role in building bridges both within team and into the wider community.

It is important to really know your team, all of them as individuals, because they often need some help with something that is not a sports problem but maybe something at school or at home. We include them and they have belief in us - it is part of what we do as unified coaches. (Coach, Hungary)

Those were just two sequences from the key findings. The overall conclusion of the study was: Unified Sports is an exciting initiative that holds much promise in transforming the life experiences of young athletes with intellectual disabilities. It does this in a natural and highly cost-effective manner due to the mobilisation of volunteers.

In the words of the athlete from Serbia who provided the title for this study – *Unified gives us a chance* – many more persons around Europe & Eurasia deserve and want that chance. We probably knew before the study that the impact of the programming is positive. Because we meet people who are involved, we feel the inclusion while being involved. However we need this kind of evidence to convince all those other poeple - who are not involved with disability sport, who don't have a child with disability and who we need to engage for more inclusive sport and a more inclusive society. This study e.g. helped us to engage the European Union as a partner in what we do. This is one important thing I would like to state here in this group- the work you are doing is ectremely important to offer better quality sport for poeple with disabilities. But also to strive for more inclusion and empowerment of the athletes with disabilities!

Unified – Non Sports Subjects, Partnerships Beyond Sport: I personally am a strong believer in networking and cooperation as outlined above. In the past years of my role as MD of SOEE I together with my team focused on establishing networks and partnerships in various fields to approach our goal of social inclusion of people with intellectual disabilities through and in sport in Europe- also going far beyond the described Unified Sports program and community level. On European level we built up partnerships and networks e.g. with mainstream sport federations such as UEFA and FIBA Europe, we established networks with health care professionals, Universities and companies to support the health and well being of our athletes, we built cooperation with Youth organizations, UN agencies, EU and CoE institutions and others.

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The Test of Gross Motor Development-3 (TGMD-3): Administration, Scoring, & International Norms

Keynote

Dale A. ULRICH

ABSTRACT

This presentation is designed to introduce attendees to the third edition of the TGMD. I will discuss the changes that have been made for the new edition, train people how to administer and score the new edition, and recruit people to assist me in collecting international norms from a minimum of 12 countries beginning in September of 2013. The TGMD-3 is scheduled to be released in 2015. Based on feedback I have received on the TGMD-2, I will be eliminating 2 skills and adding the one hand side arm strike, underhand throw (toss), and the skip. I also will be modifying a few performance criteria on one or two skills to make them more valid and easier to score. National (USA) and international norms will be collected in an effort to allow international teachers and researchers to make decisions on a child's relative performance compared to the international norms. It is anticipated that 7 % of the children included in the norms will have a mild or moderate disability. Once the norms are collected, it is anticipated that a short screening test will be developed to help teachers complete a quick screening of large groups of children to help identify children who might be at-risk for significant gross motor deficits requiring the child to be referred for more comprehensive TGMD-3 testing. A major change from the TGMD-2 will be the availability of electronic applications to help professionals collect and manage their TGMD-3 data. TGMD-3 training videos will also be posted to a web based system so that faculty can train their university students efficiently. I will also be searching for international leaders to assist me in collecting the international norms in their country.

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TEST OF GROSS MOTOR DEVELOPMENT (3RD EDITION)

TGMD-3 Form for Collecting Norms

Child's Name or ID #_____

Country:_____ City or Town:_____ State & Zip code (if USA):_____

Male____ Female____ Disability (yes or no)_____If yes, what disability:_____ Date of Testing_____

Child's Date of Birth_____Child's Age in Years and Months_____

Examiner's Name_____ Examiner's Email Address (if we have questions)_____

Estimate of Child's Family Economic Status: Low___ Moderate____or High_____ Child's Race: White___Hispanic____Black____ Asian____or Mixed_____

Child's Residential Location: City_____ Suburb of City_____ Rural or Small Town_____

Child's Preferred Hand: Right_____ Left_____ Not established_____ Child's Preferred Foot: Right____ Left_____ Not established____

LOCOMOTOR SUBTEST

Skill	Materials	Directions*	Performance Criteria	Trial 1	Trial 2	Score**
1. Run	60 feet (18.3m) of clear space to run. 2 cones or markers.	Place 2 cones 50 feet apart. Make sure there is at least 8-10 feet (2.4-3m) of space beyond the cone for a safe stopping distance. Tell the child to run fast from one cone to the other cone when you say "GO". Repeat a second trial.	1. Arms move in opposition to legs with elbows bending. 2. Brief period where both feet are off the surface 3. Narrow foot placement landing on heel or toes (not flat- footed). 4. Nonsupport leg bent about 90 degrees so foot is close to their buttocks.			
				Skill Score ***:		
2. Gallop	25 fee t(7.6m) of clear space, 2 cones or markers.	Mark off a distance of 25 feet with the cones or markers. Tell the child to gallop from one cone to the other cone and stop. Repeat a second trial.	1. Arms are bent and lifted to about waist level at takeoff. 2. A step forward with lead foot followed with the trailing foot landing beside or a little behind the lead foot (not in front of the lead foot). 3. Brief period where both feet come off the surface. 4. Maintains a rhythmic pattern for 4 consecutive gallops.			

Skill	Materials	Directions	Performance Criteria
3. Hop	A minimum of 15 feet (4.8m) of clear space.	Tell the child to hop 4 times on his preferred foot (established before testing). Repeat a a second trial.	1. Non-hopping leg swings forward in pendular fashion to produce force. 2. Foot on non-hopping leg remains behind hopping leg (does not cross in front of). 3. Arms flex and swing forward to produce force. 4. Hops four consecutive hops on the preferred foot before stopping.
4. Skip	A minimum of 30 feet (9.2m) of clear space, 2 cones or other markers.	Mark off two lines at least 30 feet apart with cones/markers. Tell the child to skip from one cone to the other cone. Repeat a second trial.	1. A step forward followed by a hop on the same foot. 2. Arms are flexed and move in opposition to legs to produce force. 3. Completes 4 continuous rhythmical alternating skips.
5. Horizontal Jump	A minimum of 10 feet (3.1m) of clear space, tape or marker.	Mark off a starting line on the floor, mat, or carpet. Position the child behind the line. Tell the child to jump far. Repeat a second trial.	1. Prior to take off both knees are flexed and arms are extended behind the back. 2. Arms extend forcefully forward and upward reaching above the head. 3.Both feet come off the floor together and land together. 4. Both arms are forced downward during landing.

Skill Score: _____

Trial 1	Trial 2	Score

Skill score: _____

Skill score: _____

Skill Score: _____

Skill	Materials	Directions	Performance Criteria	Trial 1	Trial 2	Score
6. Slide	A minimum of 25 feet (7.6m) of clear space, a straight line and 2 cones or markers.	Place the two cones 25 feet apart on a straight line. Tell the child to slide from one cone to the other cone. Let the child decide which direction to slide in first. Ask the child to slide back to the starting point. Repeat a second trial.	1. Body is turned sideways so shoulders remain aligned with the line on the floor. 2. A step sideways with the lead foot followed by a slide with the trailing foot where both feet come off the surface briefly. 3. Four continuous slides to the preferred side. 4. Four continuous slides to the non-preferred side.			

Skill Score: _____

TOTAL LOCOMOTOR SUBTEST SCORE**:_____

OBJECT CONTROL SUBTEST

Skill	Materials	Directions	Performance Criteria	Trial 1	Trial 2	Score
1. Two- Hand Strike of a Stationary Ball	4 inch (10.2cm) plastic ball, plastic bat, and a batting tee or other device to hold ball stationary.	Place ball on batting tee at child's waist level. Tell child to hit the ball hard straight ahead. Point toward straight ahead. Repeat a second trial.	1. Child's preferred hand grips bat above non-preferred hand. 2. Child's non-preferred hip/shoulder faces in direction of straight ahead. 3. Hip and shoulder rotate and derotate during swing. 4. Steps toward ball with non-preferred foot. 5. Hits ball sending it straight ahead.			

Skill Score: _____

Skill	Materials	Directions	Performance Criteria	Trial 1	Trial 2	Score
2. Forehand Strike of Self-bounced Ball	Tennis ball, light plastic paddle, and wall.	Hand the plastic paddle and ball to child. Tell child to bounce and hit the ball toward the wall. Point toward the wall. Repeat a second trial.	1. Child takes a backswing with the paddle when ball is bounced. 2. Steps toward the ball with non-preferred foot. 3. Strikes ball forward toward wall. 4. Paddle follows through toward non-preferred shoulder.			
					Skill Score:_____	
3. One Hand Stationary Dribble	An 8-10 inch (20.3-25.4cm) playground ball for ages 3-5 years; A basketball for ages 6-10 years; flat surface.	Tell the child to bounce the ball 4 times without moving their feet using one hand, and then stop by catching the ball. Repeat a second trial.	1. Contacts ball with one hand at about waist level. 2. Pushes ball with fingertips (not slapping at ball). 3. Maintains control of the ball for 4 bounces without moving their feet to retrieve the ball.			
					Skill Score:_____	
4. Two Hand Catch	A 4 inch (10.2cm) plastic ball, 15 feet (4.6m) of clear space, tape or marker.	Mark off 2 lines 15 feet (4.6m) apart. The child stands on one line and the tosser stands on the other line. Toss the ball underhand to the child aiming at the child's chest area. Tell the child to catch the ball with 2 hands. Only count a trial where toss is near child's chest. Repeat a second trial.	1. Child's hands are positioned in front of the body with the elbows flexed. 2. Arms extend reaching for the ball as it arrives. 3. Ball is caught by hands only.			
					Skill Score_____	

Skill	Materials	Directions	Performance Criteria	Trial 1	Trial 2	Score
5. Kick a Stationary Ball	An 8-10 inch ball (20.3-25.4cm) (plastic, playground, or soccer ball), tape or marker, a wall, and clear space for Kicking.	Mark off 1 line about 20 feet (6.1m) (6.1m) from the wall and a second line 8 feet (2.4m) beyond the first line. Place the ball on the first line closest to the wall. Tell the child to run up and kick the ball hard toward the wall. Repeat a second trial.	1. Rapid continuous approach to the ball. 2. Child takes an elongated stride or leap just prior to ball contact. 3. Nonkicking foot placed close to the ball. 4. Kicks ball with instep of preferred foot, (not the toes).			
					Skill Score: _____	
6. Overhand Throw	A tennis ball, a wall, 20 feet (6.1m) of clear space.	Attach a piece of tape on the floor 20 feet from the wall. Have the Stand behind the tape line facing the wall. Tell the child to throw the ball hard at the wall. Repeat a second trial.	1. Windup is initiated with a downward movement of hand and arm. 2. Rotates hip and shoulder to a point where the non-throwing side faces the wall. 3. Steps with the foot opposite the throwing hand toward the wall. 4. Throwing hand follows through after ball Release across the body toward the hip on The non-throwing side.			
					Skill Score: _____	
7.Underhand Throw	A tennis ball, tape, a wall, and 15 feet (4.6m) of space.	Attach a piece of tape 15 feet (4.6m) from the wall. Have the child stand behind the tape line facing the wall. Tell the child to throw the ball underhand and hit the wall. Repeat a second trial.	1. Preferred hand swings down and back reaching behind the trunk. 2. Steps forward with the foot opposite the throwing hand. 3. Ball is tossed forward hitting the wall without a bounce. 4. Hand follows through after ball release to chest level.			
					Skill Score: _____	

TOTAL OBJECT CONTROL SCORE #: _____

TOTAL GROSS MOTOR SCORE $: _____

SCORING NOTES:

*** Directions for all test items require you to first give the child a good demonstration of the skill which includes all of the performance criteria, give the child a practice trial, followed by 2 test trials that you score. Score each performance criterion as 1= performs correctly or 0= does not perform correctly.**

**** Performance criteria scores are calculated by summing the score on trial 1 and trial 2 for each performance criterion.**

*****Skill scores are calculated by summing down across all of the performance criteria scores for each skill.**

******The total locomotor subtest score is calculated by summing all 6 locomotor skill scores.**

 # The total object control subtest score is calculated by summing the 7 object control skill scores.

$ The total gross motor test score is calculated by summing the total locomotor subtest score and the total object control subtest score.

When testing a child, if you are unsure of whether the child performed a performance criterion correctly, administer another trial and just look at that performance criterion and score it.

It is recommended that when testing young children or children with a disability who appear to be distracted easily, to have them stand on a small poly spot or other marker and tell them to stand on the marker and watch your demonstration. It is also helpful to use another poly spot or marker as the child's starting position for the locomotor skills. Giving these children more structure during your testing should be helpful.

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The Phenomenological Ethnographic Perspective: A Research Tool for Enhancing the Empowerment of the Disabled

Invited Speaker

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ABSTRACT

From an early stage of my development as an anthropologist I had been fascinated by the need for phenomenological ethnographic research to be carried out. Drawing upon the practice theory of Pierre Bourdieu (1977, 1990) and the phenomenological position of 'being in the world' triumphed my Maurice Merleau-Ponty (1962, 1965) that together can help establish a robust understanding of embodiment, this paper highlight how social researchers in APA would benefit from using ethnographic methods, particularly participant observation. The embodied researcher is in a great position to shed light upon the cultural practice of APA through the use of the ethnographic tool kit that includes not only participant observation but also archival work and discourse analysis, as well as various forms of interview techniques. There is of course a balance to be had in adopting a phenomenological ethnographic position where the researcher needs to situate themselves between a community insider and outsider (Howe and Silva, 2012). As researchers we have a moral obligation to not only present our work for scholarly digestion but make it easily accessible to practitioners and clients alike. This paper endeavours to provide pedagogical insights from a lifetime as a flaneur and a short career as an academic in the field of APA that will help researcher embrace this useful method. Ultimately it is hope with more researchers embracing a phenomenological ethnographic perspective we can begin to fast track APA's empowering potential in the lives of the impaired, which for so long has promised so much but to date has often failed to deliver.

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INTRODUCTION

What is it like being a disabled researcher walking into the field of adapted physical activity (APA)? From the outside it seems like a welcoming friendly environment where those involved are working to eliminate the impact of difference on APA. However, my experience was that APA was a rather alienating environment in the first instance and this was a shock and surprise to me. Perhaps this is because I embody an APA client but have the agency of a professional in the field. Regardless of why the APA field felt this way I had expected it to be open and welcoming. What I did not expect was the high number of individuals involved in the field who have so little understanding of the realpolitik that is going on around us in our daily practice, research and teaching. Because of my training as an anthropologist I became interested in why the field of APA to a large extent does not really understand itself. Some clarification is needed here: I am not saying that individual scholars and practitioners are not for the most part mindful of what they are doing nor am I suggesting they are engaged in this field of study for reasons other than attempting to make "the world a better place", but many in the field (myself included perhaps) lack critical insight into how our practice positively and negatively impacts upon individuals who engage with our services. As an international institutionalized practice we need to be constantly reminded of what the agenda is within this field and be mindful of the cultural political hurdles that need to be overcome.

To my mind our agenda is quite simply to provide enhanced opportunities for individuals with impairments to empower themselves. How we go about achieving this aim is often very discipline specific and as such I am less certain how a biomechanist or a physiologist will specifically achieve these aims. What is certain to me is that we all need to engage in the practice of APA research with an open questioning mind that takes nothing for granted. There will be those in the audience who suggest that sport sciences, in the broadest terms, are objective pursuits and it is simply a question of running laboratory tests to find out how the body works mechanically or chemically. However, studies in the field of medicine and other laboratory-based sciences have to date shown us that laboratories are far from utopian spaces and we need to be clear that what goes on in these sterile spaces has social and political implications (Foucault, 1973).

In my youth I wanted to be a scientist of sorts. My journey into the field of social cultural anthropology came via the chemistry lab. It was my intent on entering university to be a chemistry or physics teacher and to my amazement I feel passionately in love with the exploration of cultural politics in what has become my vocation. As a result of early training in sciences I am aware of the beliefs associated with the sterility of laboratory environments and this desire for the cleansed and pure is still central to by disposition as an anthropologist in hunt for the (or perhaps more accurately my) social truth (see Bourdieu, 1977). Where does this take us in terms of trying to understand a phenomenological ethnographic perspective in APA? What I will argue in this presentation is that practitioners, natural and social scientists and philosophers need to be mindful of is that there is a direct connection between action and its associated reaction and the level of agency available to our client population. By this I mean simply that all individuals within society react and respond to the actions of others. This interpretation of the social world where we are both agents and actors under a structure that is imposed upon us is derived from the work of French social thinker Pierre Bourdieu (1977, 1990). Bourdieu's understanding of cultural politics that at one and the same times facilitates individual freedom and restricts us is I believe manifest in the field of APA. As professionals and/ or practitioners were have the freedom to act in certain ways but there are pressures placed upon us to restrict this movement. It is important to make the science and practical provision of APA more robust and be continually conscious of the need to be open to different interpretations of what bodies can and cannot do.

Before I make a claim for the adoption of phenomenological ethnographic methods within the broader field I think it's apposite to explore the political background that is the foundations on which the academic field of disability studies has been based. From here I will suggest that

within the field of APA we need to be mindful of this politics and then may be ready to embrace a phenomenological ethnographic perspective as a preface to our research.

Cultural-Political Background: Cultural-political understanding and interpretation of APA, as provided by both anthropology and sociology have in recent years been out of favour within this field of study. This is perhaps a result of the desire of those who work within this field to distance themselves from the political activism that has been the central tenet of the development of the multi- disciplinary field – albeit social scientifically focused – of disability studies since the late 1970s. 'The disabled' were established by early scholars in disability studies as a homogeneous collective who are oppressed by able society (Zola 1981). In his classic text

The Politics of Disablement Michael Oliver (1990) suggests that a disability has been defined traditionally as an individual loss or restriction in terms of ability and suggests that this is politically problematic.

Following Oliver (1990) social scientists working in the field of disability studies began to criticize the way in which society has traditionally treated individuals with impairments. Disability studies made a name for itself by offering a critique of western medical practice claiming that this had led to the marginalization of people with impairments. In particular these scholars believe that the categorisation of impaired people using a medical system leads to them being singled out as different from normal healthy people, and therefore to their treatment as inferior. Here the link between political activism and the development of an academic discipline is clear (Campbell and Oliver 1996). The politics associated with 'the disabled' may seem counter-productive when researchers in physiology, biomechanics and psychology amongst other disciplines pursue research in adapted physical activity.

Much of the research in APA starts off with the bodies of participants already categorised largely on the basis of functional difference with this status quo seldom questioned. To social scientists, however, this is troublesome. Although many scholars within APA would largely accept what has become known as the 'social model of disability' which suggests that any negative impact on a disabled person's life that is a result of their impairment (by this I mean the physical or sensory lack of bodily function a person may have) is a direct response to how society is structured these scholars have often failed to recognize that the discipline and practice associated with APA is itself a social construction. The social construction of APA impacts upon the viability and freedom of impaired populations to choose when and how they engage in sport and leisure activities. Meanwhile, for those who are involved politically in disability advocacy the articulation of the disabled community as homogeneous has eliminated the body and thus specific disabilities from the debate. The argument that is made is that because it is the body that marginalises the disabled community it should be removed from the political debate (Campbell and Oliver 1996).

The elimination of embodiment from early political activism and subsequent academic discourse surrounding disability presented a conundrum when social scientists begin researching APA. The practice of sport is fundamentally about enhanced bodily performance and yet disability studies do not traditionally provide a platform for the critique of embodied difference having ultimately eliminated it from discussions. As a result sport was not and to an extent is not seen by disability activists and scholars as a serious political battlefield both because it brings the physical body into focus but also because the embryonic stage of development of even high performance sport like the Paralympic Games is rehabilitative in nature. Many if not all individuals who acquire a disability through an accident and a vast majority who are born with congenital deformity are enrolled in rehabilitative programmes that are designed to minimize the influence of the abnormal body. In such programmes sport is seen in a very functional way as instrumental to a disabled person's socialisation.

We need to better understand ourselves and how our physical embodiment impacts on our role in the social world of APA if service is to be improved. I believe this can be achieved by adopting a phenomenological ethnographic

perspective before and during our research, teaching and practice within APA.

Adopting a Phenomenological Ethnographic Perspective: Before we can adopt a phenomenological ethnographic perspective it is important that we are clear what I mean by the phrase. Phenomenology to me is a method of inquiry based on the premise that reality consists of objects and events as they are perceived in our state of consciousness. Social scientists endeavour to capture experience in process of it being lived, through descriptive analysis. It is also a method of learning about another person by listening to their descriptions of what their subjective world is like for them, together with an attempt to understand this in their own terms as fully as possible, free of our preconceptions and interferences. In other words we do this 'naturally' with each and every interaction we have with others using our preconceptions to turn everything into something other than it actually is, one or two steps removed from direct unfiltered experience. The phenomenological turn then strives to clarify our receiving abilities and rediscover the social world as it actually exists, even though we know that this is ultimately impossible as cultural representations can never be entirely objective (Marcus and Fischer, 1986; Coffey, 1999).

Phenomenology as articulated in the work of Merleau-Ponty (1962, 1965) adopts a position of 'being in the world' that dovetails nicely with the ethnographic method of participant observer whereby the researcher is at one and the same time collection data related to their field of study but also themselves. Hammersley and Atkinson (1995) remind us that we need to balance our position in relation to the field as neither 'insider' nor 'outsider' in order to make the best interpretation. Getting this right can be difficult. I have attempted to use this method in a paper entitled Reflexive Ethnography, impairment and the pub (Howe, 2009) where I used my position as a participant observer to make sense of the world of disability and ablest assumptions that might befall impaired individuals in leisure spaces. My training as an anthropologist facilitates an understanding of how data can be collected in this manner – but perhaps you are a natural scientist or an APA practitioner –how do you go about taking a phenomenological ethnographic perspective to understand the world of APA that is around you?

The social environment surround APA where we conduct our research, engage in teaching and/or programme facilitation is dynamic and ever changing we need to be mindful of this and continually reflect on our position in the field. Alfred Schutz (1971 [1944]) a wartime social scientist and philosopher suggests that by adopting the role of a stranger we are able to enhance our understanding of the social world around us. If we reflect on our first time in a foreign country we can easily understand the strange uneasy feeling that we get when things are different than usual. This unease is a powerful tool when developing a phenomenological ethnographic perspective. We need to harness this feeling to provide more clarity of the world around us. In developing a phenomenological sociology Schutz (1973) believed that the study of social reality was largely ignored because there is a sense that a fragmented understanding of society is enough if we are going to function in it. In the world of the social scientist and philosopher this action leads to the construction of the Other. 'We normally 'know' what the other [in his biographically determined situation] does, for the reason he does it, why he does it at this particular time and in these particular circumstances (Schutz, 1973: 55).

Creating Others out of clients in APA is problematic and the division between us and them needs to be eliminated. We need to adopt the role of a stranger in a particular way. We need to use it to enhance our understanding of what people know – but they are unaware that they know (Last, 1981). By enacting the role of a stranger, observing the common as uncommon, by letting other tell you how things work we can find out important information about their understanding of the world around them. In the context of participants in laboratory test or activity programmes it is vital that we let them tell us what they can and cannot do before we rush about changing environment to how we feel they would be better served. Only by being a good listener, almost a stranger, in their world can we help to facilitate them in the achievement of their potential and their goals.

Do not be afraid to embrace the uneasy stance of a tourist or a stranger when engaging with clients in a variety of APA settings. It is a difficult position to maintain, in environments that are all too familiar, but attempting to do so will enhance all of our abilities to use our embodied selves as vehicle to engage in phenomenological ethnographic insights that I believe will improve the quality of work that we all do.

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On The Road to Inclusion – The Contribution of APA From an Educational Perspective

Invited Speaker

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ABSTRACT

In 2006, the Convention of the United Nations on the rights of persons with disabilities was adopted by the General Assembly. Since then in many countries action plans have been developed with the aim to ensure full implementation of the Convention. At the heart is the concept of "inclusion" which means that all areas of society, including physical education and sport, must be open for persons with disabilities thus ensuring equal opportunity and access. Over many years, experts in the multi-disciplinary area of "Adapted Physical Activity (APA)" have drawn the attention of their professional colleagues and the general public to the fact that huge inequalities exist between persons without disabilities and those with disabilities regarding their participation, their access, their involvement in leadership positions and their choices and opportunities in physical education and sport.From an educational perspective it can be noted that inclusive approaches both in theory and practice have a long tradition in APA. Inclusion did and does refer to physical education and sport settings as well as to the training of teachers, coaches and other professionals. Currently many excellent examples of inclusion can be found, however, despite progress, there is still a long way to full inclusion and equality.Amongst the many obstacles are not only attitudes and barriers, but also current structures in educational and sport systems. Many professionals in APA have been and still are strong promoters of equity and equality in sport and in society in general. The UN Convention on the Rights of Persons with Disabilities opens new opportunities to promote and support all efforts towards equal participation of persons with disabilities. The APA network in particular can play a leadership role in implementing the UN Convention.

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INTRODUCTION

For several decades, the United Nations has made efforts to ensure human rights and equality for all people, including persons with a disability. There have been many milestones meant to guarantee full participation of persons with disabilities in all areas of society including physical education, physical activity and sport. Already in 1981, for example, the United Nations had proclaimed that year to be the "Year of Disabled Persons" which was followed by the "Decade of Disabled Persons" from 1983-1992. In 2006, furthermore, the landmark Convention of the United Nations on the Rights of Persons with Disabilities was adopted by the General Assembly. The International Federation of Adapted Physical Activity (IFAPA) has recognised and supported the Convention as an important achievement on the road to inclusion and equality, explicitly stressing that everyone deserves the human rights outlined in Article 30.5 of the Convention, not just athletes at the elite levels (Sherrill 2008).

Although many countries have developed action plans with the aim to secure the full implementation of the Convention, there are still challenges to realising the Convention's goals. Documents at national levels put emphasis on the fact that the concept of "inclusion" is at the heart of the Convention. However, controversial debates exist in some countries concerning differences and similarities of the concepts of "integration" and "inclusion", sometimes based on different philosophical and educational approaches. Another reason for controversy can be found in different terms being used when translating the Convention from English into other languages.

Other challenges for inclusion in terms of the Convention are found when trying to connect actual initiatives to its aims. Accordingly, this paper will present past and current developments and initiatives in the area of "adapted physical activity" and relate them to the relevant areas of the Convention with a special focus on education as well as physical education and sport. Additionally, this paper will not only consider education in its formal settings such as classrooms, but also in the context of informal learning which often takes place outside official school systems, for example, in various recreational venues (Doll-Tepper 2011). First, it is helpful to review the background of APA along with its important developments.

Adapted Physical Activity (APA): Background and Important Developments: When the term "adapted physical education" was first used in 1952 by the Committee on Adapted Physical Education/American Alliance for Health, Physical Education and Recreation (AAHPER) the following definition was given: "Adapted physical education is a diversified program of developmental activities, games, sports, and rhythms suited to the interests, capacities, and limitations of students with disabilities who may not safely or successfully engage in unrestricted participation in the vigorous activities of the general physical education program" (Committee on Adapted Physical Education/AAHPER 1952, 15). The focus during this period of educational approaches was on offering physical education and sport as part of the school curriculum, but in separate school settings for "able-bodied" children and children with a disability.

However, by the 1970s, school laws in many countries around the world had been changed, requiring integrated or inclusive school settings. Along with this change was a shift from focussing on adapted physical education per se to considering a wider range of adapted physical activities; since then, the scope of "adapted physical education" has expanded to include multi-disciplinary areas of adapted physical activity (APA). Experts in APA have drawn the attention of their professional colleagues and the general public to the fact that vast inequalities exist between persons without disabilities and those with disabilities regarding their participation, their access, their involvement in leadership positions, and their choices and opportunities in physical education and sport (see Sherrill & DePauw 1997).

From an educational perspective, inclusive approaches both in theory and practice have a long tradition in APA. As early as in 1986, DePauw published her "progressive inclusion and acceptance model" (DePauw 1986, 3) describing historical and current developments in education, thus emphasising changes in philosophical approaches and institutional structures that moved towards the inclusion of persons with dis-

abilities. Also, institutional structures in education with regard to children and youth with disabilities have changed tremendously during the last decades. Whereas students with disabilities were once systematically excluded from school attendance, now we see participation in special school settings and an increased integration and inclusion into "mainstream" schools.

Particularly during the 1990s, these challenges were clearly identified. "Always adapted physical activity has sought to serve individuals that comprise social minorities on the margin of mainstream inclusion and acceptance" (Sherrill 1996, 387). Indeed, the "Decade of Disabled Persons" from 1983-1992 was an important precursor to the Convention of the United Nations on the Rights of Persons with Disabilities. Article 24 of the UN Convention focused on "Education" states:

"State Parties recognize the right of persons with disabilities to education with a view to realizing this right without discrimination and on the basis of equal opportunity, State Parties shall ensure an inclusive education system at all levels and lifelong learning" (UN 2006).

An inclusive school system requires teachers and personnel who are well-prepared and trained to work in an educational environment which includes children and youth with diverse abilities and backgrounds. The following section of this paper will address the training of important APA personnel.

The Training of Teachers, Coaches and Other Important APA Personnel: As a consequence of extended special school programmes in the 1970s, including adapted physical education for children with disabilities, the need for APA staff grew tremendously. Many universities and institutions of higher education offered programmes and degrees in special education and adapted physical education. It is interesting to note that DePauw – almost thirty years ago – stated in this context:

"Although the need for specialists still exists, because the emphasis was placed on training of that specialist, the generalist in physical education was almost forgotten. As the spiral moves closer to inclusion, the need for the specialist in adapted physical education decreases while the need for adequately trained generalists in physical education increases" (DePauw 1986, 5).

This decades-old dispute about the roles and responsibilities of the specialist against those of the generalist continue to be central to debates on APA. For example, this is seen concerning professionals in special education versus generalists with some basic knowledge of disability-related issues regarding the placement of these actors in the school system.

Worldwide, many different approaches to APA exist; mandatory courses on disability and inclusion are sometimes required in teacher education programmes. In this context, it is helpful to refer again to the Convention regarding education:

"State Parties shall take appropriate measures to employ teachers, including teachers with disabilities, who are qualified in sign language and/or Braille, and to train professionals and staff who work at all levels of education. Such training shall incorporate disability awareness and the use of appropriate augmentative and alternative modes, means and formats of communication, educational techniques and materials to support persons with disabilities." (UN 2006)

When considering APA from an educational perspective, we can see how the UN Convention outlines clear goals of inclusive physical education and activity.

Approaches in APA also go beyond places of formal learning; specific training is also required for instructors and coaches who work with individuals with disabilities, either in segregated or integrated settings outside the classroom. Growing interest from the general public and the media in global events of sport for athletes with disabilities, such as the Paralympics, Special Olympics World Games and Deaflympics, have had a significant impact on the professionalisation of this area of sport, which includes training and competition opportunities and the involvement of highly qualified coaches. Part of this professionalisation has also led to a growing body of research activities and publications in the area.

Research Activities and Publications: Research interest and activities have grown enormously since the foundation of the International

Federation of Adapted Physical Activity in the early 1970s. From an educational perspective, it is interesting to note that the area of adapted physical education/activity has been closely linked to developments in society, and in education in particular, where the term "inclusion" has been increasingly used since the 1990s. Controversial debates concerning the benefits of inclusion existed during these early years and they still continue to exist. "Whether in formal debates at processional meetings or informal gatherings in teacher's lounges nothing can divide a group of educators into two camps like discussions on inclusion" (Reid 2003, 139). Hence the importance of considering APA from an educational perspective.

Very often in these debates are complaints about a lack of training and educational material for teachers, instructors, coaches and other actors involved in education. However, a review of the existing literature – mostly in the English language – shows a great number of handbooks and teaching instructions on "inclusion" and adapted physical activity. Very often these publications use a multidisciplinary approach and provide excellent overviews of theoretical frameworks and practical applications.

Specific publications on "inclusion" through adapted physical activity, sport, or both have existed for about 20 years as well, e.g. published by the Australian Sports Commission (1995), Block (1994), Davis (2002) and many others. Teaching material, manuals, and handbooks such as these are extremely important resources which "can pave the road to inclusion". It is therefore essential to develop such material in different languages, thereby taking the specific culture and traditions of a country into consideration, and making these materials available to all people in teaching professions, both inside and outside school settings.

Adapted physical activity based on research that focuses on various aspects of activities and different kinds of disability has made progress during the past decades.

Since its first appearance in 1984, the scientific journal Adapted Physical Activity Quarterly has offered an important platform for sharing scientific findings and encouraging professional debates. Besides addressing specific issues of persons with a disability and selected physical activities and sport, there have also been several articles on inclusion that discuss philosophical approaches, developments in society and in physical education and sport as well as presenting innovative models.

International Cooperation and Networks: Starting especially in the 1990s, contributions to research-based developments in education with respect to APA were made by representatives of IFAPA when intensifying cooperation and collaboration with experts of disability sport organisations such as the International Paralympic Committee (IPC), Special Olympics International (SOI) and the International Committee of Sport for the Deaf (ICSD). Important connections between other international organisations for physical education and sport were also established, particularly regarding the Fédération Internationale d'Education Physique (FIEP), the Association Internationale des Ecoles Supérieures d'Education Physique (AIESEP) and with the International Council of Sport Science and Physical Education (ICSSPE) as well as with UN agencies such as UNESCO and WHO.

Interaction and cooperation with these different organisations and institutions laid the foundation for an improved base of knowledge and a regular international flow of information about APA in terms of education. Moreover, experts in the area of APA shared their knowledge in various contexts such as seminars, conferences and international conventions. Excellent examples are the biennially organised symposia that focus on APA from different scientific perspectives, special and inclusive sessions at conferences, e.g. of AIESEP and on the occasion of the International Conventions of Sport, Education and Medicine in Sport (ICSEMIS).

When highlighting the educational contributions of APA towards the equality and inclusion of persons with disabilities, it is important to emphasise the development of various networks on international and continental levels that feature programmes of APA studies at universities. For example, the European network, initially named European Association for Research into Adapted Physical Activity (EARAPA), now called European Federation of Adapted Physical Activity (EU-

FAPA), was highly successful in setting up programmes such as the European Master's Degree in Adapted Physical Activity (EMDAPA) in 1991, which became the Erasmus Mundus Master's Degree in APA (EMMAPA) in 2005. Other joint initiatives were created such as the Thematic Networks in APA (THENAPA) and the "The European University Diploma in APA (EUDAPA)".

All these initiatives that focus on education in APA, both in formal and informal places of learning, have had long-lasting effects in promoting and protecting the human rights of persons with disabilities. Sherrill (1996) stated "increasingly, adapted physical activity acts as a catalyst and conscience in promoting integration and access. Adapted physical activity is becoming a political movement in the same sense as feminism, which now advocates for acceptance of all forms of diversity" (Sherrill 1996, 387). Therefore, the educational goals of APA cannot be separated from the general goals of APA to advance and support inclusion in all spheres of society.

Participation in Physical Education and Sport: APA professionals have always been advocates for full educational participation of persons with a disability in all settings. Learning does not only have to take place formally; APA from an education perspective must also consider the wide range of instruction and training, both inside and outside of schools. This approach corresponds with the statements made in Convention:

a. To encourage and promote the participation, to the fullest extent possible, of persons with disabilities in mainstream sporting activities at all levels;

b. To ensure that persons with disabilities have an opportunity to organize, develop and participate in disability-specific sporting and recreational activities and, to this end, encourage the provision, on an equal basis with other, of appropriate instruction, training and resources;

c. To ensure that persons with disabilities have access to sporting, recreational and tourism venues,

d. To ensure that children with disabilities have equal access with other children to participation in play, recreation and leisure and sporting activities, including those activities in the school system' (UN 2006).

By following these terms of the Convention, APA experts will continue to advance the goal of a fully inclusive society regarding formal school systems and beyond.

A particular contribution from APA experts to help create equal access to physical education for all young people in school settings was made on the occasion of the World Summit on Physical Education I 1999 in Berlin, Germany, and the World Summit on Physical Education II 2005 in Magglingen, Switzerland. Both international events helped to raise awareness of the positive benefits of physical education for all young people: "Quality Physical Education: is the most effective and inclusive means of providing all children, whatever their ability/disability, sex, age, cultural, race/ethnicity, religious or social background, with the skills, attitudes, values, knowledge and understanding for life long participation in physical activity and sport ..." (Doll-Tepper & Scoretz 2001, 115). Research findings and documents of the World Summit 1999 were compiled and accompanied by the "Berlin Agenda for Action for Government Ministers" (Doll-Tepper & Scoretz 2001, 115), which served as a basis for the deliberation and recommendations of the 3rd International Conference of Ministers and Senior Officials responsible for Physical Education and Sport (MINEPS III), held in Punta del Este, Uruguay, in 1999. Since these milestone summits, experts in physical education/adapted physical education and sport science have continuously advocated for the provision of quality physical education for all.

Sport Structures – An International Comparison: When comparing sport organisations at national and international levels it is obvious that very diverse structures exist. First, comparing national levels with each other, we can see that in some countries, separate organisations for different sports for persons with different disabilities exist. In other countries, there is one umbrella sport organization for persons with disabilities. There is also sometimes one organiza-

tion for sport for most kinds of disabilities, with the exception of deaf persons. In recent years, structures of sport organisations in some countries have been changed, for example, by merging Olympic and Paralympic sport as well as all other sport federations. This is the case in Norway, where there is an inclusive organisation named the "Norwegian Olympic and Paralympic Committee and Confederation of Sports".

On the international level, there are currently three umbrella organisations for sport for persons with a disability:

The International Paralympic Committee (IPC);

The Special Olympics International (SOI), and

The International Committee of Sport for the Deaf (ICSD)

All of these organisations are recognised by the International Olympic Committee (IOC). They are also closely linked to International Sports Federations (IFs). Education is given high priority in all of these organisations.

Outlook: Based on the UN Convention, the following measures should be taken in order to ensure equality:

Encouraging and promoting of participation in mainstream sporting activities

Organising, developing and participating in disability-specific sporting and recreational activities

Ensuring access to venues and to services

Ensuring equal access for children to participate in sport and physical education in schools

Developing action plans and putting systems for monitoring in place (see UN 2006).

Many experts in the multi-disciplinary area of adapted physical activity have been and still are strong promoters of equality and equity in sport and in society in general. "However, … there are still many societal challenges facing persons with a disability in relation to equal access to opportunities. This is particularly true in relation to access to physical education in schools, community recreational opportunities, and competitive and elite sport environments" (Wheeler 2003; XVII). Examples from this current paper on APA from an educational perspective have shown that since the publication of Wheeler's article ten years ago, colleagues in different countries have reported progress towards these ends.

The 2006 UN Convention on the Rights of Persons with Disabilities opens new opportunities to promote and support all efforts towards the equal participation and employment of persons with disabilities. This paper focused on specific aspects related to persons with disabilities, such as physical education/activity and sport from an educational perspective; however, it is important to also address other aspects which are included in the Convention, such as raising awareness, accessibility, living independently, and being fully included and involved in health, work, employment and the general community.

Article 11 of the Convention on "situations of risk and humanitarian energies" states that "State Parties shall take … all necessary measures to ensure the protection and safety of persons with disabilities in situations of risk, including situations of armed conflict, humanitarian emergencies and the occurrence of natural disasters" (UN 2006). During the last 10 years, experts in APA have participated in – sometimes even initiated – programmes and projects using sport and adapted physical activity in post-disaster intervention and in rebuilding communities after war and conflict situations or natural disasters (see Lauff 2008).

These are examples of the broadening field of APA and the emergence of new challenges for educational professionals and experts in APA; it also shows the various facets of involvement and responsibility of actors involved with APA. The APA network can play a leadership role in implementing the UN Convention in regard to its terms of education and learning, both in formal and informal settings. The contributions of APA experts can already be seen in the recommendations of the 5th International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport (MINEPS V) to be held in Berlin, Germany, in May 2013.

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Progressive Inclusion: APA From a Sociological Perspective

Invited Speaker

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ABSTRACT

Progressive inclusion of individuals with disabilities into sport and physical activity has been a welcomed trend over the past 30 years. We know that as cultural phenomena, sport and physical education have reflected and reproduced the values, norms and standards of society or cultures. One of the primary indicators of progressive inclusion was the evolution of disability sport and adapted physical activity. Adapted physical activity has and can continue to facilitate inclusiveness and embrace cultural diversity through pedagogical practices and programs. The awareness of cultural diversity and different abilities provide a crucial basis for further developing sport, physical activity and physical education. The purpose of this presentation is to provide a socio-cultural perspective of individuals with disabilities, their challenges and expectations for inclusion in physical activity, and ways in which adapted physical activity & sport assist with societal change.

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In 1986, I published a viewpoint article in Adapted Physical Activity Quarterly (APAQ) entitled "Toward Progressive Inclusion and Acceptance: Implications for physical education" (DePauw, 1986). In the paper, I described briefly the historical "treatment" of individuals with disabilities, proposed a spiral of societal response and provided evidence that the trend was toward progressive inclusion and acceptance of those with disabilities. Specifically, I advocated for descriptions and recognition of a continuum of performance rather than labels and "handicapping" conditions, encouraged adoption of a non-categorical approach and wrote about the need for specialists and well prepared generalists. On the occasion of the 2013 International Symposium on Adapted Physical Activity (ISAPA) in Istanbul, Turkey, I'm delighted to offer some reflections about progression inclusion and adapted physical activity some 25+ years later.

Progress: Adapted physical activity (APA) as an academic discipline and a professional society has definitely evolved over the past 25 years. From my perspective, APA has moved and continues to move along the path toward inclusion in our programs and opportunities of physical activity and sport for individuals with disabilities and the professional development of APA specialists. A few examples. Today, there is an officially recognized certification for adapted physical education specialists (CAPE) and increased education and training for non-APA specialist teachers, coaches, athletic trainers, and more. Through our research and publications, educational programs and general advocacy, APA has helped physical education and sport to become aware of the ability and aspirations of individuals with disabilities and ultimately to enhance and expand programs and opportunities to become more inclusive. Perhaps the most visible of these opportunities have occurred in sport. We see more international and national competitions (e.g., Paralympics), more intercollegiate athletics programs and scholarships (e.g., University of Illinois), athletes with disabilities competing successfully in marathons (e.g., Jean Driscoll in Boston Marathon) and the Olympic Games (e.g., Marla Runyan, Oscar Pistorias), and governance of international sport (e.g., IPC, IOC membership for IPC President, 2012 London Olympic Games). Progress has been made with yet still more to do.

Over the years, the language used to define and describe individuals with disabilities has evolved especially in the United States but also worldwide. Less emphasis has been placed on labels, the "handicapping conditions" and the limitations of one's being. More attention has been given to understanding more about the abilities of individuals with disabilities. APA has expanded to include more inclusive physical education programs and those that utilize a non-categorical approach.

Society has tended to move away from the medical model to a sociological approach to disability. The medical model still exists but is less predominant than in the past. Disability Studies has emerged as an academic area of focus that has forced the conversation about disability rights, equity and social justice. The historical and traditional static wheelchair symbol ♿ is giving way to a more active and accurate representation of wheelchair users and individuals with disabilities in general. Recently in the Chronicle of Higher Education (May 20, 2013), it was reported that a "team of academics have redesigned" the wheelchair icon which is has the potential to change the city of New York (http://chronicle.com/article/New-York-City-Embraces-a/139355/). Once again, progress has been made but there's still more to do. Progress has come with "deliberate speed".

Attitudes and cultures are perhaps the most difficult to change and often require some initial changes in behavior. For example, in the U.S., we have seen many laws enacted and decisions made to remove barriers to inclusion which has led to more inclusion of individuals with disabilities in schools, sport and society. Over time, access leads to adaptation (different ways to thinking and doing) that ultimately leads to transformation. One example is the inclusion of Jessica Long, a Paralympic swimmer who was a finalist for USA Today athlete of the year in 2007. At that time, Long was 15 years old, had 18 world record-breaking performances and held the world record in 12 Paralympic swimming events. Long, whose legs were amputated below the knee, learned to swim in her grandparents' pool and had already won at least three medals

in the Paralympic Games. Her photo alongside the others was presented in March 2, 2007 issue of USA Today. Access to sport provided opportunity. Change in thinking was needed to consider her among the finalist and transformation was in progress such that the public could visualize her as an athlete.

Ongoing Dialogue: Inclusion continues to be a debated topic. While most APA professionals accept that inclusion of individuals with disabilities in physical activity and sport is a positive goal, we tend to differ on how best to accomplish inclusion let alone describe or define exactly what "inclusion" means. In the developed world, I see evidence of more concentrated effort and a great variety of activities promoting inclusion where individuals with disabilities and the able-bodied world interact. But to realize fully progressive inclusion and acceptance, we must "pass one more time around the continuum toward inclusion" (DePauw, 1986).

A very fine example of the progress that has been made is the Inclusion Club (www.theinclusionclub.com) founded by Ken Black and Peter Downs. They developed a website (The Inclusion Club) with the purpose to provide resources for inclusive physical activity and sport and to "help you provide opportunities for people with disability to participate in sport and physical activity." It is a rich resource and providing one of the most revealing lessons about how far we have come (or not) about inclusion in Episode 43 posted in March 2013. The episode was entitled "Is This Inclusion? Four Videos, One Question" (Is This Inclusion? Four Videos, One Question.). Four videos were shown and the viewers were asked to reflect on the extent to which the video presented was an example of inclusion. Viewing the videos and reading the rich commentary provided by multiple viewers led me to conclude that as a society many remain influenced by traditional stereotypes, attitude and cultural experiences. The APA specialists and other professionals can often identify what is truly inclusive and that which is not. Conversations like what was shared on the Inclusion Club need to occur more often so that society can continue to enhance the public's understanding of inclusion.

Today, we can find positive examples of inclusive environments and can still see attempts to "include" which are not successful and perhaps even unintentionally hurtful and reinforcing of stereotypes. Stereotypes are often difficult to identify and to dismiss from our consciousness. Hutzler and Bar-Eli (2013) recently published an article addressing the issue of bias while adapting to inclusion in physical activity programs. This article is significant as an example of progress toward inclusion in that it was published in QUEST, the journal of the National Association for Kinesiology in Higher Education (NAKHE) that reaches an audience well beyond APA professionals. It is also important because of the topic of bias in the context of inclusion and adapting physical activities but it also informs us of the progress we have yet to make in society and the work that still needs to be done.

Closing Thoughts: In continuing toward progressive inclusion and acceptance of individuals with disabilities within society, we still need to address underlying concepts such as normal, the perfect or able body and their influence upon understanding disability. Philosophers have written about these for centuries: sociologists, APA and disability studies scholars more recently.

As a word, 'normal' acquired its present most common meaning only in the 1820s. During the 19th century, the word normal became indispensable because it created a way to be "objective" and impartial about human beings. And thus, as Hacking (1990) argued, "normal has become on of the most powerful ideological tools of the 20th century" (p. 169) and remains so in the 21st century. Our current notions of ability are related to socially constructed and acceptable views of the body that are informed by the dominant cultural perspective of the "able" body. That is, the body is seen through a set of cultural default settings arrived at the wholesome adoption of ableist cultural values (Davis, 1995).

APA specialists and other professionals must embrace inclusion as an attitude that is based upon respect and value for all people (Seaman, DePauw, Morton & Omoto, 2007). In physical activity and sport, inclusion is a way to promote and provide opportunities for individuals with disabilities – using an "approach that promotes equal opportunity

based on individual ability and not a categorical grouping based on the characteristics of one's disability" (Block & Weatherford, 2013, p. 39). Further, Block and Watherford (2013) conclude:

"Diminishing the hegemony of the normal can be accomplished by creating an awareness of the reality of embodiedness through the use of inclusion, non-categorical interactions, universal design and culturally determined interactions, methodologies... As society, we must understand and recognize when individuals with disabilities expect to be included or segregated. Authentically connecting with individuals with disabilities and welcoming them into the culture of the group can accomplish this expectation. In doing so, the culture will change, individuals in the group will grow, society will benefit and everyone will become differently better" (p. 42)

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Leadership Education and Training in Adapted Physical Activity in Hong Kong

Invited Speaker

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ABSTRACT

Physical activity (PA) is an important part of a healthful lifestyle for children and it reduces risk of secondary conditions in children with disabilities. Despite the known health benefits of PA, evidence indicates that children with disabilities are less likely to participate in organized and free-play activities than their peers without disabilities. For children to be sufficiently active there needs a supportive school environment where they can meet recommended PA standards through structured and unstructured periods. In Hong Kong, special schools, rather than mainstream schools, are the tradition. In this presentation, the role of special school environments in promoting PA in children with disabilities during school time will be examined. Specifically, different observation tools to assess children's PA and its associated modifiable contextual characteristics will be discussed. Additionally, by applying the children and youth version of the International Classification of Functioning, Disability, and Health (ICF-CY) as a theoretical framework, school-based interventions targeted at developing the fundamental movement skills and hence promoting the active behavior in children with disabilities will be highlighted. The information will provide pre-service and in-service physical educators and practitioners with current knowledge of and skills in leadership education and training in APA, which may in turn, meeting developmental needs or other needs among children with disabilities.

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INTRODUCTION

Physical activity (PA) is essential for promoting the health and well-being of people of all ages and abilities. Sedentary living is responsible for an estimated 1.9 million deaths globally (World Health Organization [WHO], 2003). Individuals with disabilities tend to be more sedentary than those without disabilities and they experience more secondary or chronic diseases such as obesity (Centre for Disease Control and Prevention [CDC], 2010). Childhood is a critical period to intervene for both prevention and remediation, and physical educators and health professionals working with children with disabilities should address the needs of and provide more PA opportunities for this underserved population (Rimmer, Rowland, & Yamaki, 2007).

Current health guidelines recommended that children should engage in 60 minutes or more of PA daily (WHO, 2008). Evidence, however, shows that children with disabilities in general fall far short of this goal and are insufficiently active for health purposes (Rimmer, & Marques, 2012; Rimmer et al., 2007). To develop effective PA interventions that combat sedentary-related problems, modifiable correlates of PA need to be studied and better understood.

Role of School Environments in Promoting Pain Children with Disabilities: Schools are one of the important settings where children can accrue health promoting PA (WHO, 2008). The accurate identification and assessment of environmental correlates of PA that are conducive to increased children's PA throughout the day is therefore critical in developing suitable PA promotion strategies. Special schools, rather than mainstream schools, are the tradition in Hong Kong (Sit, Lindner, & Sherrill, 2002). During the 2011-12 school year, 7,944 Hong Kong children with disabilities were enrolled in 60 local special schools (excluding one English Foundation Special School), serving more than 98.6% of all children with educational special needs (Education Bureau, 2011). These special schools usually house grades 1-12 and provide education services with one class per grade level and a class size about 10-15 students.

There is a growing interest in examining the role that school environments can play in providing PA opportunities and thus influencing children's PA during school time (Lounsbery, McKenzie, & Smith, 2011). Direct observation methods are important for assessing children's PA because they permit associated environmental variables to be studied and they reduce the response burden on the children (McKenzie, 2010). Different observation tools have been used to assess children's PA and its associated modifiable contextual characteristics in school environments such as the System for Observing Fitness Instruction Time (SOFIT; McKenzie, Sallis, & Nader, 1991), the System for Observing Play and Recreation in Community (SOPARC; McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006), and the Behaviors of Eating and Activity for Child Health: Evaluation System (BEACHES; McKenzie et al., 1991).

Using the SOFIT (McKenzie et al., 1991), for example, children with disabilities were found to engage in moderate-to-vigorous physical activity (MVPA) far less than the recommended 50% of the lesson time (e.g., Lieberman, Dunn, van der Mars, & McCubbin, 2000); and to accrue more PA during recess than in PE at school (Faison-Hodge, & Porretta, 2004). Findings from Hong Kong direct observation studies using SOFIT also showed that children with disabilities accrued little PA during both recess and PE, and that their PA varied across disability types, with differences attributed to lesson context and teacher behavior during PE (Sit, McManus, McKenzie, & Lian, 2007). They were also found to accrue higher levels of PA in schools that provided more support for PA (Sit, McKenzie, Lian, & McManus, 2008). These studies help to inform how physical educators (in terms of teacher behaviors and lesson contexts) and school-based PE/PA policies can influence PA of children with disabilities at schools. Physical educators, in particular, can engage children in sufficient MVPA by providing suitable curricular lesson contexts in structured settings such as PE and free play in unstructured settings other than recess.

Sit and her co-workers have recently adapted an observational tool, the SOPARC (McKenzie et al., 2006; McKenzie, & Sit, 2008), to assess children's PA during both PE and leisure time periods (other than recess) associated with contextual characteristics in special schools (Sit,

McKenzie, Cerin, & McManus, in press). Results showed that children with disabilities were not highly active across time periods, but they were more active during recess and lunch periods than at other times including PE. Overall they were sedentary during about 50% of their leisure time and they were more active in areas where supervision and organized activities were provided. This study concludes that children's activity accrual is influenced by contextual characteristics of the school environments. There is a need to promote policy changes to make areas more accessible and to use social marketing and programming to attract more users. Additionally, school and health professionals can be educated to modify contextual characteristics by providing more direct supervision and organized activities during free play.

Use of school-based interventions to develop fundamental movement skills and promote PA in children with disabilities

Findings from the aforementioned direct observation studies suggest that PA of Hong Kong children with disabilities is intermittent in nature and greatly influenced by the contextual characteristics of school environments. By applying the children and youth version of the International Classification of Functioning, Disability, and Health (ICF-CY; WHO, 2007), school-based interventions have been used to develop fundamental movement skills (FMS) and promote active behaviors in children with disabilities. According to this ICF-CY model, human functioning can be classified into several dimensions such as body structure and functions (e.g., specific disability or motor ability of a child), activities (related to tasks and actions such as FMS proficiency) and participation (engagement in a life situation such as PA participation). The contextual conditions of the surrounding environment as well as personal factors such as sex and disability types may also influence the functioning (Rimmer, 2006). This model suggests that individuals can participate more fully in a life situation through the use of interventions targeted at developing their functions.

A recent Hong Kong study showed that FMS proficiency was negatively associated with sedentary time and positively associated with time spent in MVPA in children with disabilities such as those with cerebral palsy (CP) (Capio, Sit, Abernethy, & Masters, 2012). Additionally, two most recent school-based intervention studies indicated that FMS training resulted in motor skill learning in typically developing children (Capio, Poolton, Sit, Eguia, & Masters, 2013) and children with intellectual disabilities (Capio, Poolton, Sit, Holmstrom, & Masters, 2013), with children having lower motor proficiency showing a more significant improvement than those with higher motor proficiency. The findings of these studies provide evidence that FMS training improves motor skills proficiency, which in turn, facilitates activity accrual among children with disabilities, suggesting that rehabilitation and physical education programs that support FMS development may contribute to PA-related health benefits.

CONCLUSIONS

No formal APE/APA programs are offered by tertiary institutions in Hong Kong. Given that PA is an important part of healthful lifestyle for children and that most children with disabilities are insufficiently active, physical educators and health professionals should know about the settings in which children with disabilities accrue PA. Previous studies have shown the important role of special school environments in promoting PA among children with disabilities. It is hoped that such information could provide both pre-service and in-service physical educators and practitioners with current knowledge of and skills in leadership education and training such as conducting direct observation studies in APA, which may in turn, meeting developmental needs or other needs among children with disabilities. The APA profession should serve as advocacy role in helping children with disabilities develop their active behavior, thereby minimizing health risks and maximizing opportunities for empowerment.

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Leadership Training Program of Adapted Physical Activities for the People with Disability in Korea

Invited Speaker

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ABSTRACT

The landmarks of history for special education were divided into three periods. The first stage was people with blind (1445-1898) by government centered period, The second was people with blind and deaf by facilities centered period (1898-1945),and period for the all the disabilities by school centered period(1945-present) in Korea. There were many special education institutes, special schools and regular schools including students with disabilities at special class and regular class in Korea. The purpose of this study was to investigate leadership training program of adapted physical activities for the people with disability in Korea. For the purpose, the methods were engaged the analysis of literatures, documents, record and quantitative analysis. The results of this study were as follows; there were three main systems of leadership training program of adapted physical activity for people with disabilities.

1. Teacher training education with teacher certificate for adapted physical activity at undergraduate level in university.
2. The many universities offer the adapted physical activity courses at undergraduate level and graduate course without teacher certificate. The graduate course offer major in adapted physical activity for master and doctorate degree.
3. There were leadership training program for adapted physical activity at Korea Paralympic Committee (KPC), Special Olympic Korea (SOK), Korea Association of Leaders for Adapted Physical Activity(KALAPA), and the other organizations for APA in Korea.

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HISTORICAL BACKGROUND

The landmarks of history for special education were divided into three periods in Korea. The first stage was people with blind (1445-1898) by government centered period, the second was people with blind and deaf by facilities centered period (1898-1945), and period for the all the disabilities by school centered period (1945-present) in Korea as shown as (Table-1).

After 1960's the physical activity and sports for the disabled became more systematic level. The first competition for the disabled in national level is the first National Veterans Sports Games held at National Veterans Hospital in April 25th, 1967. It was held for the rehabilitation of the disabled veterans who had injured their spinal cords while defending the nation. It was the oldest game among the other games for the disabled in Korea and continuing to be held until now.

In October, 1975 a sports complex, Chung-Nip-Hwe-Gwan was established. There were gymnasiums, swimming pool, and athletic field with new facilities at that time. The first National Athletic Meet for Disabled Youth was held here in October, 1976. Chung-Nip-Hwe-Gwan contributed to the activation of the physical activity and sports for the disabled by holding various championship competitions such as swimming, shooting and archery annually. It facilitated Korea to have a fine result in '88 Seoul Paralympics.

In 1981, International Year of the Disabled Persons established by UN, National Games for the Disabled was held as the first general sports game. It was sponsored by Korean Society for Rehabilitation of the Disabled, and held at Chung-Nip-Hwe-Gwan, Hyun-Dae Athletic Field, YMCA Gymnasium, etc. Five events including field and track events and swimming took place between October 2nd and 4th and 1,011 players participated.

Korean Society for Rehabilitation of the Disabled managed National Games for the Disabled until the 4th game. After that Seoul Paralympics Organizing Committee, which was started as Paralympics was held at Seoul, managed National Games for the Disabled. The 5th game was held in 1985 between October 19th and 20th at Sung-Name Sports Complex. The size of the game became larger every year; in the 5th game 1,624 players participated in 7events, in the 6th game 1,733 players participated in 9 events, and in 7th game, held as pre-Paralympics, 1,932 players participated in 16 events which was the same number of the events in Paralympics.

In April 28th, 1989, Korea Sports Association for the Disabled was established and it took exclusive charge of the sports for the disabled. It managed the 9th National Games for the Disabled in 1989 between October 15th and 19th at the places like Sangmu Sports Complex. After that Korea Sports Associations for the Disabled manages National Games for the Disabled every year, and it will be held round in every city and province from 1988.

1988 was the turning point of the sports for the disabled as the 8th Seoul Paralympics was held along with Seoul Olympics in the year. '88 Seoul Paralympics was the biggest in its size. In the game 4,220 players and staffs, 554 judges, 2,368 broadcasters, 100 members of international organizations, 6,431 volunteers, 4,971 supporters, and 12,156 event performers participated. Wheelchair tennis and 15 other events including field and track events were adapted and 729 events were played in the game. Speaking of arenas, Seoul Sports Complex, grounds in Olympic Park, Sangmu Sports Complex, Chung-Nip-Hwe-Gwan were used. Player apartments with facilities for the disabled were also built at the time. After successfully holding Seoul Paralympics, Korea Sports Association for the Disabled was established in 1989 as an organization that took exclusive charge of the sports for the disabled for the first time in Korea, and was actively extending the sports business for the disabled.

Meanwhile, the first participation of Korean players in International Games for the Disabled started in 1965; three Korean veterans played in World Stoke Mandeville Wheelchair Games, established by Dr. Ludwig Guttmann and became an international game for the disabled in their spinal cords from 1952. They engaged in the events of table tennis and power lifting. Korean player continually participated in the game after that.

In addition, Koreans partake in Paralympics that has been held since 1960, for the first time in 1968. It was the third Paralympics, and held at Tel Aviv, Israel. 4 players and 6 staffs joined in and played hard but could not win a prize in the game. Most Korean players were veterans until 1984 they have played in Paralympics and World Stoke Mandeville Wheelchair Games and

have won many prizes. They have contributed to international communication and enhancing national prestige. At the 4th Paralympics held at Heidellberg, Germany in August 1972, 10 players and 6 staffs participated and won 4 gold medals, 2 silver medals and 1 bronze medal. At the 5th Paralympics held at Toronto, Canada in August 1976, not only those handicapped in their spinal cords but also the blind and the amputee joined in the game, and Korean players won 1 gold medal, 2 silver medals and 1 bronze medal which made Korea 27th in total ranking. At the 6th Paralympics held at Arnhem, Netherlands in June 1980, the cerebral palsy enrolled for the first time so four kinds of the disabled participated.

In this game 10 players and 5 staffs partook and won 2 gold medals, 2 silver medals and 1 bronze medal which made Korea 26th in total ranking.

The 7th Paralympics was held in New York, USA and Aylesbury, England. In New York the blind, the cerebral palsy and the amputee & lesautres competed each other, and in Aylesbury, the disabled in their spinal cords played wheelchair games. At the game in New York held in June 1984, veterans and other teams (14 players and 21 staffs) enrolled in six events for the first time: field and track events, table tennis, power lifting, Western-style archery, shooting, swimming. Korea ranked 38th in the game with one bronze medal awarded to Chung, Kum-jong in 51kg power lifting. 24 Koreans (12 players and 12staffs) were sent to game in England held in July 1984, and won 2 silver medals and 1 bronze medal. The author, myself was participated as a woman team manager in 1984, Paralympics.

The decision of Seoul Paralympics made in 1984 was the opportunity to stimulate the sports for the different kinds of disabled people. Before that, mostly the veterans who were injured their spinal cords participated in international games, but after many different kinds of disabled players were sent to those games. In 1985, Koreans enrolled in the 15thWorld Games for the Deaf for the first time. Furthermore, 76 members of Korean team participated at the 4th Far East and South Pacific Games for the Disabled and obtained good results. They won 40 gold medals, 19 silver medals and 9 bronze medals. At the 7th Special Olympics held at Soutband, Illinois, USA, 35 Korean members played and won 4 gold medals in the field and track events and 2 bronze medals including the one from soccer.

Seoul Paralympics Organizing Committee raised competent players through camp training. As a result, Korea ranked the 7th in total, breaking the goal of 10th, among 61 participated countries. Korea earned 40 gold medals, 35 silver medals, 19 bronze medals and it was possible as staffs and players created strong bonds between them and did their best in the games.

After successfully holding Seoul Paralympics, the importance of the sports for the disabled and the necessity of an organization that could develop physical activity and sports for the disabled permanently became paramount. Therefore, Korea Sports Association for the Disabled was established in April 28th, 1989 and it actually is managing all the sports business for the disabled. It is holding National Games for the Disabled every year and sending the players to the various international games after 1989. In September, 1989, 114 team members including 78 players and 36 staffs attended at the 5th Far East and South Pacific Games for the Disabled held in Kobe, Japan and won 73 gold medals, 29 silver medals and 29 bronze medals that made Korea the 4th in total ranking. For the 6th Far East and South Pacific Games for the Disabled, the biggest team -93 players and 38 staffs- was sent and won 48 gold medals, 28 silver medals and 17 bronze medals. Korea ranked the 3rd in total in the game. Korean teams also attended at the 16th World Games for the Deaf held at New Zealand in 1989 and the 17th Sofia Games held at Bulgaria in 1993, but could not win a prize.

In 1990 Korean players joined in the world championship for the first time. In the year World Championship Games for the Disabled took place in 14 events at Assen, Netherlands. 25 players and 11 staffs participated and won 10 gold medals, 6 silver medals and 7 bronze medals in the game. Korean players showed both quantitative and qualitative growth and won 10 gold medals, 6 silver medals and 8 bronze medals at the 8 Special Olympics held at St. Paul and Minneapolis, Minnesota, USA in July 1991. The 9th Paralympics that succeeded '88 Seoul Paralympics was held at Barcelona, Spain in September 1992, and Korea Won 11 gold medals, 15 silver medals and 18 bronze medals. However, it could be sensed that the sports for the disabled became the elite sports in the game.

The first participation of Korea in Winter Paralympics happened at the 5th one held at Tignes, France in 1992. Two Korean players, In-Sik Ryu and Young-Hun Chung, attended at the 6th one also but could not win a prize.

The 4th Asia & Pacific Deaf Sports Championships was held in Korea in 1992. Korea ranked a victory in the semifinals in soccer, the 2nd and the 3rd in women's and men's group table tennis, and 3rd in doubles table tennis. Besides, Korea is sending a team to World Stoke Mandeville Wheelchair Games and attending Oita Wheelchair Marathon Games and Kobe International Lawn Bowling Games that are held in Japan every year.

National Games in a School for the Deaf was held in 1975. However, it had been suspended until it was revived as the first Education Ministry Secretary flag National Games in Students for the Deaf in 1993. In 1985, National Baseball Game for a School for the Blind was held. Other than those games, there were National Games for the Disabled and National Football Games for the Mentally Retarded though the participants were not limited to the students of a school for the disabled.

From June 14th to 16th, 1994, National Games in Students for the Disabled (also called as Modurang Games) was held to celebrate 100th anniversary of Korea New Special Education. 1,200 students from 106 schools for the disabled from all over the nation enrolled in the game and they played in 13 events divided by 5 different kinds of impediments. 2,000 people including players, teachers from the students' school, judges, staffs and volunteers were involved in the game and there were various welcome celebrations and players' talent show other than the game itself during the time.

Table 1: Landmarks of special education in Korea

1445-1898	1898-1945	1945-Present
• Government centered period • Period for the Blind	• Facility centered period • Period for the blind and the deaf	• School centered period • Period for the all the Disabled
	1898. By Rosseta Hall educating for the blind Chosun Braille **1909.** Educating for the hearing impaired **1913.** Special Education agency by social welfare, government with 16 blinds & 8 deafs **acupuncure	**1949.** Education Law - defining special school - establishing special school & classes in each province **1977.** The Special Education Promotion Law **1981.** Welfare Law for mentally and physically disabled **1988.** Paralympics **1989.** The Welfare Law for the disabled (LawNo.4179)-revision of 1981 **1990.** The Korea Sport and Welfare promotion for the Disabled **1994.** The special Education Promotion Law (4th revision) **1997.** 9 laying Special Education Law before National Assembly 8 special educator program 109 special schools 3,440 special classes **1999.** Korean welfare Promotion Association for the Disabled (KWPAD) **1988.** APA Dept. established **2005 -2013** Korea Sports Association for the Disabled KOSAD / KPC)

The history of special education was started by Korean braille education for blind with period for blind. The people with hearing impairment were educated from 1909. The special education agency established by social welfare of government on 1913. The school systems with educational level were developed from1945 as shown as (Table 1).

Developmental Process of Research for Adapted Physical Activity: Adapted Physical Activity professionals and teachers with master's and doctoral degrees have been trying to systemize the knowledge in the field of adapted physical education through past over 20 years. In 1990, Korea Society for Adapted Physical Activity and Exercise was established and it published journal of research paper and Newsletter every year from 1993. Furthermore, Adapted Physical Education in Korea faced a turning point in 1996 by holding a symposium of Asian Society for Adapted Physical Activity and Exercise. In 1988, Yong-In University opened Adapted Physical Education Department and many universities and graduate schools included adapted physical education in their curriculum these days ensured to have an opportunity to develop professionals in the field.

Among the research papers, there were "Development of the Program of the Reformation of a Body and Sports for all for the Disabled(1991)" by Korea Sports Association for the Disabled, "Introduction to the Sports for the Disabled(1992)" by Min-Kyu Han, "Adapted Physical Education for the disabled students(1992)"by Jun-Kye Kwark, "Adapted Physical Education(1992)" by Ui-Soo Kim, "Adapted Physical Education(1996)" by Yang-Ja Hong. Recently, "Adapted Physical Education(2010)" by Kwang-Jin Oh, "Adapted Physical Education(2012)" by Dong-Keon Lee, and Ki-Yong Park, Seug-Kweon Choi, Kyung-Sook Kim, Seung Ho Choi, ect, synthesizing all the theories of adapted physical education, was published by scholars who majored in adapted physical activity.

Leadership Training of Adapted Physical Activity: Just after '88 Paralympics was one of gradual change from the coldness of people with disabilities to warmth and greater acceptance about education, policy, facilities including social awareness for people with disabilities in Korea.

The '88 Paralympics influenced to social awareness of people with disabilities. A social awareness at that time sought to make society a better place for people with disabilities to live. The according to the movement, Adapted Physical Activity gradually was developed. By the influence of '88 Seoul Paralympics, the special education including adapted physical activity was improved.

In December 31st, 1977, Special Education Promotion Law was enacted to fulfill the demands of the disabled students who could not participate in normal physical activities in Korea. Even though the educational goals of a school for the disabled were set based on that, the curriculum of physical activities was made following that of a regular school rather than considering the character of the students with disabled.

Nevertheless, not only the regular curriculums of physical activities but also extracurricular physical activities were changed. The criteria of the curriculum of physical activities in a school for the disabled that were announced by the Ministry of Education in 1989 showed progress by reflecting the character of the students with disabled. Grounded on the criteria, textbooks of physical education of a junior high school and a senior high school for the blind, a textbook and a teacher's guide of healthy life for student with intellectual disability and a teacher's guide for crippled elementary school students with disabilities were published and distributed. Besides, it was recommended to participate volunteer in extracurricular physical activities so the students keep having interest in sports and realize the value of physical activities.

In 1977, the first time the subject of adapted physical activity as a curriculum was established in the university. In 1982, the term of "adapted physical education" was formally introduced in journal of Korea society of physical, health education, recreation and dance. From this time, the term of adapted physical education activity was starting to use in Korea, formally.

There were many special education institutes, special schools and regular schools including students with disabilities at special class and regular class in Korea. Those of educational levels offered the class of adapted physical education with the qualified teachers and leaders. The quali-

fied teacher and leader have adequate professional education and desirable human being with compassion. The teacher and leader of adapted physical education should be motivated by the highest ideals with respect to importance of total student development and satisfactory human relationships with students with disabilities.

The numbers of universities offer the curriculum of courses to educate teacher with certificate. Those of universities were as follows as;

- Adapted Physical Education Dept. of Korea National P.E Univ .(1998)
- Adapted Physical Science Dept. of Hanshin Univ .(1994)
- Special Physical Education Dept. of Yong In Univ .(1988)
- Adapted Physical Education Dept. of Gyeong JuUniv .(2005)
- Adapted Physical Education Dept. of Joong Bu Univ .(2003)
- Adapted Physical Education Dept. of Baek Seok Univ .(2004)
- Adapted Physical Education Dept. of Jin Joo International Univ .(2005)
- Adapted Physical Education Dept. of Young Nam Univ .(2002)
- Adapted Physical Education Dept. of Kaya Univ .(2005)
- Adapted Physical Education Dept. of Sin Ra Univ .(2006)
- Adapted Physical Education Dept.of Dong EuiUniv .(2007) now changed
- Adapted Physical Education Dept. of Kyung Buk Science College (2 year College 2009)

There were about 137 special schools with national, public and private levels in Korea as shown as (Table 2).

The numbers of special schools with national levels, publics and private levels in Korea were shown as (Table 3).

Table 3: Numbers of special schools

	National	Publics	Privates	Total
Mental Retarded	1	32	50	83
Visual Disabilities	1	2	9	12
Hearing Disabilities	1	4	11	16
Physically Disabilities	1	6	12	19
Emotional Disabilities	1	2	5	8
Total	5	46	87	138

The numbers of special schools and special classes according to educational grades for students with disabilities as shown as (Table 4).

Table 4: Numbers of special schools and special classes according to educational levels for disabled

Grade	No. of school	No. of class	No. of student
Pre-School	190	262	355
Elementary School	2739	14019	19123
Junior High School	752	3314	4521
High School	386	1804	2603
Total	4067	19399	26602

The approaches of leadership training for adapted physical activity were indicated by three ways with teacher training for teacher certificate program, professional training program for leadership without teacher certificate for APA, and leadership training to teach sports as APA for disabled at organization of sports and APA as shown as (Table 5).

Table 2: The situation of special schools in Korea

Type	No. of Schools	No. of Classes	No. of Students	No. of Teachers
National Level	5	156	1214	311
Public Level	45	1177	9550	2156
Private Level	87	1554	13428	2767
Total	137	2887	24192	5232

Table 5: The approaches of leadership training for sports &APA in Korea

Teacher training Program with T.C. For APA	Professional Training program without T.C. For APA	Leadership training for Disabled
Undergraduate level Dept. of APA. (B.S)	- Undergraduate level Universities offer APA course - General Graduate Course of APA (Master course major in APA) (Doctorate course major in APA)	- KPC (Governmental Org.) - KAAPA (Non- Governmental Org.) - SOK (Special Olympic Korea) - Seoul Digital Institute of Life(Public Institute) APA Instructor certificate with level 2by cyber education

The departments APE of Universities offer the curriculum to students who were major in APA took the teacher certificate of APA after graduation in Korea. The teacher certificate of APA for students who were major in APA would obtain from the ministry of educational science of government in Korea.

The title of teacher certificate indicated the certificate of secondary teacher level 2.

The students after graduation with accomplishment of all requirement from university, he or she could teach APA with the certificate of teacher in the special schools or institutes and special class for APA as a APA teacher.

The APA department of universities encourage student for prospective teachers to have warm, loving spirits and to acquire the teaching methodologies and professional knowledge necessary in adapted physical activity by operating a wide range of educational programs of adapted physical activity.

The among the APA departments of universities the curriculums showed a little differences with some points according to their the important emphasis to educate their own goal, however it was similar course of curriculums and subjects with theories and practices in Korea.

The Subjects of Practices for Courses were as follows;

- Sports Leisure Activities Physical Fitness
- Teaching methods of gymnastics for life
- Teaching methods of gymnastics for Disabilities
- Therapeutic Dance
- Physical Therapy
- Communication Practice with Hand
- Massage for Aging
- Massage for Rehabilitation and Healing
- First Aid
- Adapted P.E for Aging
- Sensory Motor Activity for Children with Disabilities
- Practice Teaching for APE ,Clinical Practice Teaching for APE
- Soccer, Rugby, Golf, Ski, Judo, Tennis, Volleyball, Track & Field, Swimming, Dance Sports, Aquatic Exercise, Movement Therapy ,Sports for Disabilities and All of Teaching Methods so on

Educational Courses for Teachers Education were as follows;

- Practicum
- Educational administration and supervision
- Research and teaching methodology
- Thesis
- Educational philosophy
- Educational history
- Educational evaluation
- Educational curriculum
- Voluntary activity for education
- Administration and supervision of special class
- Educational technology

Prospective Leadership Training for Adapted Physical Activity: The influence of 88 Seoul Paralympics was an important factor to change the awareness of the disabled and contributed as a great catalyst for promoting the

Table 6: Subjects of theories for courses

Subjects	
History	Physical Education History P.E Principle P.E Philosophy
Psychology	Motor Development, Theory of Motor Development for Disabled Psychology of Exceptional Children Psychology of Motor Learning Sports Psychology, Psychology for Adapted Physical Activity
Sociology	Sports Sociology Sociology of Adapted Physical Activity
Physiology	Sports Physiology Physiology of APA Exercise Prescription Exercise Prescription for Disabilities
Health Hygiene	Health Administration
Nutrition	Sports Nutrition Nutrition of APA Health Education School Health
Biomechanics	Biomechanics Biomechanics for APA
Medicine	Human Anatomy, Sport Anatomy Rehabilitation Training for Disabilities Sports Medicine for Rehabilitation Rehabilitative & Therapeutic Medicine Medical Classification Oriental Medicine for Sports
Evaluation & Measurement	Administration of Special Physical Education Class Business Administration of Sports Theory of Sports Information
Research Methods	Research Methods of Physical Education Research Methods of APA
Education	Technology of Special Education Teaching Methods of APA Theory of Adapted Physical Activity Adapted Physical Activity Teacher Visual Disability Adapted Physical Activity for Visual Disabilities Emotional & Behavioral Disabilities Adapted Physical Activity for Emotional & Behavioral Disabilities Intellectual Disabilities Adapted Physical Activity for Intellectual Disabilities Physical Disabilities Adapted Physical Activity for Physical Disabilities Auditory Disabilities Adapted Physical Activity for Auditory Disabilities Learning Disabilities Adapted Physical Activity for Learning Disabilities Teaching for Multiple Disabilities Teaching for Speech & Communication Adapted Physical Activity for Children Adapted Physical Activity for Aging Sports for Disabilities Adapted Dance Program Behavior Modification for Exceptional Children
Law & Rule	Policy & Law for Special Education Welfare & Law for Disabilities
Leisure & Recreation	Therapeutic Recreation Leisure & Recreation Physical Activity for the Life

adapted physical activity for the disabled in all school level.

Adapted physical activity has much to offer the student who faces the combined problem of seeking an education and living most effectively with disabilities.

Through the program of adapted physical activity the student with disability can be improve neuromuscular skills, general strength and endurance. Also, adapted physical activities can be provided with opportunities for improved psychological adjustment and social development.

And, the contents of program for training for teachers and leaders of adapted physical activities should be included adequate medical guidance which is essential to available for perspective teacher of adapted physical activity.

The possibility of serious pathology programs of adapted physical activity should not be attempted without diagnosis, written recommendation, and cooperation of a physician.

The planned program of activities must be predicated upon medical findings and accomplished by competent teachers or leaders working with medical guidance.

The prospective competent teachers or leaders engaged in teaching and leading adapted physical activity should learn as following things;

- The course to educate leadership training for APA teachers and leaders should be offer adequate professional education to implement the medical findings.
- It should be included in training program that teachers or leaders should have motivation by the highest ideals with respect to the importance of total student with disability development and satisfactory human relationship.
- The APA training program should be establish to train prospective teachers and leaders who could develop the ability of teacher to establish rapport with students with disabilities who may exhibit social maladjustment as a results of a disability.
- The prospective teachers or leaders are trained for awareness or understanding of student's attitude toward his ability.
- The teachers of leaders should be objective in relationship with disabled.
- The teachers or leaders should be prepared to give the time and effort necessary to help a student with disabilities overcome difficulty.
- The prospective adapted physical educators or leaders should consider as strictly confidential information related to personal problems of the students with disabilities.
- The training program for leadership of APA should be included the subjects for research attitude and communication art skill

In conclusion, the prospective adapted physical educators should be trained to have professional education with scientific research and desirable warm personality with loving sprits and behaviors.

Also, they should be trained to compose and organize the least restrictive environment and inclusion education with unified APA.

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APA Leadership Training and Teacher Preparation in Brazil

Invited Speaker

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ABSTRACT

In Brazil, leadership training and teacher preparation can be discussed relative to three areas that reflect the marketplace and the school system. First, advances in the field of adapted physical activity (APA) can be assessed by looking at the history of university programs, both at the undergraduate and graduate levels. Second, teacher preparation in physical education became a separate curriculum, which now faces a dilemma in paradigm shifts. That is, leadership in adapted physical activity and sports is represented by a small number of institutions (governmental and nongovernmental), as well as by a first generation of only a few professors, teachers, researchers, administrators, legislators, coaches and athletes. Thirdly, the need to meet the diverse demands of a wellness and health marketplace has pressured curricular changes in PE that include an interdisciplinary approach.

Key Words: *Adapted physical activity, Sedentary physical education, Brazilian school system*

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INTRODUCTION

In Brazilian universities, leadership training and teacher preparation in adapted physical activity (APA) have been the subjects of heated discussion in graduate and undergraduate programs since the early 80s. One of the outcomes of such discussions led teacher preparation to be required as part of the undergraduate curricula in higher education.

However, *teacher* preparation in physical education has become a separate curriculum (i.e., licensure) from what is considered *professional* (i.e., bachelor) preparation in physical education. This has left educators with the dilemma of a paradigm shift in teaching strategies. That is, a physical education, which some thought overemphasized sports and exercise, has now shifted to a physical education which emphasizes a "culture of the body," and which teaches this theoretical content to students of all ages. In this approach, the idea is to create an independent and critical view about health, and spontaneous engagement in a variety of options in PE and sports, including those in the community. However, the consequence of such an approach has been an unexpected and contradictory lack of student engagement in physical activity in general. In the school environment, these students receive less and less contact hours with vigorous and meaningful PE, and more contact hours devoted to dialogue about varied topics in health, wellness, and physical activity. For students with disabilities, the scenario is even worse, since teachers say they feel unprepared to deal with special educational needs (Mauerberg-deCastro et al., 2013).

Additionally, the need to meet the diverse demands (including those with disabilities) of a wellness and health marketplace has pressured curricular changes in PE that include an interdisciplinary approach. Medical and health professionals have made physical educators a valuable part of their teams, even though these often include an overemphasis in aesthetics, which reinforces stereotypes of perfection and beauty (Campbell & Mauerberg-deCastro, 2011).

PE curricula in higher education, APA and the emergence of a body of knowledge: Inspired by the United Nations' 1981 International Year of the Disabled, the field of PE introduced the inclusive movement by requiring personnel to teach courses in physical education related to people with disabilities. In 1987, the Brazilian government made a landmark decision requiring the teaching of APA in undergraduate physical education programs, which would affect future professionals in the health and education fields (i.e., the 3/87 Resolution about the Minimum Curriculum in Physical Education, MCPE3/87). The academic revolution, initiated in the PE area in the '90s, incorporated human movement and sport sciences (sports medicine, sport psychology, motor behavior, etc.), as well as social sciences (social, anthropological and pedagogical conceptualization of body and movement: named "culture of the body") as part of the body of knowledge in PE. This represented a paradigm shift from the technical PE that focused on the performance of high-level, uniform, disciplined movements by healthy "perfect" people, to a type of physical education that began to focus on theoretical curricular content that is novel and diverse. Such a paradigm shift helped to expand the dissemination of a unique body of knowledge, that of APA, which no longer entirely borrowed from other areas and professional fields (e.g., special education, physical therapy, etc.). This is when the actual discipline of APA began to emerge, particularly at the undergraduate level (Mauerberg-deCastro, 2011) (Table 1).

Today, according to the Minister of Education (MEC, 2013), tens of thousands of PE teachers and professional from 1,170 undergraduate schools graduate every year throughout the country. Private schools are the most numerous, with 939 programs. Although the law (MCPE3/87) mandates that these schools offer APA or related courses, very few students graduate with an adequate understanding of how to teach students with disabilities (Mauerberg-deCastro, 2011). Some of these students will go on to graduate school and will compete for a position in one of the 25 masters' programs and the 14 doctoral programs offered in PE and Movement Sciences (CAPES, 2013). The first Brazilian graduate program in PE began in 1977, at the master's level, and, in 1989, a doctoral program began, both at the University of São Paulo. Although only one graduate program of-

Table 1. The two main areas of knowledge in human movement sciences and PE, examples of research topics and areas of application.

Area of knowledge	Foundations	Areas of application
Biodynamics	Sport sciences Sport psychology Exercise physiology Biomechanics Motor behavior (motor control , learning, development)	Sports rehabilitation (sport injuries, sports for the disabled) Sports biomechanics; sports classification system Training and fitness Doping and nutrition Ergonomics and design (wheelchair, technology, prosthesis for sports) Developmental protocol/activities (development facilitation and function adaptation) Learning strategies Health problems prevention and rehabilitation of disabilities/impairment in special groups
Pedagogy	Psychomotor education through movement Sociocultural approach to the body ("the culture of the body")	School teaching, curriculum design and instruction Assessment of learning Placement and advocacy Attitudes and inclusion strategies Leisure and participation sports Pedagogical methods and approaches Non-restrictive environment and mainstreaming

fers an explicit specialization in APA (University of Campinas, UNICAMP, State of São Paulo), other graduate schools now offer a variety of programs that focus on issues of perceptual motor adaptation, rehabilitation effects, and physiological parameters in people with disabilities and health problems, among others.

While college professors/researchers and experts in APA are scarce, a survey in the Brazilian Counsel for Research (CNPq) data base returns over 500 names (of 14,324 individuals involved in PE with a doctoral degree) who identified themselves as directly or indirectly conducting studies in the area or as teaching APA courses. Of these, less than 50 individuals are effectively involved with teaching APA at universities, as well as actively advising students and actively publishing research (CNPq, 2013).

In order to advice students, whether at the graduate or undergraduate level, professors require access to current research and technical information about individuals with disabilities and APA. The literature available for college students and professionals is rapidly growing. Many of such references--which come from a heritage of military dictatorship from the last century and which lasted until the 1980s--still endorse the medical model, including those in pedagogy. It seems important to note that, from 1850 until 1920, physicians were responsible for overseeing educational curricula. This medical influence continued afterwards, and most physical education texts and documents reflected a medical model and the hygienist ideal (the military dictatorship's concept and practice of the "healthy, obedient and disciplined") (Mauerberg-deCastro, 2007). Only in the past two decades have APA textbooks, for example, used a comprehensive approach, with varied topics that concern individuals of all ages with disability. Many of the recent books--published after the 1990s--have openly rejected the medical model and incorporated the ideal of human rights and equal opportunities advocated internationally. Table 2 summarizes the principal Brazilian authors who have published textbooks in APA or sports for the disabled.

Table 2. Examples of APA textbooks and other general literary work by Brazilian authors (Adapted and re-printed with permission from E. Mauerberg-deCastro, 2011).

Author	Title	Editions or available
Sidney Carvalho Rosadas	Special Physical Education: Assessment Foundations and Applications of Sensory Motor Programs for Disabled Individuals	1984
Sidney Carvalho Rosadas	Adapted Physical Activity and Sports for the Disabled. I can, do you believe?	1989
Apolônio A. do Carmo & RV.S. Silva	Physical Education and People with Disability	1997
Ruth Eugênia Amarante Cidade & Patricia Silvestre	Introduction to Physical Education and Sports for People with Disabilities	2002
Edison Duarte & Sonia Maria Toyoshima Lima	Physical Activity for People with Special Needs	2003
Eliane Mauerberg-deCastro	Adapted Physical Activity	2005 (2011, 2nd edition)
David Rodrigues	Adapted Motor Activity	2008
Paulo Ferreira de Araujo, Rita de Fátima da Silva & Luiz Seabra Júnior	Adapted Physical Activity in Brazil: From History to Educational Inclusion	2008
Luzimar Teixeira	Adapted Physical Activity and Health: From Theory to Practice	2008
Márcia Greguol Gorgati & Roberto F. da Costa	Adapted Physical Activity	2008 (2009, 2nd edition)
Paulo Yasbek Junior, Linamara Rizzo Battistella & Livia M.S. Sabbag	Treaty of Rehabilitation	2010

Studies in the APA area also have flourished. For example, the Brazilian Congresses of Adapted Motor Activity (BCAMA), sponsored by the Brazilian Society of Adapted Motor Activity, show a significant increase in the number of published abstracts, especially in 2007, when Brazil hosted the 16th ISAPA together with the BCAMA. In its first year (i.e., 1996), the Congress published 128 abstracts; and in 2007, it published 436.

Today, hundreds of books are available that are related to APA and issues of inclusion, activities for children with disability, motor and physical characteristics of people with disabilities, assessment, and so on, and are available for online purchase (br.yahoo.com). Many cover topics about health and on the importance of being physically active.

Teacher preparation in Brazil, curricula, and paradigm shifts: Brazilian youth, including those who are disabled, are less and less engaged in physical activity. This has lead to a scenario of fast-growing obesity and metabolic diseases among children and adolescents. The incidence of overweight Brazilian males has tripled since the 1970s, from 18.5% to 60%. Obesity in males has quadrupled, from 2.8% to 12.4%. Women's overweight and obesity values have doubled (IBGE, 2010). Overweight and obesity values for children 5 to 9 years old total 34% and 14%, respectively (UNECLAC, 2010). Since being overweight and obesity are correlated with an inactive lifestyle, these figures suggest that 60% of Brazilian children currently are sedentary. As for those with disability, teenagers and adults with intellectual

disability reveal a higher percentage of obese individuals than does the general population. They are more likely to develop obesity than those without intellectual disability. Raulino and Barros (2002) found that 28% of men and 38% of women with mild and moderate intellectual disability were considered obese.

Whether children and youth with and without disability are overweight or not, they all attend school. Yet, many PE teachers typically have classes with a large number of students, a lack of sport equipment, difficulties in managing discipline, and a lack of training in working with groups with heterogeneous skills. This creates a vast problem for effective teaching. Many teachers fail to provide activities that adequately address the motor skills of students, both with and without disabilities, because they underestimate the potential of students with disabilities. These teachers fail because they adjust an activity's demands--which they presume will meet the ability of students with disabilities--to all students, making the class slow, monotonous, sedentary, and exclusionary.

The problem of classes with a heterogeneous mix of students won't go away, since enrollment of students with disability is on the rise. The Brazilian Minister of Education and Culture's Multi-Year Plan Assessment Report of 2008-2011 revealed that, in 2009, "... more than 46% of children and young people with special educational needs were enrolled in regular schools" (Mauerberg-deCastro et al., 2013). In PE classes, these children and youth have encountered enormous difficulties in being effectively included. While inclusive settings are influential in changing attitudes of school staff and students themselves, teachers' perceptions of their own self-efficacy fall short. Recent studies have revealed that teachers have positive intentions towards inclusion, yet they perceive themselves as unprepared for effectively teaching such heterogeneous groups, even after being exposed to intensive teacher training (Mauerberg-deCastro, et al., 2013). Legislation and advances in academia have opened opportunities for students with disabilities to excel in sports and have a means for development and rehabilitation during PE classes in the regular school system. However, a troubling trend remains: School teachers and professionals continue to improvise their practices.

The problem of exclusion in PE classes and the lack of appropriately challenging activities (which I refer to as "sedentary physical activity" is due to the incomplete practice of the current and dominant approach in school PE, the "culture of the body" approach. Today, most of the school PE curriculum is based on this model. Cruz (1997) noted that, for the past 30 years, PE has been criticized for its technical-biological view in contrast to a more social-critical view. The traditional view of PE, say its critics, is reductionist, "biologi-cist," and "techni-cist." A modern concept of health and PE should raise social questions that are embedded in its practice, and which promote knowledge and skills, which in turn transcend the reductionist emphasis on the physical dimension in favor of social relationships, inclusive attitudes, and critical consciousness. All of these are part of a "culture of the body" (Mauerberg-deCastro, 2007). By embracing this approach, PE teachers have rejected sports as a means for competition as part of their teaching. In Brazil, until the '80s, the culture of performance in sports was dominant in schools and also in undergraduate PE programs. The new structure created in the 1980s gave sports an educational value and social significance beyond its traditional competitive feature. The structure of sport was then divided into sport education, sport participation, and sport performance.

However, the distinction between PE and sports performance in school has raised concern in academic circles. One common concern is that PE programs that include sports are not potentially stimulating enough to "potential future athletes." These students, therefore, enroll in sport clubs or municipal sports programs. The upcoming Olympic and Paralympics Games in Rio, have given sports a much-desired visibility, but also have raised an "old" demand for sport talent in the school system. This is particularly interesting when the issue of debate is sports for the disabled. Students with disability are not consistently included in PE programs, but they are likely to be recruited as athletes--if they are healthy, disciplined, and have the desire to win. Since 2006, the Brazilian Paralympics Committee has organized the School Paralympics for elementary and high school students nationwide. In 2012, 1,200 athletes from 24 states

gathered in São Paulo to compete in one of the largest games for young students with disability (http://www.cpb.org.br/). This was a remarkable accomplishment, according to the Brazilian Paralympic Committee. For comparison, in the most recent national games for able body students, there were over 3,000 participants. These games began in 1969 (Brasil, 2013).

Given the current dynamics, regardless of whether or not students with disabilities are present, PE classes are at risk of being boring and "sedentary." Although PE classes are mandatory in the curriculum of elementary and middle schools, the number of weekly encounters is limited to two, and often one of these is a theoretical/discussion class (i.e., non-practicum). Students with and without disability are all in favor of PE classes, but these classes need to be vigorous and meaningful to all.

The question here is how to reconcile the technical-biological perspective--in which physical activity has to be practiced regularly at least 3-times a week, from 40-minutes to one-hour, and with exercises requiring moderate-to-intense cardiovascular effort--with the social-critical pedagogical action approach of APA? That is, how can we incorporate into our curricula a balance between theory, instruction, discussion, unoccupied time, and practice time, and which includes students with diverse potentials?

Marketplace and professional preparation in PE: curriculum changes to meet demands for wellness and health: There is double standard in our country regarding health and wellness. Inclusion and the visibility of people with disability have been remarkably present in society and its institutions (especially in the school system). At the same time, a seemingly ubiquitous influence towards achieving perfection and beauty has taken priority in health professionals' provision of services, including those in PE. Plastic surgery and the abusive use of steroids are "off the chart." Brazil is second only to the USA in performing plastic surgery (http://veja.abril.com.br/170101/p_084.html). As for substance use, one report says that in the three years between 2001 and 2005, Brazilians' use of steroids tripled (http://www.usp.br/agen/?p=183). Data on this subject are unreliable, however, since this practice is illegal in Brazil. Both procedures have been integrated as part of a culture with an obsessive need for fitness--to be thin or to be strong, or both. While many claim the importance of fitness as a viable tool for health promotion and rehabilitation, double standards are often the message exchanged between clients and professional (i.e., a strong, young, able- bodied fitness instructor advocating the "ideal" look to a tired, older, overweight client), and can damage self-esteem, and, worse, cause body image distortions that culminate with dysmorphia and eating disorders. People with disability seek out these services as well, although at lesser rates. They, too, are exposed to the obsession for perfection. Typically, it seems, people with disability seek out fitness programs as part of an athletic training program. Scientific studies about inclusion of clients with disability in the fitness world in Brazil are rare.

An ethnic, age, and body diverse nation seems to be craving for a single somatotype: a young, tall, slim/strong/both, white (or not so black), attractive individual. Although curricular designs in PE schools have rightfully included issues on diversity and expanded scientific knowledge about the body's adaptation to growing up and growing old, the marketplace still demands what the media projects about ideal looks. It is an ethical dilemma since instructors themselves are excluded from the marketplace once they reach a certain age or don't adhere physically to this stereotypical ideal.

Final remarks: The field of APA in Brazil is young; its practitioners are the first generation of scholars and leaders. The area has many challenges to overcome, especially with the actualization of the inclusion paradigm within PE in the Brazilian school system. Professionals and school teachers have witnessed a paradox: the pursuit of wellness and aesthetics. The PE field in Brazil has made gains relative to scientific merit and to the professional validation and status of its multidisciplinary practitioners, as well as within society. At the same time, Brazilians have never been as sedentary and health compromised as they are today. And, yet, we are preparing to host the two major world events in sports: the Olympics and the Paralympics. The question that remains, then, is, "What will be their legacy afterwards to PE and to APA in Brazil?"

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Leadership in Adapted Physical Activity in Turkey

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ABSTRACT

The disability sports in Turkey covers three main areas of sports: adapted physical education/activity in schools, adapted physical activity as recreational sports and adapted performance sports..Regardless of any functional level, age and gender, the resources are distributed evenly and the training and knowledge transfer facilities provided equally. Although the Ministry of Education is responsible in giving education in disability sports for the future physical education and sports teachers inuniversities, themunicipalities, and non-governmental organizations are also effective in this issue. Improving the knowledge of people working in disability sports through in-service trainingsand university education also aims to upgrade their awareness and improve their management skills.

INTRODUCTION

Individuals with a disability in a population are important issues for all societies. However, the sociocultural and economical differences between countries, and individuals or families within the countries, may cause various obstacles that might make them feel their disabilities more seriously. We believe that, people with disabilities living in Turkey are experiencing those obstacles much more severely. They may have less opportunity but also higher barriers especially in educational, vocational or job placement facilities. This may be overcome by changing the attitudes, behaviours as well as perceptions of the society. However, determination of the needs of people with disabilities regarding their education, transportation, communication, recreational and physical activities are important to improve their participation into social life.

As the article 24 and 30 of the United Nations Convention on the Rights of Persons with Disabilities (2006) that was singed by Turkey

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in 2009 proclaims, people with disabilities have rights for education and participation in recreation, leisure and sport activities, respectively. According to this amendment, each party should take responsibilities to fulfil the requirements of the people with disabilities. In this context, it is important to encourage people with disabilities to get involved in sportive, recreational, leisure activities and play. Regardless of any functional level, age and gender the resources should be distributed evenly, the training and knowledge transfer facilities should be provided equally. Although the government and the ministries are responsible in providing these services, the municipalities, non-governmental organizations, universities as well as every member of the society are also responsible.

Luckily, there is a growing interest on adapted physical activity for the last two decades in Turkey. Recreational and competitive sports for people with disabilities are increasing in number, as are amateur and professional sports in different sports types. Wheelchair basketball, table tennis and swimming are especially the main three branches that Turkey is assertive in international competitions and also in the last two Paralympics Games.

Disability Sports Areas Officially Accepted by Governmental and Non-Governmental Organizations and the needs in Preschool Stage:

In Turkey, a disability sport is covered in three main areas of sports: adapted physical education/activity in schools, adapted physical activity as recreational sports and adapted performance sports. Each has its own impact area starting from sportive activities in school age and continuing further in life (Moran et al., 2005).

However, in addition to medical treatment and rehabilitation interventions, sportive activities should start as early as possible for children with disabilities as part of their social rehabilitation,. After the diagnosis of the problem, if special education and/or physiotherapy and rehabilitation program/s are required, the children are enrolled to the Special Education and Rehabilitation Centres that may be private centres, or the centres of governmental or non-governmental organizations. Since the medical treatment is under the responsibility of the government in Turkey, their special education and physiotherapy and rehabilitation is provided freely for a total of 8 hours in a week in these centers, according to their needs and the outcomes of WHO's International Classification of Function, Disability and Health – ICF (WHO, 2001; Stucki, 2005),. However, the families have to bring their children to the centre, and the special education teachers and physiotherapists should sign the required papers showing they have performed their professional interventions. On the other hand, the government has no budget for additional hours on weekly basis for the adapted physical education (APA). Although some of the centres are having recreation and sports activities such as group activities, games, plays, gymnastics, dance and especially folkloric dance, these are not efficient. We believe that if they could be supported for some additional hours by the Ministry of Education, the children would have the chance to be involved in recreational and sportive activities much more efficiently.

Looking at this issue from a health aspect, since improving the habit of physical activity and sports among people with disabilities is an important modifiable factor for a healthy life style (WHO, 2004; Moran et al. 2005), and since this could be achieved from the early years of life, APA programs could be considered as essential interventions in addition to special education, and physiotherapy and rehabilitation programs by the authorities.

Adapted Physical Education/Activity: The on-going situation of students with disabilities in the primary education:

As the children with disabilities enroll to school, they are placed to regular classes, including the physical education, classes to study with the other students if their intellectual abilities are sufficient. In this way, they can be included to sports activities within the limits of their abilities and physical functions (McEwen & Hansen, 2006). However, this depends on the skills and the knowledge of teachers, however unfortunately, not all classroom or PE teachers are efficient in dealing with students having different disabilities.

We have studied the attitudes and the level of knowledge of 74 physical education and sports (30.76 $\pm$ 4.74yrs) and 49 primary school teachers (37.04 $\pm$ 7.95yrs) on the motor devel-

opment of the students according to their age level. We have found that 31% of the physical education teachers and 25% of the class teachers were willing to answer the questions designed to investigate the attitudes towards the students with disabilities or with chronic diseases. The rest of both groups preferred not to answer the questions without any comments. We believe that this is not because of the ignorance but lack of knowledge for the questions. However, most of them were keen in encouraging the students with disabilities to be active in the classes as a leader, a referee or an assistance of the teacher which still can be considered as segregation. In this regard, these type of integrations of the students into the classroom are not efficient enough, they must be thoroughly a part of the action performed by all students and they must feel themselves as included rather than integrated (Kayapınar, Inal, 2002).

According to their abilities, the students with intellectual disabilities may be placed to the full-time special class of primary schools. The special education teachers and/or the physical education teachers can be involved with their adapted physical activity classes. Luckily, these schools mostly employ PE teachers who have experience and knowledge in APA. They can be very active in sports, join sports organizations and competitions. However, they will always be segregated from the other children. On the contrary, as Turkey, we need to change the politics in education system of the students with disabilities from segregated education towards inclusive education.

We have studied the attitudes of people (54 - only 4 of them were female; 36.97±8.52 years) working in disability sports in special education primary and high schools, disability sports federations and sports clubs. We have found that all the subjects except the school headmasters and assistant headmasters considered disabled sports an important issue in the country ($P < 0.05$). Those having higher level of education believe that sports enable easier integration of physically challenged individuals into society by answering positively to the statement used during the interview: 'Physically challenged people are capable of fitting in the society they live in'($P < 0.05$). However, as the level of education increases, it's further believed that they do not possess the necessary background needed to communicate with people with disabilities ($p < 0.05$). Thereason for this may be the fact that those who have a higherlevel of education are better informed and self-reliant andthus believe that they need further training and experience in order to offer a better service to people with physical, mental, psychological disabilities (Tanır, Inal, Subası&Kepoglu, 2007).

In the light of these current situations we can conclude that the in-service training programs need to be improved in the schools to increase the knowledge of the people working at any level.. Especially informative data to offer additional knowledge needs to be improved.

Adapted Physical Activity/Adapted Performance Sports: Governmental and Non-Governmental Organizations give special interest to people with disabilities and their sports facilities

Table 1: Teacher's attitudes towards the students with disabilities or chronic diseases (Kayapınar & Inal, 2002).

		ENCOURAGE AND INTEGRATE THEM				LET THEM PASS THE COURSE		
		Appoint them as referee	Appoint them as my assistance	Make them the leader of the class	Others	Pretend not to notice so they act comfortably	Ask for a health report	Keep them in the class without integration
Physical Education Teacher	**YES**	35.1%	36.5%	17.6%	35.1%	23%	6.8%	20.3%
	NO	8.1%	6.8%	13.5%		77%	17.6%	14.9%
Class Teacher	**YES**	30%	40%	12%	18%	4%	2%	18%
	NO	6%	2%	6%		10%	8%	6%

in Turkey. In this context, improving the skills and knowledge of physical education and sports teachers and trainees in disability sports is the key subject for universities and the Ministry of Education. Since 2000, adapted physical education course (3 0 3) is included in the curriculum of all physical education and sports (SPES) schools. Besides this required course, each SPES in different universities are offering modular elective courses, post-graduate courses as well as thesis at Master's of Science and Philosophy of Doctorate degrees.

In Middle Anatolia, İnönü University School of Physical Education and Sports has opened the first Department of Adapted Exercise and Sports in2009. The students are already in the first grade. There is also a department of recreation in some of the universities under the SPESs. Similar programs should be started in other universities and meanwhile, the quality of education should be maintained as well.

Service trainings of the Ministry of Education are not systematically given and not efficient enough. On the contrary, the universities as leaders in this area work very effectively and enthusiastically. For increasing the awareness of people on disability and disability sports, the organization of seminars, symposiums, congresses and special topic meetings are quite common activities among the universities in different cities all year round in Turkey.

There has been important progress in the educational system in adapted physical education and/or activity in Turkey. Graduate and post-graduate university education as well as research studies conducted in these areas are very promising for the future of sports opportunities for individuals with disabilities.

According to the results of a survey by Tanır, Inal, Subası&Kepoglu (2007) on the management skills of people working in adapted performance sports showed that as the level of knowledge of clerks, assistants managers and managers are decreasing, limitations in communication between the organizations are increasing ($P < 0.05$). The scarcity of participation of athletes with disabilities to national (56.6%) and international (22.2%) competitions in the year of the study may be the sign of a deficiency in the field of disabled sports from the management point of view (Blak, 2000; Kocel, 2003). However, the Ministry of Sports and the Disability Sports Federations in connection with the Paralympic Committee are keen on reforming the operational management skills of the people working in the disability sports field. However, inclusion of the knowledge and experiences of the universities may upgrade the awareness and help to improve the ways to meet the requirements of adapted performance sports. Besides the academic support of the universities, the most common requirement of athletes in adapted performance sports is the accessibility to the sports areas to perform their training sufficiently. We believe municipalities may take an effective role in this aspect.

In conclusion, there is a growing interest in the disability sports in any form as adapted physical activity as well as adapted performance sports in Turkey. Although governmental and non-governmental organizations are supporting this domain, mainly the universities are effective to increase awareness of the society and to improve inclusion of the individuals with disabilities by advancing educational facilities and knowledge transfer.

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Disability Sports in Turkey: Past, Today

Invited Speaker

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ABSTRACT

For the historical beginning of the disabled sports, Sir Ludwig Guttman was the first to organize various sporting activities for disabled people in The Stoke Mandeville Hospital for rehabilitation in wheelchairs in 1945. After 45 years in Turkey, First "Sports Federation For The Disabled" is established in 1990 and seperated at four disabled event in 2000.(visually-impaired, physically disabled, hearing-impaired, mental impaired) and it is the member of the IPC and IWBF on International level. Since then, sports for the disabled were not known but today have come to be recognized and known by everyone. Turkish Sports Federation For The Physically Disabled (TSFPD) started to manage itself in 2006 and continued to control their works to present days. TSFPD is a unique foundation which supports the sportsmen physically disabled in Turkey. We have 117 sports clubs and 3797 (3274 Male-523 Female) handicapped athletes exist under the Federation. Major leagues Wheelchair Basketball League is the biggest league in Europe. 15 of the 19 sports branches determined by the International Paralympic Committee are conducted by Turkey. Turkish Paralympic Committee was founded in 2002.Only one athlete had represented Turkey at swimming in 1992 Barcelona and 2000 Sydney Paralympic Games, 8 athletes have joined 2004 Athens Paralympic Games at branches Athletics, Shooting, Powerlifting, Table Tennis, Archery, Swimming. Gold medal and bronze medal in Shooting were won. 16 athletes has joined 2008 Beijing Paralympic Games at branches Athletics, Shooting, Powerlifting, Table Tennis, Archery, Para-Table Tennis, Wheelchair Tennis, Judo for visually impaired. Gold medal in archery field and bronze medal in para-table tennis field were won. Turkey have attended to 2012 London Paralympic Games with 67 athletes (21 Female,46 Male). Turkish Paralympic Team won 10 medals. One Gold medal in Powerlifting, 5 Silver medal in Table Tennis (2), Judo, Powerlifting, Shooting, 4 Bronze medal in Goalball, Judo, Archery, Powerlifting.

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The number of people with disabilities is increasing in the world today. The overall reported prevelance is at least one person out of ten has disability in terms of physical, mental or sensorial in most countries (www.uno.org).

The loss or reduction in independence in such basic activities hampers personal freedom, reduces autonomy, and leaves the person more vulnerable to the detrimental physiologic and psychological effects of, and secondary conditions associated with, physical inactivity.

Health behaviours are within the control of people with disabilities. Individuals have the choice of achieving optimal health within their unique circumstances. The disability itself is usually not the main barrier to participation in athletic activities. Although individual differences are more pronounced among people with disabilities than those without, all have the capacity to improve their health and personal potential through regular exercise. Since there are no known negative effects of exercise but there are many positive effects on physical health.

The World Bank estimated that approximately 600 million people, or 10% of the world's population, have a disability and that 80% of these people live in developing nations. If families of persons with disabilities are included, at least 25% of the World is directly affected by disability. (www.who.int) .

Turkey has a population of 75.627.384 million. Rate of disabled population is 12.29% that means 9.294.605 million. The proportion of people having orthopedically, seeing, hearing, speaking and mentally disabled people is 2.58%. The proportion of people having chronic illnesses is 9.70%.The highest disability proportion is observed in orthopedically. The lowest disability proportion is observed in hearing disabled people.

The rate of disability in Turkey by regions: the Black Sea Region has the highest rate of 3.22%.The Marmara Region has the lowest rate of 2.23%.On the other hand, the proportion of people having chronic illnesses is the highest in Marmara Region with 10.90%.This proportion is the lowest in Southeast Anatolia Region with 7.8%

Age structure of disability; in 0-9 age group, the proportion of orthopedically, seeing, hearing, speaking and mentally disabled people is 1.54%. The proportion of orthopedically, seeing, hearing, speaking and mentally disabled people is doubled in 20 - 29 age group. The proportion of people having chronic illnesses is also doubled in 50 - 59 age group.

Median age is an indicator used in evaluation of age structure of population. This indicator is that age which divides population into two equel pieces. The median age for orthopedically, seeing, hearing, speaking and mentally disabled people is 33.87 . The median age for people having chronic illnesses is 48.86. Median age for the total population is 26.24. In disabled population, median age of females is higher than that of males.

Educational level; the illiteracy rate of orthopedically, seeing, hearing, speaking and mentally disabled people is 36.33%. This rate for total population is 12.94%.Completed level of education is 36.37%. The rate of illiteracy in total population is 15.51%.

Marital Status, the proportion of never married in orthopedically, seeing, hearing, speaking and mentally disabled people are 34.41%. For people having chronic illnesses is 7.43%. The proportion of total population is 26.28%. Married-living separately and divorced people is 2.14% .The proportion of people having orthopedically, seeing, hearing, speaking, mentally disabled people is 1.92%. For people having chronic illnesses the proportion of married male population is higher than that of female population. The proportion of married-living separately, divorced and widowed female population is higher than that of male population.

Labor force status ; orthopedically, seeing, hearing, speaking and mentally disabled population's labor force participation rate is 21.71%. Population rate not in labor force is 78.29%.The labor force participation rate in people having chronic illnesses is 22.87%. Population rate not in labor force is 77.13%. Labor force participation rate for orthopedically, seeing, hearing, speaking, mentally disabled people for males is 32.22%, this rate for females is 6.7% . For males having chronic illnesses is 46.58%, this rate for females is 7.21%.The highest labor force participation rate in orthopedically, seeing, hearing, speaking and mentally disabled people is 24.75% in Marmara

Region. The lowest labor force participation rate is 17.38% in Black Sea Region. The highest labor force participation rate in people having chronic illnesses is 25.97% in Southeast Anatolia Region. The lowest labor force participation rate is 18.67% in Central Anatolia Region.

Unemployment; the rate for orthopedically, seeing, hearing, speaking and mentally disabled people is 15.46%.The rate for people having chronic illnesses is 10.77%.

Social Security Status; the rate of orthopedically, seeing, hearing, speaking and mentally disabled people is 47.55%.The rate of people having chronic illnesses is 63.67%.

The rate of congenital disability proportion in orthopedically disability is 73.30%,seeing disability is 76.32%,hearing disability is 67.10%.The rate of subsequent disability proportion; hearing, speaking disability is 46.63%,mentally disabled people is 47.92%. The proportion of congenital disabled people is higher in rural. The proportion of subsequently disabled people is higher in urban.

The status of being treated, the proportion of being treated of disabled people is above 50% in orthopedical, seeing and hearing disability. Orthopedically disability is 56.66% , seeing disability is 57.31%, hearing disability is 52.04%, speaking disabled people is 32.92%,mentally disabled people is 42.95%.

The status of using apparatus; the proportion using apparatus in orthopedically disabled people is 19.65%.The proportion using apparatus in hearing disabled people is 20.84%.The proportion using apparatus in seeing disabled people is 30.81%. The proportion using apparatus in speaking disabled people is 2.46%.In all types of disabilities, the proportion of being treated is higher in urban. In all types of disabilities the proportion of males being treated is higher than females. In all types of disabilities, the proportion of using apparatus is higher in urban .While the proportion of using apparatus orthopedically and hearing disabled males is higher than females, in other disabilities, this proportion is higher in females.

The causes of disability

1. The causes of disability of speaking disabled people are illnesses, genetic, mental disability, hearing disability
2. The causes of congenital disability are genetic, having problems during pregnancy, having problems during delivery.
3. The causes of subsequent disability are accident and illnesses

Disability Sports in Turkey: Adapted sports were introduced in the mid twentieth century as a tool for rehabilitation of injuries for war veterans. Eventually, adapted sports popularity have grown . People with disabilities now can participate on the recreational level as well as the international competitive level.

For the historical beginning of the disabled sports, Sir Ludwig Guttman was the first to organize various sporting activities for disabled people in The Stoke Mandeville Hospital for rehabilitation in wheelchairs in 1945. After 45 years in Turkey, First "Sports Federation For The Disabled" is established in 1990 and seperated at four disabled event in 2000. (visually-impaired,physically disabled, hearing-impaired, mental impaired) and it is the member of the IPC and IWBF on International level. Since then, sports for the disabled were not known but today have come to be recognized and known by everyone.

Turkish Sports Federation For The Physically Disabled (TSFPD) started to manage itself in 2006 and continued to control their works to present days. TSFPD is a unique foundation which supports the sportmen physically disabled in Turkey. We have 117 sports clubs and 3797 (3274 Male-523 Female) handicapped athletes exist under the Federation. Major leagues Wheelchair Basketball League is the biggest league in Europe.

15 of the 19 sports branches determined by the International Paralympic Committee are conducted by Turkey. National Paralympic Committee of Turkey was founded in 2002.

Turkish Sports Federation For The Physically Disabled Has Won

Total 35 Medals in 2007, World and Europe Championship: 22 Medals, International Tournaments: 13 Medals.

Total 31 Medals in 2008, World and Europe Championship: 13 Medals, International Tournaments: 18 Medals.

Total 63 Medals in 2009, World Championship: 13 Medals, Europe Championship: 16 Medals, International Tournaments: 34 Medals.

Total 88 Medals in 2010, World Championship: 19 Medals, Europe Championship: 21 Medals, International Tournaments: 41 Medals Balkans Championship: 7 Medals .

Total 146 medals in 2011, World Championship: 19 Medals, Europe Championship: 21, Medals, International Tournaments: 106 Medals.

Total 65 medals in 2012, World Championship: 8 Medals, Europe Championship: 15, Medals, International Tournaments: 42 Medals.

Only one athlete had represented Turkey at swimming in 1992 Barcelona and 2000 Sydney Paralympic Games, 8 athletes have joined 2004 Athens Paralympic Games at branches Atletics, Shooting, Powerlifting, Table Tennis, Archery, and Swimming. Gold medal and bronze medal in Shooting were won.

16 athletes has joined 2008 Beijing Paralympic Games at branches Athletics, Shooting, Power lifting, Table Tennis, Archery, Para-Table Tennis, Wheelchair Tenis, Judo for visually impaired. Gold medal in archery field and bronze medal in para-table tennis field were won.

Turkey have attended to 2012 London Paralympic Games with 67 athletes (21 Female, 46 Male). London Paralympic Games at branches; Shooting(5 athletes) , Power lifting (6 athletes), Goalball (6 athletes), Judo (6 athletes), Para-Table Tennis (6 athletes), Archery (11 athletes), Wheelchair Basketball (12 athletes), Swimming (2 athletes), 5-aSide Football (8 athletes). Athletics (5 athlete).

Turkish Paralympic Team won 10 medals. One Gold medal in Power lifting, 5 Silver medals in Table Tennis, Judo, Power lifting and Shooting, 4 Bronze medals in Goalball, Judo, Archery and Power lifting.

Future Plans: To increase the percentage of disabled people doing recreational sports up to 25-50%.

To increase the quality of life with the help of recreational and professional sports.

To increase the number of sports clubs in Turkey.

To increase the number of athletes participating in Paralympic Games.

To increase the number of women athletes and women managers.

To increase the number of trainers ,classifiers, for every branch of sports on national and international levels.

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Virtual Reality and Exergaming in Rehabilitation: Scientific Evidence and Practical Impact on Adapted Physical Activity (APA)

Invited Speaker

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ABSTRACT

Virtual reality (VR) is a spatio-temporal environment that mixes the sensation of real body structures with artificial objects. VR is often combined with gaming principles, such as rewarding for successful actions and providing sensory feedback. In many cases it is comprised of physical activity components, taken from recreational or competitive sports such as boxing, tennis, volleyball, surfing, etc. This modality of VR has been labeled Exergaming. The scientific interest in VR and Exergaming has rapidly increased in the last two decades. When entering the terms VR and rehabilitation within the PUBMED database in mid February 2013, 608 records were retrieved, and for the term Exergaming, 35 records. The most common populations attending VR studies were the elderly (192 records) and stroke survivors (191 records). Other common populations attracting VR research were children (70 records) and persons with cerebral palsy (30 records). Specific body functions that have been reported to be targeted through VR and Exergaming include balance, motor strength, upper limb and hand function, gait, motor control (e.g., body segment coupling), and cognitive functions. Participation in social play and cognitive activity is another domain of interest, particularly for children with autism spectrum disorders. Recent systematic reviews on the impact of VR and Exergaming compared to conservative types of therapy and exercise have addressed evidence suggesting that VR and Exergaming are effective in developing strength and endurance, in improving upper limb function anad activities of daily living, and in facilitating walking patterns and balance. However, VR has also shown a certain limitation after continuous practice, called cybersickness. This presentation will outline the current evidence on VR technology and outcomes, and will describe recent activity programs developed for using VR within a hybrid rehabilitation framework utilizing VR and a treadmill, as well as other exercise and balancing modalities for promoting motor control and rehabilitation outcomes, which could be utilized by APA practitioners.

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INTRODUCTION

Active or voluntary physical exercise in the real world increases one's fitness or wellness, if sufficient intensity and duration of the intervention is maintained. However, both initiation and maintenance of regular physical exercise is often limited, because people dislike sweating and become easily bored of repetitive training or exercise such as walking, stepping, or swimming. Thus, innovative developments that enable enduring exercise are warranted.

In the late 1940's Guttmann, the "father" of sports for the disabled has introduced the practice of various sport games as a means of rehabilitation (Guttmann, 1976). While participating in the sport games participants focused on what they could do rather than regretting what they could no longer do. Very often, the sensations addressed during the gaming world draw both voluntary and reflexive activity, which are not retained through regular exercise and physical therapy. It appears that stimuli engaged during gaming situations may exceed the boundaries experienced by users in their daily lives. During the past two decades a plethora of applications has been developed that simulate physical gaming environments and generate a virtual visual experience that is realistic and is activated by various input devices. Such applications have initially made use of keyboards and joysticks (e.g., the FIFA 13 © application that reached two million downloads within three days, see Miere, 2012). More recently, the methodology called augmented reality (AR) or virtual reality (VR) was developed, pertaining to real-time interactive experiences of physical, real-world environments augmented with computer-generated sensorial inputs, such as sound and graphics (Burdea, 2003). The semi virtual and semi realistic environment is usually projected on a screen, a table, a wall, or the floor, and is used as an arena for simulated gaming practices. Body segments are used as inputs for gaming reactions and the computer generates the stimulating script (Weiss, Rand, Katz, & Kitzony, 2004). Such environments are designed to immerse the participants into the gaming experiences and stimulate their reflexive activation (Kiryu & So, 2007). A variety of consuls and devices of which the most popular are the Xbox Kinect, Sony Eye Toy, Nintendo WII, and Konami's Dance, Dance Revolution. Such devices, accompanied by exergaming packets have become increasingly popular across traditional sporting environments such as fitness clubs, and are most popular in home settings. Therefore VR can be considered as a "high-tech" gaming environment as opposed to the "low-tech" sporting environment. The highest level of the technologically capable and costly systems is the Dutch Motek Medical Computer Assisted Rehabilitation Environment (CAREN). This system incorporates a six degrees of freedom movable ramp as well as a treadmill and a three-dimensional immersive experience, but until now primarily small scale studies have been made on it. The Canadian GestureTek Interactive Rehabilitation and Exercise System (IREX) was lunched about a decade ago, and was a heavily patented application designed to address the functional training needs of persons with disabilities and to record their outcomes. The IREX device, however, utilized a specially designed video camera, and a green screen, and was not feasible for mass rehabilitation purposes. In addition, its cost was too high for home use. More recent applications such as SeeMe and Timocco, developed in Israel, are examples of applications designed for both lab and home use, including tele-rehabilitation, where all the outcome data is stored on a server and isaccessible to consulting professionals who may be anywhere in the world. Many additional VR systems were tailor-made to address specific rehabilitation purposes. One such device is called V-Time, a multi-modal intervention solution for reducing fall risk (Mirelman et al., 2013), developed at the Souraski Medical Center in Tel Aviv. This device combines a treadmill with a specifically designed VR application for gait training individuals in danger of falling, such as those with Parkinson disease or the elderly. This system projects on a screen a front view of a street scene while following different pathways, and enables the trainees to view their feet while walking in the virtual environment and engaging with virtual obstacles, narrow corridors, and distracters. Systematic reviews have been published, for example those describing features of various VR systems (Galvin & Levac, 2011), expert opinions on VR usability (Dores et al., 2012), VR outcomes in stroke rehabilitation

(Henderson, Korner-Bitenski, & Levin, 2007; Laver, George, Thomas, Deutsch, & Crotty, 2012; Moreira, de Amorim Lima, Ferraz, & Benedetti Rodrigues, 2013; Saposnik & Levin, 2011), and amputee rehabilitation (D'Angelo, Narayanan, Reynolds, Kotowski, & Page, 2010).

The purposes of current review are (a) to analyze the development of research on VR as a rehabilitation modality, (b) to describe the major populations and functional domains targeted while using VR in rehabilitation, and (c) to discuss the specific benefits and disadvantages of VR for rehabilitation, compared to conventional exercise or sporting activities.

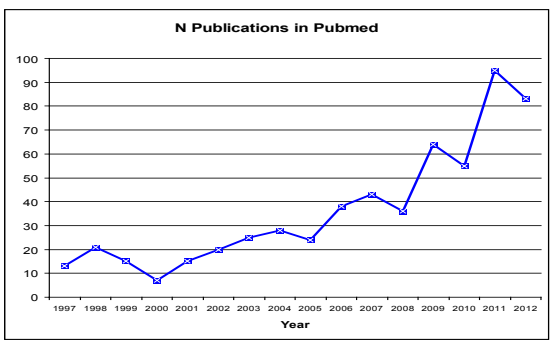
METHOD

In order to address the purposes of this review a survey was performed, retrieving data from the PubMed database searched using the terms "Virtual Reality" and "Exergaming" with "Rehabilitation." The retrieved titles were visually inspected across categories of publication year, target population, function, and other unique criteria. Abstracts and full papers were solicited where needed to complete the information required to ascertain on the appropriate category. For addressing the third purpose of the review, selected studies are reported in greater detail, as well as some additional recent studies performed at the Zinman College laboratories.

RESULTS

Evolution of Scientific Interest: PUBMED database was accessed in mid February 2013, and 608 records were retrieved for the term combination VR and rehabilitation. Another 35 were retrieved using the term Exergames. Wann and Turnbull in 1993, were the first scholars referring to the potential of extending the computer-enhanced therapy into speculative areas such as VR. The number of publications per year has considerably increased, mainly throughout the last four years, as can be seen in Figure 1.

Figure 1: Publication rate of VR related references as documented in Pubmed



Target Populations and Functional Domains: The analysis of target population indicated a vast majority (63% of the total amount) of those contributions targeting persons with stroke and the elderly. For details see Figure 2. The analysis of functional outcomes revealed that arm and hand function and balance attracted most research interest. Additional data are available in Figure 3.

Figure 2: Number of articles classified under population per year

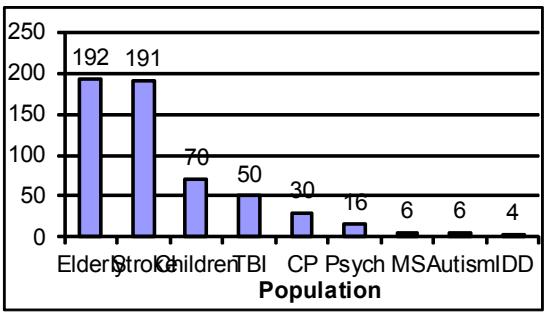
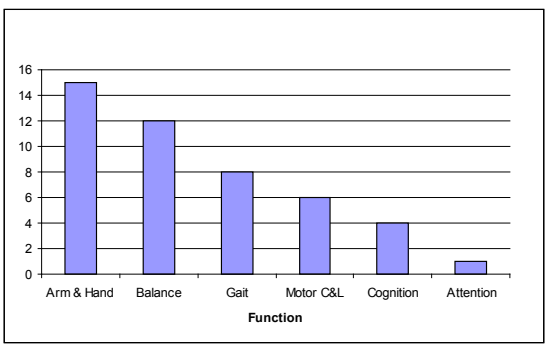


Figure 3: Number of articles classified under function per year



Comparison of VR and Physical Rehabilitation: Differences between the outcomes of interventions perf ormed using VR and comparative conservative physical activation modalities such as treadmill or hand and arm devices, were assessed in a few studies. For example, Viau, Feldman, McFaden, and Levin (2005) investigated the

kinematics of reaching, grasping and releasing made in physical and virtual environments of 15 (8 healthy and 7 post stroke) adults. The authors reported that although some differences did occur across participants, the movement strategies were similar under both conditions and therefore concluded that VR training could contribute to reaching and grasping training. Another study focused on comparing virtual and physical interventions while gait training to reduce risk of falling in persons with Parkinson disease (PD). Mirelman and associates (2011) were able to confirm significant improvements of VR augmented treadmill training on gait parameters (stride length and velocity) as an outcome of dual task VR augmented walking with the V-Time system.

Several small-scale pilot studies were performed at the Zinman College laboratories in Israel with post stroke fitness training participants. In the first study, six participants with hemiplegia caused by stroke, traumatic brain injury, or a tumor, with >3 years of exercise experience were randomly allocated to either a VR or a treadmill training (TM) group. A Wii console was attached to an LCD monitor, and VR participants trained for a 21-min boxing routine, including 3 min working on the Bag, 3 min throwing punches and 15 min training in the virtual boxing arena. The TM group continued their traditional exercise routine of 50 min walking at a self-selected pace. Pre and post tests were performed prior to and after eight training sessions in both groups. The outcomes revealed that VR participants were exerting significant energy, with a mean maximal HR of 123 bpm and mean average HR of 117 bpm. However, they did not perceive the exercise as very tiring, with a mean RPE of 4.6 (moderate activity). Mean comparisons across groups revealed interaction effects on the Energy Expenditure Index and 10-m walking speed in favor of the VR exercisers. These outcomes appear to indicate significant speed and endurance training effects in the VR group. In another study, three individuals with post stroke hemiparesis (two males and one female) 54 to 66 years old, participated in eight sessions of dual-task walking (DTW) on a treadmill while performing virtual tasks, and eight sessions of single-task treadmill walking (TMW), in a cross-over design. Their walking speed, balance performances, and perceived confidence were measured four times along different stages of the study. The outcomes of two participants demonstrated improvements in each of the outcome measures (including the 10m walking speed and cadence, the timed up and go test, the Berg balance test, the frontal and lateral reach tests, and the activitiy-specific balance confidence test) after the DTW intervention, and no change after the TMW intervention. One participant who had a higher baseline mobility level demonstrated almost no improvement after the DTW. The authors of this pilot study suggested that these outcomes demonstrate the potential benefit of DTW using VR of upper extremity tracking while treadmill walking on gait and balance performances in stroke survivors.

Limitations of VR: Several authors have noticed side effects and even disadvantages accompanying VR exposure that should be considered when applying such applications to individuals with disabilities, as some users have experienced side effects during and after exposure to virtual reality environments, including ocular problems, disorientation and balance disturbances, and nausea, also called cybersicknes (Kiryu, Ijima, & Bando, 2005; Lewis & Griffin, 1997). Another limitation seems to be the individualized psychosocial reward needed, as observed from a study by Anderson-Hanley and associates (2011). The authors trained 14 older adults to ride a "cybercycle" - a virtual reality-enhanced stationary bike within a framework, including interactive competition. The outcomes reveled that performance increase was significantly influenced by pre-training competitiveness, in favor of the competitive participants.

CONCLUSION and SUMMARY

Twenty years after its emergence into the world of rehabilitation, VR technology has made a significant impact within the area of rehabilitation exercise. However, while many tasks and modalities of VR frameworks and interfaces have been developed, there is still very limited evidence suggesting an effective transfer to real world participation. Initial research suggests that the social effectiveness of VR is limited. Further research comparing VR interventions to real-world exercise and sport participation is warranted to determine how to more effectively and efficiently utilize future interventions.

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Special Olympics (non- competitions) Global Initiatives

Invited Speaker

Mariusz DAMENTKO
Sports Director, Special Olympics Europe- Eurasia

ABSTRACT

The mission of Special Olympics is to provide year-round sports training and competition in a variety (33) of Olympic- type sports for children and adults with intellectual disability, giving them continuing opportunities to develop physical fitness, demonstrate courage, experience joy and participate in sharing of gifts and friendship with their families, other Special Olympics athletes, and the communities. But Special Olympics Movement very often goes beyond sports competition formula. During last years the Movement develop many new global no competitions initiatives which expands its former sports activities:

1. Coaching excellence and coach model is one of the most critical issue to be better defined with the current number of 4 million athletes officially registered not to lose quality trainings.
2. Athletes Development Model is more comprehensive athletes training approach with all its elements starting from Young Athletes Program, Motor Activity Training Program, Fundamental training, Competition experience, High Performance through Masters Program.
3. Partnerships with international and regional sport federations is one of the main focus in better coaches education as well as more visible Special Olympics promotion as the Movement having good connections with professional and recreational sports.
4. Athletes Leadership Program (ALPS) as the way to offer persons with ID other roles than the athlete`s role but also assistant coach, judge, volunteer, public speaker, journalist etc.
5. Young Athletes Program is engaging children younger than 8 years of age in different sports oriented activities as the early intervention through games and plays.
6. Youth- volunteers initiatives are the best way to educate school age population about ID and prepare mainstream pupils to help SO Programs as volunteers, assistant coaches and play many other roles in the Movement.

These initiatives fulfill and expand existing from 1968 the biggest sports organization for people with disabilities word wide with very important new social, marketing and developmental aspects of life going far beyond activities met in other sports organizations.

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The mission of Special Olympics is to provide year-round sports training and competition in a variety (33) of Olympic- type sports for children and adults with intellectual disability, giving them continuing opportunities to develop physical fitness, demonstrate courage, experience joy and participate in sharing of gifts and friendship with their families, other Special Olympics athletes, and the communities. But Special Olympics Movement very often goes beyond sports competition formula. During last years the Movement develop many new global no -competitions initiatives which expands its former sports activities:

Coaching excellence and coach model is one of the most critical issue to be better defined with the current number of 4 million athletes officially registered not to lose quality trainings.

The most important objective for the Organization, after last 10 year period of time (2000-2010) when most important was increase number of athletes, is actually professional coaches and sports instructors education and excellence to provide Special Olympics athletes the best conditions for their development. For this objective described was model of excellent Special Olympics coach with the most important skills and values:

A/Complete knowledge of specific sport and its rules;

B/Good communications skills are critical in work with persons having these skills limited;

C/ Good knowledge of psychology to know how better motivate or de-motivate (hyperactive) athletes with intellectual disability;

D/ Good knowledge of medical aspects of intellectual disability as such as: obesity, cardiologic problems, seizures, autism, orthopedic, visual and hearing limitations etc.;

E/ Ability to establish individual goals for each athlete: realistic and short-term rather than long-term;

F/ Physical fitness giving opportunity to demonstrate exercises and routines and very often physical support for the athletes with very limited mobility;

G/ Management skills necessary to organize competitions and travels for competition and training camps;

H/ Knowledge of First Aid;

Athletes Development Model is more comprehensive athletes training approach with all its elements starting from Young Athletes Program, Motor Activity Training Program, Fundamental training, Competition experience, High Performance through Masters Program (for older population).

In this new concept athletes are trained in more professional way as it was earlier using:

A/ Permanent tracking content of each training and performance progress.

B/ Training sessions minimum 2 times a week.

C/ Conduct additional activities at home and fitness center.

D/ Using electronic guides as well as mobile devices by coaches.

Partnerships with international and regional sport federations is one of the main focus in better coaches education as well as more visible Special Olympics promotion as the Movement having good connections with professional and recreational sports.

Very important part of Special Olympics Strategic Plan 2011-2015 is creating the calendar of meetings and conferences with international sports federations to establish strategic partnership especially in area of coach's education but also other aspects. As a part of such calendar included will be visits of international sports federation leaders at the Regional and World Special Olympics Games as well as Special Olympics conferences and meetings.

Good example of excellent cooperation with SO is partnership with UEFA initiated in 1998 thanks to support SO Monaco. UEFA donated till today over 3,000,000 €, which allow to organize many European Football initiatives like tournaments, conferences, SO European Football Week, production of educational and promotional materials as well as promotion during Champions League Finals (2011,2012,2013). Culmination of this cooperation was Special Olympics demonstration match just before UEFA EURO-2012 quarter-final in Warsaw, Poland.

Very good collaboration is also with European Basketball Federation FIBA Europe since signing Protocol of Partnership in Rhodes,

Greece In 2004. This collaboration gave specific out-comes in Special Olympics promotion during EuroBasket in Serbia (2005), Poland (2009) and in Lithuania (2011).

In addition to very good collaboration with FIBA Europe, there is just tremendous cooperation with Euroleague Basketball initiated in 2009 and enlarged in 2012 with its One Team CSR Program . This is reflected in wide promotional campaign during annual Special Olympics European Basketball Week in end of November. Special Olympics athletes show up at the playing courts of 24 European clubs together with Euroleague pro-players, spectators can see SO logo and message on bands and LED surrounding court, and SO stickers in the middle of the court. There were also serious of SO activities and demonstration during last 4 editions of Euroleague Basketaball Final Four, with last one in London.

LEN (European Swimming Federation) is another European federation SOEE has great collaboration with since 2005. LEN invites Special Olympics swimmers to participate in demonstration races during European Swimming Championships every year. There were already two such demonstrations at the long pool in Budapest in 2006 and 2010 as well as at the short pool in Helsinki, Rijeka and Eindhoven. Similar demonstration will take place first time in Poland at the European Short Poll Championships in Szczecin in December 2011 and in Debrecen on 2012.

Special Olympics bowlers also have benefits from partnership with European Tenpin Bowling Federation initiated in 2009. They could take part in demonstration matches at the Bowling World and European Championships in Munich, Germany in 2010 and 2011 and the Netherlands in 2012.

Actually in 2011, signed were in Lausanne two Proclamations of Partnership with European Athletics and Gymnastics Federations. Both federation`s Presidents declared all kind of promotional activities for Special Olympics in the near future.

Also in 2011 there was signed proclamation with International Floorball Federation and this is the most profitable partnership which brought this sport to 2013 Special Olympics World Winter Games in Korea as well as SO demonstrations during IFF World Championships in Zurich and St. Gallen.

There were also two important partnerships signed in 2012 with Tennis Europe and European Volleyball Federation (CEV).

Very big importance had Proclamation of Partnership with International Federation of Adapted Physical Activity (IFAPA) signed during SO European Games in Warsaw in September 2010 by prof. Shayke Hutzler, IFAPA President and dr.Timothy Shriver, SOI President. This Partnership can open better communication and cooperation with many organizations and universities in all continents.

Athletes Leadership Program (ALPS) as the way to offer persons with ID other roles than the athlete`s role but also assistant coach, judge, volunteer, public speaker, journalist etc.

Special Olympics gives many possibilities also to those persons with intellectual disability who already finished practicing sport or those who have never been involved as the athletes. This is empowerment of these persons, giving them chance to be closer to their colleagues-athletes, and sometimes even making decisions in Special Olympics Program. This is possible because persons with I.D. can be Board members of SO national or regional Program. This is even required in order to get official accreditation in Special Olympics. They can also play role of assistant coach, helping in training sessions, taking care on younger athletes and equipment, conducting warm up etc. Persons with I.D. after specific training can also be assistant of officials (judge) during competitions and they are doing it very well. Many of SO former athletes like very much to be a volunteers, performing different jobs during competitions f.e. distributing food or drinks, passing awards to be presented by VIPs etc. Some of former or actual athletes after appropriate training can be a very good speakers and represent other athletes at different meetings and ceremonies and they are called Global Messengers. In some countries there were created a groups of journalist/ reporters with I.D. make reports and programs from Special Olympics competition, interview with celebrities etc.

Young Athletes Program is engaging children younger than 8 years of age in different

sports oriented activities as the early intervention through games and plays.

Young Athletes is an innovative sports/play program designed to introduce children with intellectual disabilities to the world of sports at an early age (2✣ to 7). Young Athletes was initiated at the request of parents who wanted a program for younger children with intellectual disabilities, prior to the start of their eligibility for Special Olympics. The program was created to promote motor, social, and cognitive development in children through physical activity and play.

By examining Young Athletes programs in several countries (Azerbaijan, Chile, Israel, Panama, Paraguay, Romania, United States and Venezuela), the research provides a comprehensive, global look at the program and evaluation of its effectiveness. It accomplishes this by using several methodologies including registration forms, surveys, site visits, and parent interviews.

Findings indicate that Young Athletes has a significant impact on both the young people who participate and their parents, sometimes in unintended ways. Though the primary focus of the program is motor skills development, teachers and parents who were interviewed repeatedly note that benefits extend to area like improved self-esteem and attention span. As an additional benefit, parents gain increased awareness of their children's abilities, learn new effective methods for engaging with their children, and receive support from others who are struggling with the same issues.

Youth- volunteers initiatives are the best way to educate school age population about ID and prepare mainstream pupils to help SO Programs as volunteers, assistant coaches and play many other roles in the Movement.

Special Olympics organization and its great development was possible thanks to the volunteer`s movement. There is no doubt that the core of this movement are young people: students and pupils. Very necessary is though, possibly early education and encouragement to become a volunteer. Therefore Special Olympics Get Into It Program was designed. This Program is consisted of manuals for teachers of mainstream schools helping them conduct lessons on intellectual disability, acceptance, tolerance, respect for every person ending on: how can they help Special Olympics as volunteers. There are four levels of these manuals depending on age of the students starting on first grades of primary schools ending on high schools. There are very good effects of this Program assessed by some evaluation research showing much better perception and easier integration children with and without intellectual disability.

Many of these students who went through this Program became a volunteers Turing SO European Games in Warsaw In 2010, also many of them took part in deeper Programs and SO Youth Conferences In different parts of Europe.

Described in this paper Special Olympics new initiatives together with other initiatives existing earlier like Healthy Athletes Program or Motor Activity Training Program are very important addition to existing since 1968 strictly sport trainings and competitions in 33 different sports. These are very important social, medical, marketing and development aspects going far beyond areas offered by other sports organizations.

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EUDAPA = European University Diploma in Adapted Physical Activity

Invited Speaker

Jyrki VILHU
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ABSTRACT

European University Diploma in Adapted Physical Activity (EUDAPA) –programme has been organized at Vierumäki campus (Finland) since academic year 2009-2010.The programme is run in English language. Yearly about 30 teachers and about 20 students from European universities participate this programme. About half of the teachers and students come from non-Finnish universities. These universities have a bilateral LLP/Erasmus agreement with Haaga-Helia University of Applied Sciences. The other half of teachers and students come from Finland The extent of the programme is 60 study points (ects) and half of it (30 points) is studied through an intensive 13 week period in Finland. First part (10 points) a student has been studied at her/his home university and the diploma is finished by 20 points work placement. Contents of the 30 points intensive period is consisted by theoretical and practical lectures, some visits to Finnish institutions (eg. rehab center, prison, psychiatric hospital) and practical projects (5-7 of those each year). The diploma is granted by Haaga-Helia University of Applied sciences.

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BACKGROUD / HISTORY

The former DEUAPA (Diplomé Europeén Universitaire en Activité Physique Adapteé) programme has server as a model for EUDAPA. DEUAPA was originated at late 90´ by professor Jean-Claude de Potter and it was organized at Brussels, Milano, Bordeaux and Paris. Last DEUAPA programme was organized 2005-2006 by Claire Boursier (IFAPA president 2011-).

In few years there was no diploma-level all European programme at all. Since we have an extraordinary good unofficial network of apa teachers around Europe, like 30-40 teachers from about 20 universities and about 30 universities, there was a silent statement made: " We need to assure, that there will be a (low entrance) European curriculum of apa in there future, too".

So from academic year 2009-2010 Haaga-Helia UAS took the organizing responsibility.

General Objectives: Are defined through competencies, skills and attitudes the student has or will gain.The student acts equal way to all people in her/his actions. She/he is able to take into consideration the qualities of different individuals when planning, organizing and carrying out sports activities. She/he wants and is able organize physical activity to different people in inclusive settings, whenever it is possible and makes sense.

The student is able to adapt school curriculum in physical education to reflect current conditions and the needs of all students with special needs in physical education. (EIPET 2009)

The student is aware of the risk factors of health and physical activity and is able to give counseling in these matters. She/he is able to take into consideration factors connected to contacts and interaction in individual and group activity. She/he is familiar with special questions concerning apa administration. Through creativity she/he is able to bring new elements to adapted physical activity – to continue adapting.

Extent & Structure (Totally 60 Ects)

1. 10 ects (minimum) studies of apa at home university before joining.
2. 30 ects the intensive 3 months at Haaga-Helia UAS. This intensive program is held in English. After intensive program.
3. 20 ects apa-related work placement in a foreign country with a report of this.

The diploma (60 ects) is granted by HAAGA-HELIA UAS.

The Intensive 13 Weeks consists;

a. theoretical and practical lectures from the leading apa-experts in Europe and in Finland
b. some visits to finnish institutions (e.g. rehabilitation center, prison, psychiatric hospital)
c. 5-7 practical projects, in which students will try the theoretical things they have learned in practice (John Dewey: Learning by Doing). e.g.:
   - sports-week for the elderly 3 days)
   - sport weekend for children / adolescents with cp / Spina Fibida
   - recreational days with individuals with psychiatric disorders (3 days)
   - physical education lessons for individuals with intellectual disability (also in inclusive settings) (~3 days)
   - inclusive winter-sports week, EUDAPA-students together some individuals with specials needs (~5 days)
   - prison day
   - educational trip (~5 days)

The intensive 3 months will take place mostly at Lahti area in Finland. The theoretical weeks will be organized at Sport Institute of Finland at Vierumäki (30 km from Lahti) www.vierumaki.fi , where the campus of Faculty of Physical Activity

of Haaga-Helia University of Applied Sciences is located. www.pajulahti.com , and the inclusive winter-sports week somewhere in the northern part of Finland.

Eligibility For A Student

* she/he has to have a at least 10 ects of apa (or apa-related) studies at her/his home university before applying to intensive course at Haaga-Helia UAS
* the student has to have a sufficient knowledge of English
* the home university and Haaga-Helia UAS has to have a bilateral LLP/Erasmus/Socrates agreement

is partly based to LLP/Erasmus/Socrates agreements between Haaga-Helia UAS and the participating university. This will make it possible to the partner university to support financially the participating student (and teacher as well). Haaga-Helia UAS will provide the facilities, the running of the programme and the Finnish teachers. The is no special scholarship for EUDAPA, on the other hand teaching is free for a student.

Costs For The Student: for accommodation in double rooms in a flat with 2 rooms + joint kitchen + joint bathroom is about 300 €/month. Student lunch at the university is 2,70 €. For the inclusive winter-sports week and international visit some extra 200-400 € is needed for transportation & lodging.

Applications For 2014 Programme
before 25.10.2013 to Mrs. Noora Viljanen noora.viljanen@haaga-helia.fi.

Instructions to get application forms are available at EUDAPA´s website at

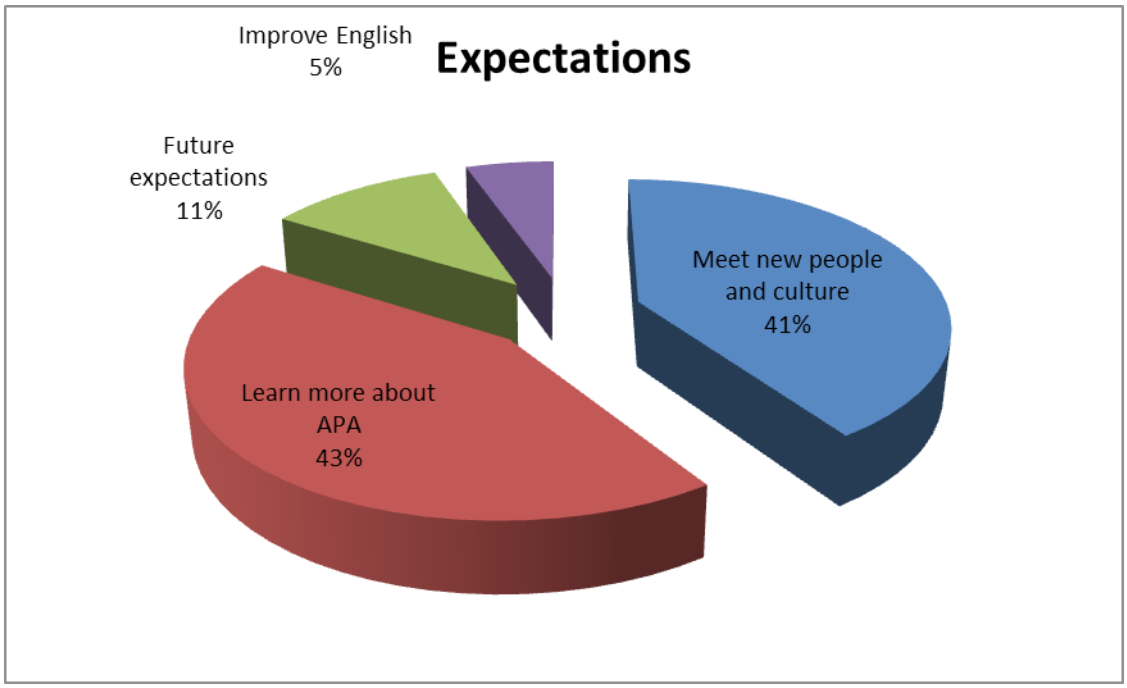
www.haaga-helia.fi/eudapa.

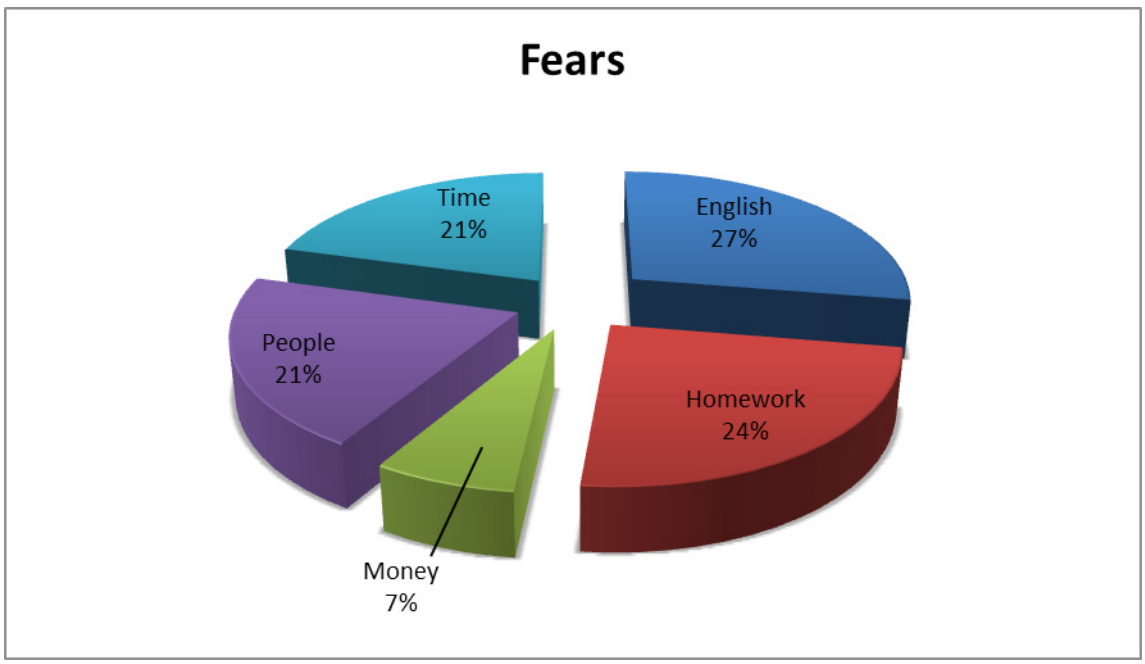
Any questions or further information: jyrki.vilhu@haaga-helia.fi

Appendix 1.

List of Eudapa Teachers 2009-2013

Name	Country	Years of teaching	Topic
Aaltonen Timo	Finland	2	alpine skiing
Barrett Ursula	Ireland	3	aquatics Halliwick
Borremans Erwin	Finland (Belgium)	2	autisms
Dinold Maria	Austria	4	inclusion / dance
Doll-Tepper Gudrun	Germany	4	philosophy
Ferreira Jose Pedro	Portugal	1	psychology
Gomendio Alberdi Marg.	Spain	2	relaxation tech.
Hirvensalo Mirja	Finland	1	seniors
Hollo Mika	Finland	2	alpine skiing
Hristova Mirela	Bulgaria	3	psychomot. ther.
Huovinen Terhi	Finland	1	heterogenious gr.
Hämäläinen Jyrki	Finland	4	nature / grouping
Inal Serap	Turkey	3	physical disabilit.
Janecka Zbynek	Czech Republic	3	visual impairment
Karinharju Kati	Finland	1	outdoor
Kilpelä Niina	Finland	2	accessibility
Klavina Aija	Latvia	4	peer tutoring
Koivumäki Kari	Finland	4	Min. of Educ.& C.
Koseva Petya	Bulgaria	1	paralympics
Kristen Lars	Sweden	3	sports clubs
Kudlacek Martin	Czech Republic	4	inclusion
Lahtinen Riitta	Finland	3	tactile communic.
Laiho Tiina	Finland	2	alpine skiing
Loovis Michael	USA	1	intellectual disab.
Mutanen Markus	Finland	2	ADHD
Nyberg Heidi	Finland	1	sign language
Ojala Stina	Finland	1	blind-deafness
Packeviciute Ausrine	Lithuania	3	seniors
Palmer Russ England	Finland	3	tactile communic.
Parviainen Jukka	Finland	1	helping aids
Pérez Javier Tejero	Spain	2	competitive sport
Reklaitiene Diana	Lithuania	3	seniors
Rintala Pauli	Finland	4	intellect. disability
Ruiz Pedro	Spain	4	games
Räty Jari	Finland	2	child welfare
Saari Aija	Finland	2	social inclusion
Saatsi Jari	Finland	2	alpine skiing
Siivonen Tiina	Finland	4	assisting wheelch.
Tervo Erkki	Finland	4	appar. gymnastics
Valkova Hana	Czech Republic	4	special Olympics
Varho Manu	Finland	2	self-defence
Vilhu Jyrki	Finland	4	eg. psychiatric, ski
Özer Dilara	Turkey	4	Sherborne





Feedback: *General evaluation (made in groups of 4-5)*

The length (3 months): It ´s the perfect length for the program: time to know each other, doing different projects and learning different fields of the APA.

Relation between study points / students work: Good division between the projects and the theory part.

Exam system: The system of having 3 different exams I is a really good way. However, one difficult thing about the exams was the different kind of expressions of every teacher because some of the questions are not clear enough.

Idea of weekly themes: It was a good idea to distribute the theory first and then apply to the

practice in the projects. It was nice also to start with global topics to specific ones.

Practical projects: It´s the best idea to learn the most, as you can apply all the knowledge learned. However some of the group could be more challenging.

Visits to institutions: It´s very practical to know how they work in the real life, also those arepotential work places especially for finnish students, and new and great experiences for the foreign students.

General organization (like enough information, facilities, transportation…): The organization was good but the main difficult for all the students, especially for the exchange students, was the transportation to go to the different places and activities out of Vierumäki. However, thinking about booking the van was a good solution.

Language: It's a pity for all the exchange students to not having the chance to get deeply to the projects, as in most of the practical groups less than half of the participants talked in English. It has been a great communication between EUDAPA group and with most of the teachers.

But if there is a certain level of English required for students the same should apply to teachers as well. Topics, that should have been, but were not: It would be really nice to have the opportunity of interact with people with cancer.

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Competencies of Physical Educators Toward Inclusive Physical Education

Invited Speaker

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ABSTRACT

Inclusion in general education is widespread phenomena in most European countries, North America and growing number of countries worldwide. However there is limited number of studies focused on description of determinants of successful inclusive physical education. Relatively common finding among studies in different countries is: (a) lack of perceived competence among physical educators and (b) lack of support resources/services for general physical educators in inclusive PE. The aim of this presentation is to provide frameworks for developing professional competencies related to inclusion in physical education. First the framework for general physical educators will be provided followed by competencies for adapted physical educators. These two will be discussed in relation to professional competencies for general teachers, possible employments for APE graduates and study programs in the USA and EU.

Key Words: *EUSAPA, EIPET, APENS, Disability, Sport Studies*

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INTRODUCTION

In past years persons with disabilities have experienced improvements in many areas of their lives. However, the area inclusive physical education has stayed on boundaries of inclusive approaches. The quality and availability of services and education in inclusive physical education differs from one European country to other. International studies (Kudláček, Válková, Sherrill, Myers & French, 2002; Lienert, Sherrill & Myers, 2001; Meegan & MacPhail, 2006) tell us that with a growing number of students with disabilities being included in general education, more and more physical education teachers are faced with the reality of teaching these students together with the rest of the children. In most cases teachers are not permitted to decide if they will have a student with a disability in their class, but they can decide to which extent they will include this student (Lienert et al., 2001). There is a great difference between dumping children with disabilities without proper support into general programs and including them in education with other children (Block, 1994, Sherrill, 1998).

According to Sherrill (1998, p. 107),"The practice of assigning almost everyone to regular physical education and assuming that teachers will take the initiative in adapting instruction is widespread." With a growing number of students with disabilities being included in general education, more and more physical educators are faced with the reality of teaching these students together with the rest of the children. Unfortunately while school inclusion in academic disciplines has been relatively successful, physical education has been largely overlooked and many educational systems in Europe were not able to put in place systematic support for inclusive PE. The area of physical education is many times overlooked and even in countries which mandate inclusive education for all students regardless their disabilities, there is lack of support for inclusive physical education. There is no evidence that inclusion work in physical education without proper support on the other hand with appropriate support and competencies of physical educators' inclusive physical education is viable teaching practice (Block & Obrusnikova, 2007). The aim of this presentation is to provide frameworks for developing professional competencies related to inclusion in physical education. First the framework for general physical educators will be provided followed by competencies for adapted physical educators. These two will be discussed in relation to professional competencies for general teachers, possible employments for APE graduates and study programs in the USA and EU.

Competencies of Physical Educators Toward Inclusive Physical Education: It is important that future physical education (PE) teachers be prepared to work with individuals with disabilities in inclusive settings. One of the areas of competencies to focus on in order to be ready for teaching in inclusive settings is attitude (Sherrill, 2004). Specifically, Sherrill (2004) organizes the competencies that future PE teachers need to acquire under (a) philosophy, (b) attitude, (c) knowledge, and (d) skill. One of approaches for improvement of competencies of general PE teachers in relation to inclusive physical education is project "EIPET" European Inclusive Physical Education Training is a two year project supported by the Leonardo da Vinci fund through Léargas the National Agency for Ireland (LLP/LdV/TOI/2007/IRL-502). A functional map of the physical education teachers' role and the knowledge competence and skills requirements of PE teachers were developed. Functional map and knowledge, skills and competence framework were built around PAPTECA model: P = Planning; A = Assessment; P = Prescription; T = Teaching; E = Evaluation; C = Consulting and Coordination of resources; A = Advocacy. We strongly believe that PAPTECA areas create sound framework for service delivery in the area of adapted physical activity. In functional map we have focused on the nature of teaching jobs of PE teachers in KEY AREAS, KEY ROLES and finally KEY FUNCTIONS. An example in TEACHING KEY AREA (Teach students with special educational needs in an inclusive setting together with students without disabilities) where one of KEY ROLES would be: Adapt teaching in order to meet the needs of ALL students in inclusive physical education. In KEY ROLE of ADAPTATIONS we would have following KEY FUNCTIONS: (a) Adapt or acquire appropriate equipment, which can facilitate inclusive physical education (e.g. brightly coloured,

sounded, lighter or heavier, bigger); (b) Task analysis of desirable skills with the aim to adapt them to suit the needs of students with special educational needs; (c) Adapt the rules of games to facilitate inclusion; (d) Adapt teaching style to facilitate inclusion; and (e) Adapt physical setting (current environment) to facilitate inclusion. The second important outcome of EIPET project was Knowledge, skills and competence framework Competence Skill and Knowledge are understood to mean the following: Competences (described in terms of responsibility / autonomy); Skills (described as cognitive or practical); and Knowledge (described as theoretical and/or factual). With the above described key area (Teach students with special educational needs in an inclusive setting together with students without disabilities) we would have following competencies, skills and knowledge essential to assure successful inclusion. COMPETENCE: Adapt teaching in order to meet the needs of ALL students in physical education. SKILLS: (a) adapt own teaching style to facilitate inclusion; (b) acquire or adapt appropriate equipment; (c) adapt the games and activities; (d) ability to do task analysis; (e) creative practice and problem solving. KNOWLEDGE: (a) teaching styles appropriate for inclusion; (b) task analysis; (c) adapted games; (d) adaptation strategies. In summary we have following four key areas of job functions we believe general physical education teachers can required to provide: (a) Plan developmentally appropriate learning experiences in physical education, which are also suitable for students with special educational needs (with disabilities); (b) Teach students with special educational needs in an inclusive setting together with students without disabilities; (c) Evaluate progress of learning of students with special educational needs and effectives of applied teaching (support) strategies; and (d) Support professional development of self and others and development of the quality of teaching students with special educational needs. For successful teaching in inclusive physical education we believe general physical education teacher needs to acquire following competencies: (a) To adapt school's curriculum in physical education to reflect current conditions and the needs of all students with special needs in physical education; (b) To assess the current level of performance of students with special needs in physical education; (c) Plan developmentally appropriate learning experiences in inclusive physical education; (d) Prepare school class, and classroom for inclusion of student with special educational needs; (e) Adapt teaching in order to meet the needs of ALL students in physical education; (f) Manage students' behavior to assure the most appropriate and safe learning for ALL students; (g) Communicate with students with special educational needs and others who are directly and indirectly involved in teaching inclusive physical education; (h) Evaluate the progress of student with SEN in inclusive PE In relation to his/her IEP goals; (i) Evaluate the effectiveness of inclusive PE program; (j) Continue to develop own professional skills and knowledge and that of others; (k) Advocate for the needs and rights of students with special educational needs. We strongly believe that if the above described competencies are not acquired during university preparation training or in-service training (for teachers in the field) we cannot expect inclusion in physical education (LaMaster, Gall, Kinchin, Siedentop, 1998; Lieberman, Houston-Wilson, Kozub, 2002; Morley, Bailey, Tan, Cooke, 2005). However there is certain level of support which can be provided by teachers of adapted physical education, who can be employed as APE consultants as described by Kudláček, Ješina and Sherrill (2008) or Lytle and Collier (2002).

Competencies of Adapted Physical Educators: Adapted Physical Activity is relatively young academic discipline and service delivery which is aiming towards the improvement in quality of life and greater independence of persons with disabilities. Actually there is limited evidence of adapted physical education as profession in Europe. According to pilot survey in EUSAPA project there is legislation in most European countries guaranteeing inclusive physical education, but extremely limited support for resource personnel. In most countries only professionals with educational certificates might work in school setting and in many times there are no certificates for position, which can be titled adapted physical educator (English title used in the USA).

Some countries in Europe offer service delivery and training system for professionals

working with persons with disabilities (e.g. Czech, Finland, France, Sweden) while other countries have well developed academic study programs in APA but they have limited service delivery (e.g. Belgium, Italy, Ireland) and some countries have neither service delivery nor study programs in different areas of adapted physical activity.

The nature of work of APE teachers in Europe has not been thoroughly studied. The only information available is from the USA where this profession has been well recognized since 1960s. Kelly and Gansender (1998) have pointed out that APE can provide both direct and indirect services, while direct services mean direct teaching of children with disabilities and indirect service means providing support to teachers attempting to include children with disabilities in their GPE. A study by Lytle and Collier (2002) investigated APE specialists' perceptions of consultation. Results indicated that the skills, attitudes and knowledge of the APE specialist combined with the educational environment were influential factors in the types of services provided. The use of consultations and their implementation were often influenced by the social, intellectual and physical environment. All participants commented that no formal training in consultation was provided as part of their training. In another study Lytle and Hutchinson (2004) discovered the following roles of the APE teachers in the USA: (a) advocator; (b) educator; (c) courier; (d) resource coordinator; and (e) supporter/helper. While is the USA there is relatively long tradition in adapted physical education and since 2006 there is also framework of nationwide standards for certification in adapted physical education titled APENS (Adapted physical education national standards) developed by NCPERID (National Consortium for Physical Education and Recreation of Individuals with Disabilities) and tested for the first time in 2007. APENS focuses on 15 content areas including: (a) human development, (b) motor behavior, (c) exercise science, (d) measurement and evaluation, (e) history and philosophy, (f) unique attributes of learners, (g) curriculum and development, (h) assessment, (i) instructional design and planning, (j) teaching, (k) consultation and staff development, (l) student and program evaluation, (m) continuing education, (n) ethics, and (o) communication.

As there was the need to work on similar standards in Europe European Federation of Adapted Physical Activity decided to prepare the proposal for the project EUSAPA (EUROPEAN STANDARDS IN ADAPTED PHYSICAL ACTIVITY). This project has been developed in accordance with the aim of the European Federation in APA – "Encourage European cooperation in the field of physical activity to benefit individuals of all abilities." Objectives of proposed project were to describe the professional competencies in each of the three areas of Adapted Physical Activities: (i) adapted physical education in schools; (ii) adapted sports and recreation, and (iii) Adapted physical activities in rehabilitation. Functional Map in adapted physical education in schools describes all the functions or activities that may be performed by APE professional working in education, training and human resource management, either directly or indirectly (as service, or resource/ consultation provider). These EUSAPA aims are reflecting the best practice at a European level. The functional map both reflects current practice and anticipates the functions which may become more predominant in future when there will be need for APE specialists across Europe because of increased inclusions of students with disabilities in general education. Not all these functions will necessarily be performed in each school in every country. An individual school or teacher may select and perform a number of these functions according to their needs and possibilities.

Key competencies APE professionals should acquire can be divided in four areas focused on (1) preparation, (2) teaching, (3) evaluation and (4) collaboration and life-long learning. Competencies described in KCSF are (being able to perform): (a) Assess the needs (current level of performance) of students with SEN; (b) Adapt school curriculum in PE to meet the individual needs of all students with SEN; (c) Plan developmentally appropriate learning experiences in APE; (d) Prepare teaching environment before arrival of student with SEN; (e) Adapt teaching in order to meet the needs of ALL students in PE; (f) Manage students' behavior to assure the most appropriate and safe learning for ALL students in PE; (g) Communicate with students with SEN to ensure their understanding and maximum

participation; (h) Evaluate learning progress of student with SEN in relation to his/her IEP goals; (i) Evaluate the suitability of the curriculum adaptations to students with SEN; (j) Evaluate the effectiveness of applied teaching strategies; (k) Collaborate with various relevant professionals; (l) Collaborate with other advocates of students with SEN; (m) Improve professional skills and knowledge; and (n) Advocate for the needs and rights of students with special educational needs. With all competencies we should consider range of students of school age with various SEN among which we can include (1) visual impairments, (2) hearing impairments, (3) learning disability, (4) moderate and light mental retardation, (5) language problems, (6) chronic diseases like diabetes, asthma, (7) physical problems, and (8) some psycho neurological diseases (in some countries). Thus all APE professionals should acquire bellow specified knowledge also in relation to these SEN (and possible more in accordance with national regulations and legislation).

DISCUSSION

The current situation in inclusive physical education in Europe requires substantial improvements towards the philosophy and the practice of inclusion of students with SEN into PE classes. Some of the major conclusions of EIPET and EUSAPA projects are: (a) All PE teachers should receive an appropriate training in APE; (b) All professionals teaching PE in special schools or institutions for children and youth with disabilities should have an appropriate training in APE; (c) Appropriate support to PE of students with SEN should be provided by : (i) trained paraprofessionals (teacher assistants), (ii) peer tutors, (iii) using adapted equipment as necessary, and (iv) support of community sport services and, (d) adapted physical education consultants should be employed in all European countries in order to provide an appropriate support for physical education teachers in inclusive PE. These professionals could also work part time as PE teachers in special schools or classes and part time as APE consultants. The framework of competencies needed to become qualified APE professional is one of key outcomes of this project. Adapted physical education builds its APE related competencies on professional foundations in physical education and special education training programs. Finally, it is suggested that APE professionals should be prepared as a specialization within PE teacher education training with substantial space allocated for acquiring APE specific competencies developed as part of EUSAPA KCSF in APE.

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The Social impact of the Paralympian in a formal Educational Setting

Invited Speaker

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Paralympian and Project Trainer
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ABSTRACT

This oral presentation will be in a panel format and you will hear from three Paralympians, two from Turkey and one from overseas. The three of them represent over 38 years of Paralympic development and over 30 years working in the Educational and community environment.

In 2012 we have seen how the power of the Paralympics can impact on all our lives and in turn make people sit up and think more about inclusion and how they can work to develop a more strategic and cohesive approach in the context of both PE, APE and APA.

The three main questions in Education we are still asking today are:

- How can we use the Power of the Paralympic moment to influence social change?
- How can we use the power of the Paralympic moment to influence change in mainstream schools setting linked to PE and PA?
- Can I really embed this in my curriculum and what's it worth?

The two local Athletes will talk about their own personal experiences as Paralympians and education and the third will talk about how he has used the power of the Paralympics to change the mind sets in relation to what is inclusion and the impact of inclusive games/actives in both the UK and overseas in Primary/Elementary and Secondary/High schools from strategic /whole school development to hands on delivery for both teacher and Student alike.

The use so called Disability Sport such as Table Cricket and Paralympic Sport such as Boccia/Sitting Volleyball using a concept of reverse integration to develop both internal and external school competition as a mean of re-engaging young people in PE who have become disillusioned by the concept of winning and also realising the benefits of a more inclusive approach to PE and sport.

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It may be that if we work to include these actives/sport as part of our main curriculum then as alternative activities then not only are we development a more rounded programme but it may reengage youngest than have disengaged in school sport and provide a heather lifestyle.

Below is a case study that was carried out in chesterfield with over 5,000 students taking part in schools in Chesterfield UK.

Case Study: Meeting the Project Ability Challenge In Derbyshire England

The context: Brookfield Community School is a large, popular secondary comprehensive school which became an Academy in 2011, retaining its Specialist Sports College status. The school and SSP both work closely with the local community and partner schools to participate in many sports and community projects. Pupils are given every encouragement to fulfil their potential in many different areas, including academic, musical, sporting and community work and Project Ability initiatives form part of this and allow students opportunities to develop physically, intellectually and socially.

Aims: By working collaboratively across the county, the Project Ability aim was to improve connectivity between the levels of the Sainsbury's School Games, thus allowing more pupils with SEND the chance to take part in competition, but also increasing their opportunities to progress from intra- and inter-school competition to county events.

Objectives:

- To build skills and expertise and use these to develop SEND sport and competition both within districts and across the whole county.
- To provide more opportunities to progress from intra- to inter-school competition to county level.

Strategies: Adopt a strategic approach.Because the aims and objectives of Project Ability dovetailed so well with other development aims across the county, in his joint role as PDM and SGO Mark Tournier approached Derbyshire County Council and the County Sports Partnership and together they developed and implemented a county plan. Both organisations also added to the funding provided for Project Ability, allowing them to broaden this work with every school in every SSP district across the whole county.

Maximise the potential of sports that are inclusive.Some sports, such as boccia, sitting volleyball and goalball, lend themselves particularly well to inclusive situations and appeal equally to non-disabled and SEND youngsters. All schools in the Chesterfield district (mainstream and special) embedded these sports into their curriculum and ran intra- and inter-school inclusive competitions. The competition requirement was that players were not first team players in other sports, inorder to access a different group of pupils.Develop clear county pathways between intra and county level competition by taking training out as widely as possible.

A comprehensive programme of training events was developed and tailored to meet the different needs of different settings, but including Top Sportsability and inclusion training. Initially one full day of training was delivered to every SSP in Derbyshire County, followed by three hours training for each school and an additional half day bespoke training for each district, to support the SGO with inclusion. Every district then set up multi-sport clubs and held a minimum of two SEND inter-school competitions (rising to four the following year) which led to the county competition, with different events aimed at different SEND classifications and supported by Young Leaders. Communicate with parents and carers.

Parents and carers were approached directly at all events and other relevant occasions. A database of names, contact details etc. was established so that they could be engaged directly, rather than through schools. Every opportunity was taken to gain their interest and support.

Obstacles and challenges: Communication can be the biggest challenge: finding and gaining access to the right people, at the right level in

schools, who have sufficient authority to make decisions and drive initiatives forward and who will themselves target the right pupils.

Object ability case study summary

Meeting the Project Ability Challenge

Impact: Develop clear county pathways between intra and county level competition by taking training out as widely as possible.

A comprehensive programme of training events was developed and tailored to meet the different needs of different settings, but including Top Sportsability and inclusion training. Initially one full day of training was delivered to every SSP in Derbyshire County, followed by three hours training for each school and an additional half day bespoke training for each district, to support the SGO with inclusion. Every district then set up multi-sport clubs and held a minimum of two SEND inter-school competitions (rising to four the following year) which led to the county competition, with different events aimed at different SEND classifications and supported by Young Leaders.

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Obstacles and challenges: Communication can be the biggest challenge: finding and gaining access to the right people, at the right level in schools, who have sufficient authority to make decisions and drive initiatives forward and who will themselves target the right pupils.

Example: The Chesterfield SSP Paralympic Legacy Programme Games in 2012 included all eight mainstream and one special school across the Chesterfield district. Over 5000 young people participated and experienced inspiring assemblies delivered by Paralympian Martin Mansell.

Over 200 teachers, teaching assistants and leaders were trained in inclusive sports and PE programmes, with a particular focus on goalball, sitting volleyball and Boccia and demonstrations of how these can be integrated into both the non-disabled and SEND PE curriculum.

By focusing on a few sports initially, Chesterfield has taken them taken to a really high level and ensured effective training and comprehensive resourcing so that, for example, a range of balls are available for sitting volleyball to suit a range of ability levels and needs. The year culminated in a totally inclusive 'Festival of Sport' which saw large numbers of pupils from each of the nine Chesterfield schools all taking part in a competitive festival of the three highlighted sports. The festival was attended and run by Paralympians Martin Mansell and was an inspiring, action-packed and fun-filled day for all.

Impact: "It's been 12 months of exciting and invigorating work … For me, the inspiring things that I have seen come out, are the embedding of these sorts of activities within the (mainstream) curriculum, but also the sort of thoughts that the teachers have had about how they are looking forward to next year and how they are going to develop this further." Martin Mansell, Paralympian and Project Trainer

"It's a fantastic example of young people being made aware of disability sport and a great opportunity for kids who don't have a disability to really understand and gain empathy with those that do and that was one of the pledges we made when we won the Olympics and Paralympics." Gaynor Nash, Regional Olympic Legacy Co-ordinator

"It's an opportunity to celebrate some of the Olympic and Paralympic Values. It's about creating a legacy, of understanding really about inclusion and about the importance of the Paralympic Games in creating opportunities for disabled people. It's also about creating awareness of the different range of sporting opportunities that exist". Russell Barr, Headteacher Brookfield Community School

Top tip: Align training, resources and equipment by focusing initially on one or two key, popular sports, so that you can develop real interest and expertise. Use these to promote and develop inclusive sport and add in other sports later – boccia, goalball and sitting volleyball work particularly well.

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Adapted Physical Education in Middle East Countries

Invited Speaker

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ABSTRACT

Most countries in the Middle East consider education to be crucial for development and progress. Governments of these countries strive to provide an organized educational setting for their citizens and offer free education for both students with and without disabilities at all educational levels, which include elementary, middle, and high schools. However, the vast majority of male and female students with disabilities in the Middle East still receive their education in separate schools. In addition, many world educational experts (Bursuck & Friend, 2002; Gouveia, 1997; Sharpe, 2003; Starr, 2001) and local specialists (Alkhateb & Alhadedy, 2011; Alromeh, 2010, Alsalhe, 2011; AlZahrani, 2008) have stated that including students with disabilities in general classes, even in physical education, will generate both educational and social benefits for both students with and without disabilities. Some countries in the Middle East such as Saudi Arabia are still in the initial stage of considering the implementation of the inclusion concept in their public schools, including physical education. A country like the United States has implemented this concept for at least 30 years in the public schools under the labels of mainstreaming (Halvorsen & Neary, 2002), the Regular Education Initiative (D'Alonzo, 1990), and now inclusion (Block & Vogler, 1994). This presentation seeks to address some important issues regarding the inclusion situation in the Middle East. It will discuss weaknesses, strengths, laws, teachers and communities' attitudes, etc

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Education in Middle East (Saudi Arabia as an example): Saudi Arabia is one of the Middle East countries and considered one of the international countries that believes education can determine the future of the country. Therefore, organized educational program are provided for their citizens which is free and high quality education for all students at all levels including elementary, middle and high schools, and the universities (Ministry of Education, 2003).

As many countries, special education in Saudi Arabia focuses on teaching students with disabilities. Under the Saudi Labor and Workman Law (Article 51), a "person with disability" is defined as "any person whose capacity to perform and maintain a suitable job has actually diminished as a result of a physical or mental infirmity" (Gladnet Collection, 2002, p. 7). The Ministry of Education began a special education program in 1960 with opening Al-Noor Institute in Riyadh. Al-Noor Institute was the first governmentally supported training institute for male students who were blind. Four years later, the Ministry of Education opened the first school for girls who were blind and the Amal Institute in Riyadh for students with hearing impairments. This institute provided deaf children with education, training, and care. By this time, resources for students who were blind had expanded to five institutes (Al Ahmadi, 2009; Saudi Arabian Cultural Mission 2006).

The first institute for children with intellectual disabilities was the Al-Tarbiyah Al Fikriyah Institute. This institute opened in 1971 for both girls and boys. There has been a steady growth of resources for students with disabilities as new institutions are opened in different geographic locations according to the needs of each province. According to Saudi Arabian Cultural Mission (2006) "Schools for students with disabilities have increased from one school in 1960, to 27 schools in 1987, and most recently to 54, including 10 schools for students who were blind, 28 schools for the deaf students, and 16 schools for intellectual disabilities." (p. 9).

Attitudes of Teachers in Middle East Toward the Inclusion of Students with Disabilities (Saudi Arabia As an Example): In Saudi Arabia, there is a paucity of studies related to teacher attitudes toward teaching students with disabilities. The inclusion concept in Saudi Arabia was been implemented in some educational environments a few years ago with students with mild disabilities. Al Ahmadi, (2009) reported that both general and special education teachers did not have enough training to manage the behaviors of students with disabilities, especially those with learning disabilities. In contrast, Zamzami (2005), another Saudi researcher, examined the attitudes of preservice physical education teachers toward teaching motor skills to students with disabilities in inclusive classrooms in Saudi Arabia. Zamzami reported that preservice physical education teachers had positive attitudes toward teaching motor skills to students with emotional and behavioral disorders. These researchers focused on particular areas regarding attitudes (i.e., attitudes of general and special educators, and attitudes of preservice physical education students toward teaching motor skills). The researchers did not compare the attitudes of their participants to other participants from various countries who have different factors (e.g., religion, cultures, educational setting, experience with individuals with disabilities).

Attitudinal Change of Physical Educators: Downs and Williams (1994) reported that future teachers showed low perceived competence toward teaching individuals with disabilities. Older students (seniors) expressed more negative attitudes than their younger classmates (DePauw & Goc Karp, 1990). Downs and Williams (1994) also reported that women held more favorable attitudes than men. However, there was no difference in the attitudes by gender reported in the study by DePauw and Goc Karp (1990). Education preparation programs can also encourage future teachers to have more positive attitudes toward teaching students with disabilities. There are numerous researchers who have administrated attitudes surveys of physical educators toward teaching students with disabilities and how attitudes can be improved by providing successful programs (Hodge & Ammah, 2005; Hodge, Davis, Woodard, & Sherrill, 2002; Jansma & Shultz, 1982; Patrick, 1987; Rizzo & Kirkendall, 1995; Rizzo & Vispoel, 1991; Stewart, 1990). While the interventions, statistical designs, and assessment procedures

varied across the studies, significant improvements inattitudes were reported in all the studies. Researchers of these studies reported that positive attitudes can be developed within educational institutions by providing physical educators with appropriate coursework, training, and experience (Doll-Tepper,, Schmidt-Gotz, Lienert, Döen, & Hecker, 1994).One approach that can impact on positive student attitudes is the development of aninfusion-based curriculum model (Barrette, Holland Fiorentino, & Kowalski, 1993; Bartoòová, Kudláèek, & Bressan, 2007; DePauw & Goc Karp, 1994a; Lepore & Kowalski, 1992). The fundamental principle of infusion is that specialized courses in adapted physical education serve an important role in teacher preparation programs (Shaver et al., 1989). Nevertheless, an infusion-based curricular model integrates information about individuals with disabilities throughout the curriculum (Kowalski &Rizzo, 1996). Adelphi University provides the infusion based curriculum which is a model in which theoretical constructs called themes are systematically interwoven through skill, activity, and lecture courses. One of the themes focused on concepts, knowledge, and professional attitudes toward students with disabilities.

Factors Support the Inclusion in PE in Middle East (Saudi Arabia as an Example)

Media: The first factor that needs to be considered is the media. The media is the most effective method that contributes for changing any society's opinions about many things (Thinkquest, 2009). All media such as television, radio, newspaper, and the internet should bring specialists from other countries, like the United States, who have experience about the implementation of inclusion in physical education to explain to Saudi community the benefits of inclusion. The media is a great place for the Saudi specialists in adapted physical education, who received their educations from advanced countries which utilized the media system, to voice their thoughts and opinions. Through the media, these specialists can compare the separate schools and the inclusion schools and discuss the weaknesses and strengths of both. Saudi specialists can also use the media to clearly explain to Saudi society their proposed plans for inclusion in PE, so the community members understand that the inclusion will not change their culture. For example, they can include the girls with disabilities in the regular girls' schools, and do the same thing for the boys with disabilities.

School Service: The second factor to consider is a government plan of service for the students with disabilities in the regular schools before inclusion is implemented. All services in schools in Saudi Arabia are designed for students without disabilities. Therefore, the Ministry of Education should provide all schools with services for students with disabilities, specialized facilities, equipments, accessible bathrooms, doors wide, special parking for students with wheelchairs, rooms or tables for specialists to help regular teachers. The Ministry of Education in Saudi Arabia may also bring together panels with Saudi specialists and specialists from various countries who have experience and knowledge about services for students with disabilities in the regular schools. Thus, by taking necessary steps to ensure a smooth transition, students with disabilities will be able to receive the same high quality service that their peers without disabilities receive in the public schools.

Teachers Training: The third factor to address is teacher training. Physical educators training will play an important role in helping the people of Saudi Arabia to understand and support the concept of inclusion in PE classes. Saudi families will ask simple questions when they hear about inclusion in PE, such as who will teach the students with disabilities in the general PE; and are the PE general teachers qualified and have the necessary skills to work with this population? To answer those questions, we need to train the PE general teachers and encourage them to be successful and have positive attitudes toward teaching students with disabilities in their classes before implementing the inclusion.

Before including students with disabilities in the regular PE classes, the Ministry of Education should implement important steps, such as (a) providing specialists to train general PE teachers to be ready academically and emotionally, to work with students with disabilities, (b) providing the schools with Psychologists to help both teachers and students with and without disabilities, (c) providing them with information related

to successful strategies to teach students with and without disabilities in one PE class, (d) involving PE teachers with panels in their districts led by specialists who can help them with any challenges that they may face, and (e) involving them in weekly or monthly meetings with the parents of students with disabilities, the school principal, special education teachers, and specialists from their districts if they need them, so those general PE teachers can share in the process of developing individual plans for the students with disabilities for each school year.

The universities also must help prepare future PE teachers to be ready academically and emotionally to work with students with disabilities in their career. One way this can be done is by the universities providing undergraduate students with adapted physical education coursework which focuses on inclusion issues and concepts to prepare them to be more knowledgeable and successful. In addition, there are great special education and physical education departments in many universities in Saudi Arabia which provide undergraduate and graduate degrees in physical education to begin this process. Most of these universities currently do not provide any adapted physical education classes to the general future PE teachers because there is no need for such classes in the separate system. Therefore, before implement the inclusion in the country, these universities will need to develop adapted physical education classes for undergraduate PE teachers' candidates to prepare them in methods to use for students with disabilities in the inclusion enlivenment.

Society Change Timeline: There is a serious issue that specialists must consider before implementing the inclusion philosophy in PE classes. Will students with and without disabilities respect each other in the PE class? The answer to this question may be found by looking at the research that has been done previously by other countries who implemented the inclusion philosophy in PE what they found and what knowledge they have gained. Saudi Arabian people may not adjust to new things as fast as some countries. They deal with new things carefully. Therefore, Saudi Arabian researchers must determine the positive and negative issues are about inclusion in PE. The Ministry of Education may need to begin through including students with disabilities in their regular elementary schools. Both students with and without disabilities can accept each other more than students in middle and high schools. Moreover, through games and activities in physical education classes, all children in elementary schools can learn to accept each other and to become friends. Appendix A provides the PowerPoint that offers more details of the timeline.

Religion: Religious beliefs are powerful forces that drive culture. There are many habits, customs, folktales, stereotypes, hopes and fears of a community that occur because of the religious beliefs of that community (Mdaa, 2008). Religion is powerful factor that affects the attitudes of millions of people worldwide (Selway & Ashman, 1998). In Saudi Arabia, people are Muslims, and they respect their Islamic scientists. Therefore, specialists should explain to these scientists the emotional and academic benefits that students with disabilities will receive when they educated in the regular schools with non-disabled students. The Islamic religion considers all people similar no matter what their risk, ability, or disease; and Saudi Arabia respects the principle of the Koran that repeatedly commands people to take responsibility for their brothers and sisters. Therefore, the Islamic scientists in Saudi Arabia can encourage people to understand and except the inclusion concept in general.

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Let's 'Gettem' Moving Together: Building Collaborative Teaching Techniques

Invited Speaker

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ABSTRACT

Adapted physical educators and special educators working collaboratively are essential for effective teaching of students with disabilities. Some experts believe that there is a direct relationship between movement and effective learning. There are others that believe that this direct relationship is not clear; but there is an indirect relationship. In the latter, experts believe that by infusing physical fitness and gross motor activities into learning pre-academic or academic activities, learning will increase with the increased motivational level of the student. It does not matter if an adapted physical educator or special educator believes in the direct or indirect relationship; physical and motor activities with the infusion of pre-academic and academic skills that have a place in their curriculum. This presentation will focus on activities that can be used by adapted physical educators and special educators. A description of the collaborative practices and purposeful class activities will be addressed. Further, the use of technology, such as iPads, will briefly be discussed related to teaching physical activities by adapted physical educators and special educators.

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INTRODUCTION

The general mission of special educators and adapted physical educators are so close, that physical education is the only instructional area that is included in the definition in the United States of special education within the Individuals with Disabilities Education Improvement Act (IDEIA, 2004). Specifically, Special Education is defined as:

1. General
   ". . . the term special education means specially designed instruction, at no cost to the Parents, to meet the unique needs of a child with a disability including –
   a. Instruction conducted in the classroom, in the home, in hospitals and institutions, and in other settings; and
   b. Instruction in *physical education*" (§300.26)
2. In this definition of special education, physical education was defined as follows:
   a. Means the development of –
      1) Physical and motor fitness
      2) Fundamental motor skills and patterns; and
      3) Skills in aquatics, dance, and individual and group games and sports (including intramural and lifetime sports); and
   b. Includes special physical education, adapted physical education, and movement education, and motor development (§300.26).

Clearly teacher educators in two educational fields are closely related. Because of this, special educators and adapted physical educators should collaborate to positively impact on the development and implementation of a students' Individualized Educational Program (IEP). For instance, pre-academic and academic games can improve both physical and motor skills, as well as, cognitive skills for students with disabilities. The following are numerous activities that can be used for student within the classroom to motivate students' pre-academic and academic games in their classes to learn and meet their individuals' goals and objectives. Further, illustrations of educational and assistive technology that can be collaboratively used are provided.

Pre-academic and Academic Games: "Integrating physical activity into classroom learning provides another opportunity to infuse meaningful activity during the school day. Physical activity in the classroom helps activate the brain, improve on-task behavior during academic instruction time, and increases daily in-school physical activity levels among children. Classroom teachers have the potential to influence children's healthy behaviors and lifetime choices by including bouts of physical activity into the total learning experience, and in turn, maximize student learning during academic activities that are mostly sedentary" (NASPE, 2013).

As part of this workshop, several pre-academic and academic games will be presented through audience participation (e.g., sentence relays, alphabet and number grids, compound words, fitness cards). In addition, an educational and assistive technology section will be presented (see below).

Educational and Assistive Technology

- **Heart Rate Monitors** are an excellent way to monitor your student's cardiorespiratory needs during physical education. You will be able to keep a log to show improvement in the student's improved heart rate, or to monitor if the student is being active when you are not present (this is a suggested idea for Adapted Physical Education Teachers).

topendsports.com

- **The Wii and Xbox Kinect Game Systems** are an excellent way to simulate various sports for students. These systems could be set up in different stations based on the students' abilities.

xbox360kinectdeals.com

- **Bowling ramps with switches** are an excellent way for students to gain independence in the gym and on field trips to the bowling alley. The switch is what provides the student the opportunity to use a portion of their body to move objects. Any battery operated toy or device can have a switch added to it. If you have an electrician within your school or a technology department that would be an awesome project for them.

tigerdirect.com

- **Cameras, iPhones, Androids, and iPads** are an excellent way to use picture schedules, record skills to assess, provide instant feedback to students, and for skill demonstrations when you as the teacher cannot be present.

ucp.org

SUMMARY

In summary, these are just a few of the pre-academic and academic games and the use of educational technology that could be collaboratively used by adapted physical educators and special educators. This collaboration is a major key for successful physical and motor skill development that could also positively impact cognitive development.

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People with Intellectual Disabilities, Their Physical Fitness, Assessment of Fitness and Interventions / Physical Activity

Invited Speaker

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ABSTRACT

It is well and consistently documented that persons with intellectual disability (ID) are less fit than their peers without a disability and that fitness levels are generally low. Assessment of cardiorespiratory fitness is of primary concern in the development and monitoring of program effectiveness. However, instrumentation validity, reliability and feasibility are questioned due to the indiscriminate use of various protocols in assessing persons with ID. Certain problematic issues, due to psychological and sociological learning characteristics of many persons with ID, impede what is perceived as basic protocol in the assessment of cardiorespiratory fitness. These methodological issues have created concerns regarding the validity and reliability of previous descriptive research and generated the need for more research work. This presentation reviews previous research, identifies protocol modifications and discusses about problems in assessment when testing persons with ID. The discussion is directed to both field-testing methods as well as laboratory procedures. Guidelines for planning interventions are suggested.

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INTRODUCTION

Physical fitness incorporates cardiorespiratory fitness, body composition, flexibility, and muscular strength and endurance. The importance of physical fitness, especially good cardiorespiratory fitness (CRF), for general health and well-being has been well documented (Kaminsky et al., 2013). The benefits of good physical fitness should not be limited only to people without disabilities. Some have emphasized that the importance of physical vitality and fitness for persons with ID supercedes that of those without ID due to the functional vocational needs and mobility requirements for self-sufficiency (E.g., Hilgenkamp, van Wijck, & Evenhuis, 2010). Moreover, persons with ID can often succeed or fail in employment depending upon their ability to sustain long periods of moderate physical activity.

Numerous health risks are associated with inactive lifestyles. The risks are magnified for persons with ID due to lower levels of physical fitness and propensity to obesity. The prevalence of obesity in persons with ID has been documented by numerous studies (Graham, & Reid, 2000; Harris, Rosenberg , Jangda, O'Brien, & Gallagher, 2003; Lahtinen, Rintala, & Malin, 2007; Temple, Foley, & Lloyd, 2013). These findings are distressing when considering the adverse effects of obesity on health and longevity.

Physical Fitness: Physical fitness is as important for a child or an adult with ID as it is for those without ID. Millions of people with ID perform and compete daily in order to prove their worth and productivity in a society that values excellence. These persons should have adequate levels of physical fitness, not only to complete work tasks but also to enjoy and benefit from active participation in lifetime pursuits (Carmeli, Zinger-Vaknin, Morad, & Merrick, 2005). Physical fitness training may be even more important as the severity of disability increases, since fitness training builds basic skills such as ambulation and fine-motor coordination (Chanias, Reid, & Hoover, 1998; Cowley et al., 2010).

Cardiorespiratory efficiency is considered an essential component of health related fitness. It is an important health factor for all people, including those with ID. All individuals must meet a minimum level of fitness to live a healthy and productive life. Several laboratory studies of CRF in adults with ID have been undertaken. However, a variety of testing protocols and various participants have been used. There are some studies where the results of CRF testing are uniform. These studies show considerably lower levels of CRF among adults with ID compared with those adults without ID. The VO2 max values vary from as low as 25 to 40 ml/kg/min (E.g., Fernhall et al., 1996, 2001; Montgomery, Reid, & Koziris, 1992; Millar, Fernhall, & Burkett, 1993; Fernhall & Pitetti, 2001; Fernhall, Mendonca, & Baynard, 2013).

On the other hand, there are studies where no difference in CRF between those with or without ID has been found (Rintala et al., 1992, 1997; McCubbin, Rintala, & Frey, 1997; Frey et al., 1999). The mean values have been above 40 ml and the highest values around 60 ml/kg/min. These values are in accordance with the values on young adults without ID. However, several studies show that CRF levels of children and adolescents with ID are below of those without ID (Fernhall & Pitetti, 2001; Baynard et al., 2008), especially with those children who have Down syndrome (DS) (González-Agüero et al., 2010).

Assessment of Cardiorespiratory Fitness: Assessing cardiorespiratory fitness of people with ID is difficult. Maintaining reliable and valid standards depends on critically upon a person's ability to understand and execute the required test procedures (Rintala, McCubbin, & Dunn, 1995). CRF is normally determined through either maximal or submaximal laboratory tests or field tests. Indiscriminate use of a test developed for the general population, regardless of motor or mental ability, is a persistent problem that has been confronted in the past.

Only few field tests of CRF have been validated for individuals with ID. Those claimed to be valid include: the 1.5-mile run, the 1.0-mile walk, bicycle ergometry testing using the Schwinn Air-Dyne cycle, the modified Leger and Lambert shuttle run, and the modified Canadian step test. Although all have limitations, these are the field tests recommended for individuals with ID. It is not known if such tests are equally valid between populations of people with varying degrees of ID due to limited par-

ticipant samples and lack of cross-validation procedures (Pitetti, Rimmer, & Fernhall, 1993). Only the following three tests have been cross-validated:

A) mile walk for adults with mild ID (Rintala et al., 1997);
B) 20-m shuttle run test for adolescents with mild and moderate ID (Fernhall et al., 2000); and
C) 20-m shuttle run test for adolescents with Down syndrome (Guerra, Pitetti, & Fernhall, 2003; Agiovlasitis et al., 2011).

All of these tests could be recommended for individuals with ID, but they all need revision. Only the 20 m shuttle run for adolescents with DS does not appear to provide accurate estimation of CRF (Agiovlasitis et al., 2011). They are relatively easy to administer, and do not require any expensive equipment. Likewise, all run/walk field tests share the same difficulty. They depend on the individuals' effective judgement of pace. For example, the protocol for the 1.0 mile walk involves fast walking rather than run which could reduce such problems as: a) understanding the concept of pacing; b) variability in motivation and perseverance; and c) inability to cope with fatigue and breathlessness. Nevertheless, pacing, motivation and fatigue present a problem in accuracy and validity for all tests, but perhaps not to the same extent (Rintala et al., 1995).

Motivation and pacing can also be troublesome when considering the shuttle runs. Additionally, because of the relatively high speeds at which the participant must run, it may be more of an anaerobic power test than a test of CRF (Pitetti & Fernhall, 2005). The quick stopping, 180 degrees turns, and acceleration required by the shuttle run could limit performance in those with restricted muscular coordination and agility. The general problem of pacing is also a factor in the shuttle run.

There appears to be a need for more investigations using direct measures of oxygen consumption during maximal exercise. At the same time more valid field tests are needed for practical reasons. However, both types of tests, laboratory and field tests, have their own methodological problems.

Problems in Assessment: In addition to variation in test methodology, other factors affecting the valid assessment of CRF of individuals with ID include: judgement of test termination by the participant and difficulty in adherence to cadence; physiological efficiency; motivation; and thorough understanding of test requirements by the participant (Rintala et al., 1995). It is often assumed that, because of the diminished IQ and associated behavioral problems, persons with ID have difficulty understanding the concept of producing maximal effort during exercise testing. However, Fernhall and Pitetti (2001) state that there is no data to support that. Nevertheless, all these factors need to be taken into account when planning testing, but motivation for maximal performance may be the most important one to consider.

Motivation seems to be the most crucial factor reported to cause variation in a fitness test score, therefore, careful attention to motivational techniques is needed. The majority of individuals with ID do not usually engage in habitual physical activity and therefore need a great deal of motivation and encouragement during a test (Rimmer 1992). A familiarization protocol should be established and used in both laboratory and field tests designed to assess CRF. Much of the information, described in the literature, how to prepare individuals with ID to testing situation, is too limited based on an extensive screening of conducted studies (Rintala et al., 1995).

It is apparent that participants are usually verbally encouraged to give their best effort. A real concern, however, is that individuals with ID do not always interpret such verbal reinforcement in the same manner as those without disability. Alternatively, methods may be monetary (Montgomery et al., 1992); verbal; social (including snacks or drinks, group ritual handshake, high fives); individual, unusual rewards (Rintala et al., 1995).

In the testing situation, as well as in program planning, it would be possible to utilize the system Kittredge et al. (1994) developed to motivate exercising. They developed a modified token economy system for a 4-lap, one-mile walk where participants received a drinking straw for each lap they completed.

Reinforcers for finishing the program took the form of small gifts to the participants (i.e., fruit, key rings, pack of gum, or a free lunch/dinner at their favourite fast-food restaurant). This reinforcement system is similar to many behavioral management programs for adults with ID, developed for improving exercise compliance (E.g., Lavay & McKenzie, 1991; Lavay, French & Henderson, 2006). Many adults with ID live on a limited resources and appreciate receiving some type of reward for appropriate behavior (Rimmer 1992).

SUMMARY

Professionals in adapted physical activity are faced with the dilemma of choosing an effective measure of CRF for individuals with ID. Although proper assessment procedures are necessary in order to provide programs of physical activity effectively to persons with ID, tests of CRF that have established norms, reliability, and validity, are lacking. Several different factors affect valid assessment, including motivation. More research is needed to establish reliable, administratively feasible, and valid assessment procedures, which consequently, may be used to monitor physical fitness and changes in physical activity patterns.

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Situation of Adapted Physical Activity for Persons with Disability in Iran

Invited Speaker

Zahra SHAHI, Bahram JADIDI

ABSTRACT

Human beings are member of a whole,
In creation of one essence and soul.
If one member is afflicted with pain,
Other members uneasy will remain.
If you have no sympathy for human pain,
The name of human you cannot retain.

These lines come from the poetry of Saadi, Saadi, who was one of the ancient poets of Persia and this poetry symbolizes the equal rights of all humans, including those in pain and disability.

Taking Saadi's notes one step further would comply with current UN convention on human rights of persons with a disability, addressing that anyone who lives in this world, including those with a disability, has the right for equal opportunity with others, and this includes the physical activity, exercise, and sport areas.

Special Education organisations and universities in Iran provide facilities for persons with disabilities to participate in adapted physical activity during their education and throughout life. In addition, welfare organizations assume responsibility and provide facilities for people with disability to participate in adapted physical activity before elementary school and after graduating from the education system. During their education, children and young people with disabilities learn adapted physical activity and are encouraged to perform it also during their leisure times. Those individuals who like to do more of these activities become members of sports clubs within The Federation of Sports for Persons with Disabilities.

Adapted physical activity is a curricular component within the program of general physical education teachers during academic study. However, nowadays, adapted

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physical activity teachers are not enough for teaching all persons with disabilities in Iran, and only a few of persons with disabilities can benefit from this training and facilities. Therefore, additional fields of study and curricular components are being considered in universities for teaching the teachers of children with disabilities.

We hope that within this symposium we may help each other with our knowledge and experiences to create opportunities in order to improve facilities and education for adapted physical activity teaching and training, to make a better situation for persons with disabilities.

MAIN BODY

Human rights are known to be the heart of the activities of the United Nations. To defend human rights is to defend human dignity. This is the main goal in every subject relating to human rights. This means every single person, living in this world, has the right to have a free life without discrimination. People are all created equal from the day they are born and have the common rights of life, welfare, education, independence and active participation in all social aspects.

The persons with disabilities are one of the vastest minorities of the society, forming about ten percent of the world population. According to the world health organization's (WHO) report in June of 2011 there were about one billion persons with disabilities and there is a regression between disability and poverty, meaning that disability causes poverty and on the other hand poor people are more likely to become disabled. This cycle cause a growth in population of the persons with disabilities. From another point of view this growth in population is the outcome of improvements in life expectation, healthcare, food and living conditions.

Persons with disabilities before being recognized as disabled should be thought of as people, people who are merely different in their appearance or their behavior to the others and do their jobs in a different way than other people, but from humanistic point of view deserve the ordinary facilities the society offers, and an active participation in society. Thus persons with physical or intellectual disabilities are not exceptions; they also should be acquired with particular privileges. The Committee on the Rights of Persons with Disabilities (C.R.P.D.) is the newest United Nations convention to which Iran joined in 2009. According to this convention Iranian persons with disabilities, like all the other Persons with disabilities in the world, can realize their rights.

Currently more than 100,000 persons with physically and intellectually disabilities are covered by the special education organization for Persons with disabilities. This organization is responsible for educational, occupational and physical education and rehabilitation of the Persons with disabilities ranging from primary school to high school.

The majority of students with disabilities in Iran attend in special schools. Although the attendance of students with disabilities in ordinary schools has started for some years as integrated or inclusive education, but in order to have a inclusive educational system in which all the students study in ordinary schools, there needs to be trained teachers, and a cultural work amongst the students, teachers and parents. Inclusive education causes students with disabilities study in school along with other students, and benefit from the same educational facilities. Attendance of students with disabilities in ordinary schools brings them into the society and helps the elimination of obstacles and negative views. Inclusive education, the instructor gives each student a particular practicing program and trains every student individually. Resources and auxiliary facilities that were previously provided for students with disabilities in their own classes, can also be provided in ordinary classes.

Most of the services related to the rehabilitation of other ages are in responsibility of Welfare organization (650,000 people). This organization carries outs its responsibilities within Community Based Rehabilitation (C.B.R.) system. According to this method well-trained staff provides the selected instructor (preferably a family member of the persons with disabilities) with their knowledge about rehabilitation, and the instructor teaches this knowledge to the persons with disabilities. One should also note that the earlier age the instructor starts training the persons with disabilities, the more stable results he will get. According to C.B.R. families, a member of whom has recently become disabled, had better use the rehabilitation experience of other families who have had a disabled member prior to them (parent to parent). Meanwhile using vol-

unteer help for rehabilitation should be taken into consideration. In London Paralympic games and other games related to persons with disabilities we have seen thousands of volunteers willing to help the participants and spectators with disabilities.

Instructors, rehabilitators, occupational therapists, and experts teach children with disabilities train by welfare, rehabilitation, Farhangian, Islamic Azad, Payamenor and other universities train teachers. Other governmental and non-governmental organizations are responsible for training instructors and providing different societies of persons with disabilities in the country with rehabilitation services. The goal of training physical education teachers and instructors by these organizations in the country is so that they can be in jobs in which they are able to teach their learnings to the persons with disabilities and their families and thus help them overcome the weakness caused by their disability, get out of isolation and besides improving their physical strength, by developing their confidence develop their social skills.

Teachers and instructors in special education organization teach basic movement skills during the course of pre-school and primary school and they mostly have sight of education through games, and hold competitions in the form of entertainment and playing games. The small number of trained teachers and instructors, to work in this section, is significant obstacle on students with disabilities way to learning. During the course of mid/high school, teachers are programmed to instruct students in a sports field proper to their disability. Physical education is instructed during the sports ours and competitions are held in some fields in school, provincial and national levels in which all the participants and the top participants or teams are praised. Top participants, who are willing to continue the given sport in higher levels, are introduced to the provincial persons with disabilities teams to complete their skills under supervision of coaches of related federation. These sports fields differ depending on the type of the student's disability, but still there are few sports fields available for the students. We hope to expand the level of participation in different sports fields by the use of experiences obtained by (APA) in integration of sports fields.

Sports organization special to the persons with disabilities is formed in Iran, inside the committee of Paralympics. This committee is responsible for observing different persons with disabilities sports federations' program. Each federation has its own office in every province to attract and train the persons with disabilities, and introduce them to the federation if they have a special sport talent. Attraction and training of these sportsmen with disabilities and other sportsmen, who have become disabled due to war, caused significant amount of championships and medals in Paralympics and world competitions during recent years. Also according to an agreement between federation of the handicapped and welfare organization and special education organization educational and competition activities should be coordinated with each other.

In order to use and progress knowledge of students and experts in the field of persons' with disabilities sports, scientific and pragmatic seminars are held every year by universities and organizations active in the field of persons' with disabilities sports. The results of these seminars have had a desirable influence in the scientific performance specialists working in rehabilitation and sports of persons with disabilities.

Another notable point relating to the persons with disabilities is about spending their extra time. Extra time is an important factor in physical and intellectual health of persons with disabilities. Because of their particular physical and intellectual condition, these people have a great deal of extra time throughout their life including childhood, school post-school and etc... This extra time usually brings isolation with itself which causes dramatic reduction in general motion of the body. Reduction in movements causes undesirable body conditions that can be avoided by a proper programming to spend the extra time.

One of the recent activities of the national Paralympics committee in this regards is setting a day (16 Oct) as the national Paralympics day during which all groups of persons with disabilities in all of the provinces are invited along with their families to attend in sports and entertainment programs. During this ceremony sports and theatrical competitions are held and prizes are handed out to all the contestants with disabili-

ties and also different rehabilitation and sports instruments are introduced for the information of persons with disabilities and their families.

One of the extra time activities that have caught the attention of the persons with disabilities is art-sports contests in which the artists with disabilities show their art work by means of sport. This art-sport activity, though being recently introduce, has attracted different groups of persons with disabilities and their vast participation from all over the country has been witnessed.

The points that have been briefly stated above are just parts of capabilities of persons with disabilities and their potential talents. But according to the statistics these organizations have been able to recognize and cover only a small percentage of persons with disabilities. Despite the proper progress in recognition and providing rehabilitation services for the persons with disabilities, still a large number of these people are not well provided and they along with their families prefer to stay home, isolated from the society.

This is mainly because in strategies, laws, educational opportunities, health services, social services, employment, transportation, access to information, rehabilitation, housing, and participation in the society mostly the needs of healthy people have been considered. The reason behind this issue is lack of knowledge about the capabilities of persons with disabilities.

Having a humanistic view about the cities creates a situation in which there is no more need adaptation of these cities. A city without obstacles is one of many concepts that can carry the massage of a safety environment for the persons with disabilities and all the other classes of the society. In a city without obstacles all the life facilities, physical activities, and spending leisure time are provided for all the people equally and fairly.

Concepts such as education for all, Inclusive education, integrated education against specific education, community based rehabilitation, integration of society for all, equalization of opportunities and the city without obstacles all have one thing in common: a new life for disabled people in an ordinary society, and to move towards a society in which all of the people have equal chance in participation and use of resources.

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Assessment: From Traditional to Functional

Invited Speaker

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ABSTRACT

In addition to ensuring that all students with disabilities are provided a free and appropriate education in the least restrictive environment, it is also important to use an appropriate assessment process (Overton, 2006). Specifically, in the United States, it is by law that schools ensure that proper assessment procedures are used including various assessment techniques when determining eligibility and planning instruction (Individuals with Disabilities Education Act, 2004). The purpose of this article is to go beyond the more traditional tests and discuss other assessment instruments that might assist adapted physical educators in selecting the appropriate assessment instruments. There may be tests not widely used that maybe more appropriate for assessing a specific student referred for evaluation. Adapted physical educators must be able to determine the appropriate assessment for each student, instead of trying to fit all students into a standard battery of tests to decrease inappropriate labeling and to ensure appropriate performance data were used to plan effective instructional programs for students with disabilities.

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Linking Assessment to Placement and Instructional Programming: Adapted physical educator must use understanding and apply the direct evidence-based relationship between assessment, placement, and instruction. Effective assessment techniques must be used to obtain a valid representation of the student's physical and motor abilities to function in his/her class, school, home, and/or community. This should include information gathered from other teachers, parents, and, when appropriate, the student.

Assessment must continue long after placement decisions are made. Once placement is determined, evidence-based intervention strategies designed to rehabilitate or rehabilitation identified deficiencies should be identified and implemented. *Ongoing* monitoring of student progress should be conducted to guide decision making related to the appropriateness to the instructional program and specific teaching practices (Council for Exceptional Children, 2007) of students being provided adapted physical education services (Silliman-French, Stephens, French, and Kinnison, 2010).

To ensure valid assessment results are obtained for instructional planning, it is imperative that adapted physical educators be prepared the select, administer, and interpret various assessment instruments. In the *Texas Association for Health, Physical Education, Recreation and Dance Adapted Physical Education Manual of Best Practices: Administrative Guidelines & Policies* (Silliman-French and Buswell, 2008), illustrations of assessments used by the adapted physical educator are presented. Although a great resource, adapted physical educators, when appropriate, should go beyond these illustrative tests and use other assessment instruments. To ensure valid results, more than one type of assessment technique (e.g., norm-referenced, standardized test, observations, parent information, student information) should be used when making educational decisions regarding educational and physical fitness. Adapted physical educators must be knowledgeable about specific assessment instruments. There may be tests available that are appropriate for assessing a specific student referred for an assessment that is generally not used butt is very appropriate. Adapted physical educators must be able to modify or adapt instructions of traditional tests to make them more functional for each student and not the student to their standard test battery.

There are several testing resources that are available which provide information about specific assessments. Jansma (1999) has provided in depth information on over 25 different tests designed for students with severe disabilities; and Kasser and Lytle (2005) have provided basic information on almost 70 different tests. Lastly, Horvat, Block, and Kelly (2007) provided information related to at least 80 assessment instruments on the topic of developmental and adapted physical activity. Many of the tests discussed this literature are considered curriculum-based assessments such as *I CAN* (Kelly & Wessel, 1990) and *Peabody Developmental Motor Scales II* (Folio & Fewell, 2000).

Alternative Assessments: One example, the *FITNESSGRAM* (Cooper Institute, 2007) only provides one alternative test (i.e., *Brockport Physical Fitness Test*, Winnick & Short, 1999); however, there are numerous other assessment instruments that can be used depending on the students' strengths and weaknesses.

The following are some examples of alternative forms of evaluations. These examples can be placed on a continuum from (a) those that are *FITNESSGRAM*-like with standards, (b) those with *FITNESSGRAM*-type test items but no standards, and (c) those without *FITNESSGRAM* items but authentic tasks used in daily life requiring a minimal level of motor skills and physical fitness that may or may not have standards. In a very few cases, students with confirmed written medical contraindications may be exempt from physical fitness testing. Each category along the continuum is illustrated in the following figure. For a more extensive explanation of the different forms of evaluation, the reader is referred to the second edition of the *Texas Association for Health, Physical Education, Recreation, and Dance Adapted Physical Education Manual of Best Practices: Administrative Guidelines & Policies* (Silliman-

French and Buswell, 2008), Jansma (1999), or Horvat, Kelly, and Block (2007).

This is just one example of how alternative tests can be designed to allow for the *FITNESSGRAM*, as well as, numerous other assessments so students can actively participate in state and national physical fitness and motor skill assessments can be appropriately evaluated (see Figure 1). Another example of alternative assessments can be located on the Region X Educational Service Center website where there are assessments such as: (a) Functional Motor Assessment, (b) Wheelchair Motor Assessment, (c) VI Motor Assessment, (d) Lifetime Leisure Supplement, (e) Low Motor Assessment, and (f) Lifetime Recreation/Leisure Survey (http://www.region10.org/ape/ape_downloadableforms.html).

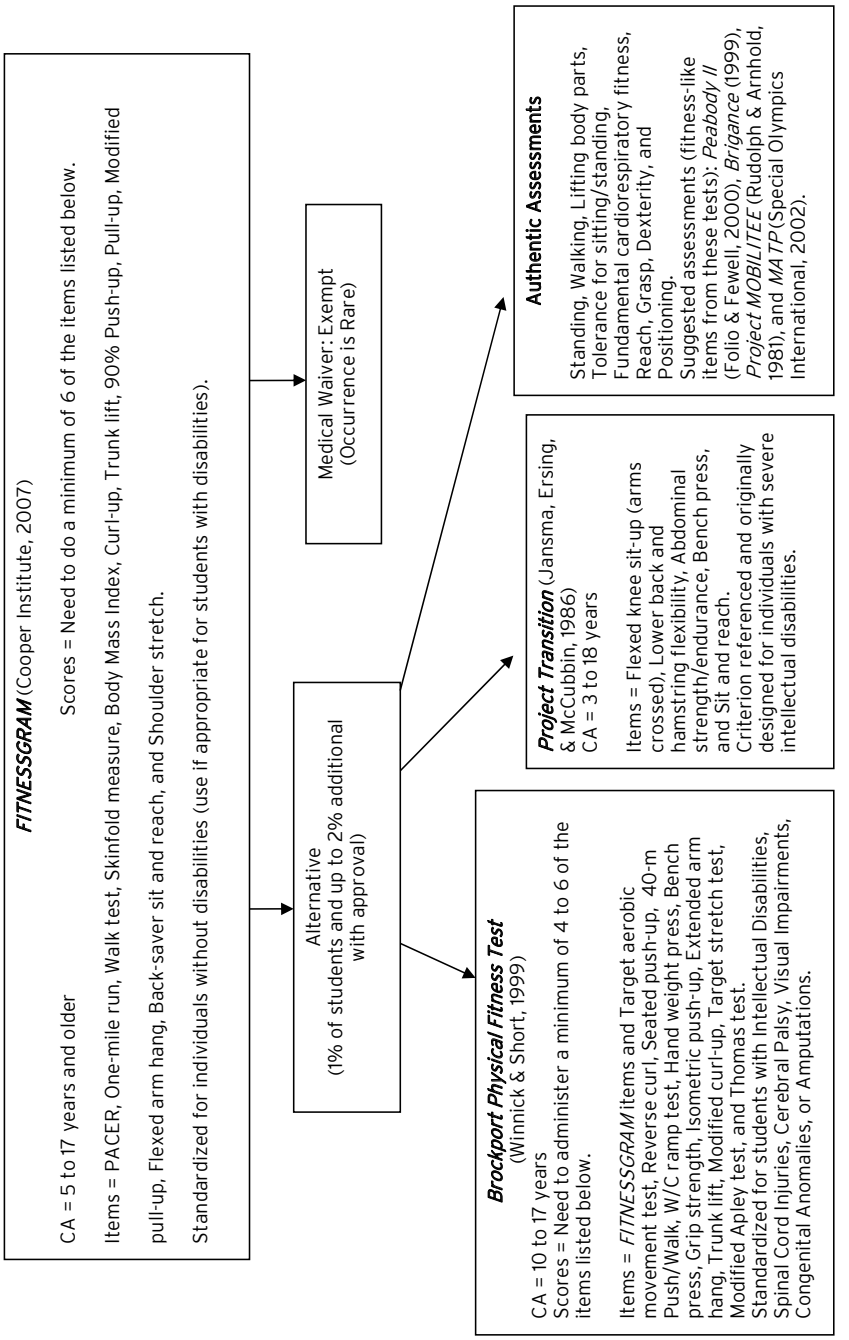

Figure 1. Continuum of suggested *alternative* assessments if the *FITNESSGRAM* is not appropriate.

SUMMARY

In summary, Adapted physical educators must assess in areas which are in the natural context of the student's community, school, and home environment. Our students with disabilities need and deserve high quality placement and instruction based on appropriate assessment. In some cases this may require effective alternative and functional assessment. This means that the placement assessment must be directly related to the evidence-based programming to meet the student's educational needs within his or her adapted and/or general physical education program. If the test does not "fit" the student, use or develop an alternative assessment that is more functional.

Modified from: Silliman-French, L., French, R. Kinnison, L., & Stephens, T. (2008). Eligibility and instructional programs for students with disabilities provided with adapted physical education services. *Texas Association for Health, Physical Education, Recreation, and Dance Journal. 77*(1), 8-12.

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Aquatics Approaches for Children with Special Needs

Invited Speaker

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ABSTRACT

Children with special needs enjoy and success the aquatic-based exercise and play skills in a pool as an alternative to land-based exercise in a gym. The purpose of this presentation is to deliver basic practical strategies and tips for developing aquatic skills, adjustment to water and rotations, which are phases of the Halliwick Method, for children with mental challenges. Program Objectives are; (a) to explain basic principles of teaching approaches in aquatics, (b) to practice some aquatic drills (from Halliwick Method), and (c) to deliver tips for applying aquatic drills in children with special needs. In addition, some play skills will be practiced as one on one training during a group session in swimming pool.

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Last over three decades, the importance of the physical fitness and health has increased for children. The growing attention also has reflected on children with special needs owing to theirs requirements more than peers. Limited mental development, restriction for participation of physical activity, lack of adapted physical education program and special sport organizations could be reasons for the necessity of the children. In addition, shortage of the sufficient specialists such as physical therapist and adapted physical education teacher is likely being a limitation for engaging the adapted program. All these factors restrain children with special needs for participating with their peers in community-based physical activity and sport, and set them at risk for developing secondary health conditions.

It lacks of proper guidance, monitoring and non-individual exercise prescriptions are risks for several musculoskeletal injuries due to the muscle weakness, poor motor coordination and insufficient joint stability. Low-impacted adapted physical activity could maintain the program, which provides an opportunity to enhance cardiorespiratory endurance and positive learning experience for the children with special needs.

Aquatic therapy is stated as useful a form of low-impact exercise in comparison land-based activity. Aquatic therapy supplies different sensory stimuli through water buoyancy, density, temperature, viscosity, resistance and vestibular input. Various studies recommended that water enable to facilitate active movement, trunk stabilization, strengthening, and functional activity. In addition, psychosocial benefits such as self-image, sense of accomplishment, orientation could be improved with the aquatic program. However, systematic measurements and standardized aquatic programs should be designed to reach these conclusions. While conducting an aquatic program for children with mental challenges, autism, Down syndrome, another syndromes diagnosis, some individual features for them have to adopt measures to perform motor drills and benefit from the aquatic intervention. Otherwise, these children cannot display correct behavior during probe session, and the target movements aren't observed during maintenance, generalization and follow-up periods of the learning process. In addition, motivation of these children to accomplish the aquatic movement patterns is another essential issue.

Mostly, incentive strategies, which are stimulus to perform a target aquatic drill by the children, have to plan into an aquatic program, so the aquatic drill can be repeated in accordance with the aquatic exercise prescription. Before starting an aquatic intervention program, researcher or specialist should establish prerequisite skills in aquatic environment for children with special needs to inclusion an aquatic program. The workshop focuses on several strategies and approaches for the above-mentioned issues to carry out smoothly an aquatic program for children with special needs.

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Gait in Children with Cerebral Palsy Can Be Improved by Electrical Stimulation

Invited Speaker

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ABSTRACT

Electrical stimulation (ES) of proximal muscles during gait training has not previously been reported as a management option for improving muscle tone and gait in children with spastic diplegic. The purpose of the study was to investigate the effects of simultaneous continuous ES of both hip abductors and adductors during walking on muscle tone, knee alignment and gait characteristics in children with spastic diplegic cerebral palsy (CP). Three groups of children participated in this project: the study group, consisting of 17 ambulant children with spastic diplegic CP; a control group of 15 ambulant children with spastic diplegic CP; and another control group, with 17 healthy children. The study group underwent two different ES management programs. The first was a one-time trial management program that involved ongoing ES of bilateral hip adductor and abductor muscles at the sensory and motor levels, respectively, during walking for a predetermined distance. The second ES program lasted for one week and involved 15 minutes of ongoing ES of bilateral hip adductor and abductor muscles at the sensory and motor levels, respectively, during walking for three sessions a day for the week. The data of the study were analyzed using repeated measures and multivariance ANOVA. Both ES programs significantly improved gait performance ($p < 0.001$), muscle tone ($p < 0.01$) and knee position of the study group. ES to the hip adductor and abductor muscles simultaneously at the sensor and motor levels, respectively, improved gait in children with spastic diplegic CP. Such management program can potentially be used as adapted physical exercise at school to improve ambulation of Children with CP

Key Words: *CP, ES, Gait, Muscle.*

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INTRODUCTION

Spasticity in hip adductors and weakness in hip abductor are challenging problem for children with spastic diplegic CP. It impairs ambulation and contributes to the structural and biomechanical abnormal changes. It leads the hip to adduct, encourages walk with a wide base of support with flexed and valgus knees [1,2]. Reduction of spasticity in the hip adductors and strengthening of hip abductor have been reported to improve gait, enhance hygiene and improve the process of dressing up [3,4,5,]. ES has been considered as a method to reduce spasticity and strength various distal muscles, but not proximal muscle, to improve the gait of patients with different neurological conditions including CP [6,7,8,9]. Although, ES is cheap, portable, simple to use at home, free of any known side effects compared with surgical and medical managements. It is unclear why it has not been used to manage spasticity and weakness in proximal muscles in children with CP. It is also unclear why ES has been previously used only in relax position [10] but not during daily living activity. Rehabilitation clinicians believe that management of spasticity and strength in proximal muscles during repeated directed active movement improves daily living activity. Therefore, the aim of this study was to investigate the effect of ES on spasticity of hip adductors, strength of hip abductor and gait of children with CP.

SUBJECTS AND METHODS

Three groups of children participated in this project: the study group, consisting of 17 ambulant children with spastic diplegic CP (mean age10±3ys); a control group of 15 ambulant children with spastic diplegic CP (mean age9±3ys); and another control group, with 17 healthy children (mean age10±3ys). The children with CP were able to walk few steps without assistance, follow instructions adequately, and cooperate sufficiently during the experimental procedure. They had crouch gait with crossed or touched knees during walking.

The study group received two ES management programs, one-time and one-week trial programs. The one-time trial program was an ongoing application of ES of bilateral hip adductors and abductors at the sensory and motor levels, respectively, during two different conditions: (a) passive hip abduction, and (b) walking for 300 cm of the total length of the balance master platform. The one-week trial program included an ongoing application of ES of bilateral hip adductors and abductors at the sensory and motor levels, respectively, while walking for 15 minutes, 3 times a day for one week. It was conducted by the children's parents at home after teaching them how to use and apply the ES unit safely.

Two portable two-channel ES were used. The 1st ES unit was adjusted to cause tingling sensation in hip adductors with pulse duration of 0.25 ms and frequency of 100Hz. The 2nd ES was arranged to cause visible and minimal continuous isometric contraction of hip abductors with pulse duration of 50usec and frequency of 20Hz.

Assessment Procedure

Spasticity of hip adductor: The degree of spasticity of hip adductors was determined using the Modified Ashworth scale during passive hip abduction from a neutral position to approximately 20 degrees, within 5 seconds. The spasticity in hip adductors was assessed in three different assessment sessions one week apart.

First assessment session, spasticity in the hip adductor was assessed in two different conditions, which were:

1. Immediately, as the child arrived at the gait lab and adopted supine position.
2. After 10 minutes of resting in supine position.

Second assessment session, spasticity in the hip adductor was assessed in three different conditions, which were:

1. Immediately, as the child arrived at the gait lab and adopted supine position.
2. After 10 minutes of resting in supine position
3. During ongoing application of ES on bilateral hip adductors and abductors in supine position as a part of the one-time trial program.

Third assessment session, spasticity was measured in supine position next day from completing of the one week trial program, with no ES application.

Gait Performance: It was assessed using walk across (WA) mode of functional ability tests of the balance master system. The WA for the control groups was assessed at two different assessment sessions one week apart to establish baseline. For the study groups, WA was assessed in three different assessment sessions one week apart.

First Assessment Session

Gait Performance for control and study groups was assessed in two different conditions, which were:

1. Immediately, as the child arrived at the gait lab.
2. After 15 minutes of resting in supine position.

Second Assessment Session

Gait performance for both groups was assessed again as follows:

1. Immediately as the child arrived to the gait lab for both groups.
2. During ongoing application of the ES on bilateral hip adductors and abductors of the study group participants, as part of the one-time trial program.

Third Assessment Session

Gait performance of the study group participants was assessed next day from completing the one week trial program, with no ES application.

Knee Position Assessment

Knee position was determined subjectively during WA assessment by using a Yes/No scale. "Yes" was defined as knees are laterally apart exceeding two parallel longitudinal lines 2cm apart drawn on the force plate. 'No" was defined as knees are not laterally apart and not exceeding the two parallel longitudinal lines.

RESULTS

The data of the study were analyzed using repeated measures and multivariance ANOVA. Both ES programs significantly improved gait performance ($p < 0.001$), muscle tone ($p < 0.01$) and knee position of the study group.

DISCUSSION

Simultaneous continuous ES of both hip abductors and adductors seems to improve gait of children with spastic diplegic cerebral palsy (CP). This improvement could attribute to spasticity reduction in hip adductor and activation of hip abductors. Proximal muscles in lower extremities play a very important role in stabilizing pelvis, maintaining balance and generating the most of power needed during walking [2,11]. Children with CP have a better selective motor control proximally than distally, and tend to use proximal compensations to offset distal gait deviation [1,12]. Therefore, clinicians consider hip adductor and abductor management as part of daily physical rehabilitation program. Hip adductor/abductor imbalance due to spasticity and lack of full activation is reported to severely impair the biomechanics of hip joint [1,11]. Limit the work of the hip abductor muscle during initial swing, decrease forward velocity and step length, cause scissoring which grossly impairs motion and stability [2,12]. It seems that ES positively alter such abnormal biomechanical defect of muscle imbalance.

ES is believed to activate sensory Ia afferent fibers switching on presynaptic inhibition mechanisms leading to reduction in spasticity. This appears obviously in the reduction of the H-reflex amplitude [7,8,9,10]. H-reflex is an indirect indicator of spinal motor neuron excitability. It is similar to, and involves the same neural circuits as, the stretch reflex. Many studies document that inhibition in H-reflex amplitude and stretch reflex is associated with decrease in spasticity [6,8,9]. Abnormal reflexes and spasticity of the lower limbs lead to an abnormal tonic balance between agonist and antagonist muscles with co-contraction in both agonist and antagonist muscles during the gait. Normal movement requires turning off or controlling abnormal reflexes and reducing the spasticity [1,2]. The gait improvement reported in the present study could indicate that ES controls abnormal reflexes and restore the balance between agonist and antagonist muscles. This was one way to explain

the mechanism of the reduction of spasticity in hip adductor and the improvement in the gait parameters during and after the application of TENS.

Strange tingling sensations of ES used in the present study may push the child to abduct and externally rotate hips. This assumption could be supported by the fact that the knees of the children in the study group were not touching or crossing during the one-time trial and at the end of the one-week trial programs. Pushing the child frequently to abduct and externally rotating hips may activate reciprocal inhibition between the hip abductors and adductors muscles, causing further reduction in spasticity in hip adductor muscle and strengthening the hip abductor and external rotator muscles.

In conclusion, functional application of the ES to hip adductor and abductor simultaneously at sensor and motor levels respectively improved the gait of spastic diplegic CP children. However, further studies with large number of subjects are recommended.

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Self-Esteem and Body Image In Amputee and Non-Amputee Wheelchair Basketball Players

Selected Oral Presentation

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ABSTRACT

The aim of this study is to determine the differences between self-esteem and body image perceptions of amputee and non-amputee wheelchair basketball players and to determine the factors that affect self-esteem and body image perceptions. The sample consists a total of 100 male wheelchair basketball players, 46 of which are below knee amputees and 54 are non-amputees. Self-esteem sub-test of Rosenberg Self Esteem Scale, Amputee Body Image Scale and Body Cathexis Scale were applied. "Athlete Information Form" was used for demographical information. As a result it has been concluded by this research that: there is a significant relationship between self-esteem and body image (p=0,000). However, there is no significant relationship between amputation and body image (p > 0,05). The level of income, being a national team player and league type were found to have a positive correlation with both self-esteem and body image perception (p<0,05).

Key Words: *Amputation, Self-Esteem, Body Image, Wheelchair Basketball*

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INTRODUCTION

Sports is a social activity enabling the individual to participate in dynamic and social environments and has great influence on a person's socialization. Sports events consider especially the individuals with function losses as a whole, appertaining to their physical, mental, psychological and social status, and insure them to live in harmony as a united whole (Demir et al., 2011)

Self-esteem is an integral an individual develops upon influence of all elements in the environment, consisting of how the individual sees, thinks and feels of him/herself (Pense et al., 2011). Self-esteem on the other hand, is the occasion of appreciation of approval of one's personalization concept upon self-rating (Karabulutlu et al., 2004). Individuals gain this information regarding themselves through social comparisons in their inner world, especially of their physical status. The case of having a disfunctional organ effects the individual's self-esteem as well as their body image. However, participation in sports gives the opportunity for the individual to explore various identity and roles of him/herself, allowing the individual to change self-perception and decreases awareness of the disability (Altun et al., 2011).

Body image, which is a dynamic and alterable phenomenon, is consideration of one's positive and negative emotions towards their own body parts and their functions (Altun et al, 2011, Flannery et al.,1999). It consists of all former and current emotions and perceptions and is formed by reflections of personality, self-esteem and individual consideration of relationships with other people. Visible and permanent transformations resembling amputation have impacts on body image.

A person's perception and evaluation of body image effects his/her self-esteem. If the individual is satisfied with his/her physical appearance, his/her self-esteem also rises. High body image perception is associated with high physical performance and physically active individuals are more satisfied with their bodies (Guclu and Yentur, 2008).

The study carried out in light of these facts has purposed to identify the level of self-esteem of amputee and non-amputee wheelchair basketball players and determine the variables effective on these notions.

METHOD

Sample: 100 male wheelchair basketball players in the Turkish Wheelchair Basketball Leagues, 46 of which are below knee amputees and 54 non-amputees, have participated in this study.

Data Collection Instruments

Amputee Body Image Scale (ABIS): A scale developed by Breakey (1997) to measure body image defects of amputees (Gallagher et al., 2007). The validity and reliability studies of the scale for Turkey was carried out by Bayramlar et al. and Safaz et al (Bayramlar et al., 2007), Safaz et al., 2010).

Rosenberg Self-Esteem Scale: The shorter version of the scale developed by Rosenberg (1965) to measure the self-esteem levels of participants was used. The Turkish adaptation and validity-reliability studies of the scale for Turkey was carried out by Çuhadaroğlu (1986).

Body Cathexis Scale: A scale developed by Secord and Jourard (1953) to evaluate the level of satisfaction of a person's body parts and their functions. The Turkish adaptation and validity-reliability studies of the scale for Turkey was carried out by Hovardaoğlu (1993).

Data Collection: The data has been collected by means of interviews with the players resident in Istanbul and sending out the research forms via e-mail to the players residing in other cities. The "Athlete Information Form" prepared by the researcher was used for the demographic measures. "The Amputee Body Image Scale (ABIS)" was used with the amputees whereas "The Body Cathexis Scale" was used with the non-amputees for measuring the body image. The shorter version of "The Rosenberg Self-Esteem Scale" was used for both groups for measuring their self-esteem levels.

Analysis of Data: The input data gathered by the study was analysed by SPSS Package Programme. Percentage value was applied for interpretation of demographical data, whereas Pearson χ^2 Test was applied for analysis of association of variables. T-test was applied for sub-

Table 1. Distribution of sample as per variables

A. Education	**%**	**D. Disability Cause**	**%**	**G. Appearance at the National Team**	**%**
Literate	16	Road accident	16	Yes	57
Primary school	30	Gunshot wounds	27	No	43
Secondary school	27	Industrial accident	7	Total	100
High school	15	Disease	18	**H. Appearance at the National Team (nb.)**	**%**
Vocational high school student	2	Other	32	1-10 times	32
Associate degree	5	Total	100	10-30 times	36
Graduate student	1	**E. Time of Occurrence of Disability**	**%**	30 +	32
Bachelor's degree	4	0-6 ages	29	Total	100
Total	100	6-12 ages	18	**I. League**	**%**
B. Level of Income	**%**	12-18 ages	46	Super league	52
1000-1999 TL	24	18 +	7	1st league	24
2000-3999 TL	43	Total	100	Regional league	24
4000 TL +	33	**F.Time Since Amputation**	**%**	Total	100
Total	100	0-1 year	3	**J. Amputation Type**	**%**
C. Disability	**%**	1-5 years	25	Below-knee, single	80
Congenital	19	5-10 years	8	Below-knee, double	20
Post-natal	81	10 years +	10	Total	100
Total	100	Total	100		

stantive samples. $p < 0,05$ value was considered statistically significant.

RESULTS

When the data in table 2 is examined, it can be observed that; there is a significant relationship between self-esteem and body image ($p < 0,05$). However, there is no significant relationship between amputation and body image ($p > 0,05$).

When Table 3 is examined, it can be observed that; there is no significant relationship between level of educaton and self-esteem and body image ($p > 0,05$), there is no effect of development stage of disability on the players self-esteem ($p > 0,05$), there is a statistically significant relationship between the type of league and self-esteem ($p < 0,05$), there is a significant relationship between playing at the national league and the number of times of participation at the national league and self-esteem ($p < 0,05$), there is a statistically significant relationship between level of income and self-esteem.

Table 2. Pearson χ^2 test results showing the association of amputation status of players and self-esteem and body image

		Body Image		**Pearson Chi-Square**	**p**
		Positive %	**Negative %**		
Amputation	**Amputee**	33	13	0,069[a]	0,793
	Non-Amputee	40	14		
Self-Esteem	**High**	55	7	20,429[a]	0,000 *
	Low	18	20		

*p< .05

Table 3. Pearson χ^2 Test and t-test results showing variables effecting self-esteem of players

		Self-Esteem			
		High %	Low %	Pearson Chi-Square	p
League	Süper league	40	12		
	1st league	12	12		
	Regional league	10	14	10,594[a]	0,005 *
Appearance at the National Team	yes	46	11		
	no	16	27	19,679[a]	,000 *
Appearance at the National Team (nb.)	none	16	27		
	1-10	15	3		
	10-30	17	4		
	30 +	14	4	19,797[a]	,000 *
Level of income	1000-1999 TL	8	16		
	2000-3999 TL	24	19		
	4000 TL +	30	3	20,776[a]	,000 *
Marital status	Married	19	17		
	Single	43	21	0,125[a]	0,154

	Self-Esteem	t	p
	High		
Education	Low	-0,431	0,667
	High		
Time of Occurrence of Disability	Low	1,915	0,06

*p< .05

When Table 4 is examined, it can be observed that; there is no statistically significant relationship between level of educaton (p > 0,05), and development stage of disability (p > 0,05), and body image perception, there is a significant relationship between the type of league and level of body image perception (p < 0,05), there is a significant relationship between playing at the national league and body image (p < 0,05), there is a statistically significant relationship between the level of income and perception of body image (p < 0,05).

DISCUSSION

The outcome of the study show there is a significant relationship between body image and self-esteem. As the level of self-esteem of the wheelchair basketball players increases, there will be positive progress in their perception of body image. Tan and Karabulutlu have also expressed in their study that level of self-esteem will increase the level of body image (Tan and Karabulutlu, 2004).

When the variables effecting self-esteem are examined, it can be observed that there exists no significant relationship between the level of education and self-esteem. Pense et al. have also stated in their study of amputee players of college students or graduates vs. players of other levels of education that there is no significant relationship between the level of education and self-esteem (Pense et al., 2011).

In a study where the quality of life of wheelchair basketball players was examined, it has been concluded that there is no significant relationship between the period of time of the players' disability

Table 4. Results of Pearson χ^2 test and t-test results showing variables effecting body image of players

		Bpdy Image		Pearson Chi-Square	p
		Positive %	**Negative %**		
League	**Super league**	50	2	32,109[a]	,000 *
	1st league	14	10		
	Regional league	9	15		
Appearance at the National Team	**yes**	52	5	22,346[a]	,000 *
	no	21	22		
Appearance at the National Team (nb.)	**none**	21	22	23,181[a]	,000 *
	1-10	15	3		
	10-30	20	1		
	30 +	17	1		
Level of Income	**1000-1999 TL**	10	14	21,592[a]	,000 *
	2000-3999 TL	31	12		
	4000 TL +	32	1		
Marital Status	**Married**	23	13		0,491
	Single	50	14		

	Body Image	t	p
Education	**Positive**	0,794	0,429
	Negative		
Time of Occurrence of Disability	**Positive**	0,321	0,749
	Negative		

*p< .05

and their quality of life (Çokluk et al., 2011). These results also support the outcome of our study.

Altun et al. (2011) have revealed that amputees doing sports both professionally or amateurish have better quality of life than those who do not (Altun et al.2011). Having a good quality of life will positively effect self-esteem. In a study carried out by Akkaya et al. ,the relationship between the perception of body image of amputees and level of depression was examined and a statistically significant relationship was discovered (Akkaya et al., 2011). The negative perception of individual's body image is causing depression. This finding is parallel with some outcomes of our study.

As Sevindi has communicated, Şah (2005) has stated in his study that doing sports and having a high monthly income are factors affecting problem-solving skills of individuals with physical disabilities (Sevindi et al., 2010). It is also seen in our study that the increase of monthy income has a positive effect on self-esteem of both amputee players and non-amputee players. When taken into account that as an individual with a disability, having a quality life is dependant on materiality; it is a probable consequence that individuals with low income levels will form the idea that they will not be able to solve most problems and consequently form low self-esteem.

According to Pense, Duman et al. have studied the relationship between level of education and self-esteem of players with a physical disability, and have concluded; that the differences are not statistically significant, as the level of self-esteem of players with a physical disability do not range according to their level of education (Pense et al., 2011). In the study carried out it has been concluded that there is no significant relationship between the level of self-esteem and level of education of both amputee and non-amputee players.

CONCLUSION

Meeting the private and societal requirements of individuals with disabilities and uniting them with the society is the basic principle of the rehabilitation process (Kalyon, 2001). In achieving this objective, incorporation of individuals in sports events which will motivate them and develop positive body image and self-esteem perception will be of great importance during the process of uniting with the society.

Sports increases the enjoyment of life while teaching individuals to stand out against their disabilities, and ensures individuals to realize that they have strength to go beyond their limits. In addition, it is possible to overcome by doing sports the emotion of isolation, which is one of the most important complications of having physical disabilities. Our study has shown that positive body perception and high self-esteem is relevant with being physically active. Participation in sports events affects the body perception and self-esteem in different levels in relation with several variables.

Our study concludes that amputation status does not generate a difference in body image among wheelchair basketball players. Moreover, the increase in income, playing at the national league, and other variables regarding sports have positive effect on self-esteem. When taken into account that there is a positive significant relationship between self-esteem and body image, it will be possible to influence positively the adverse effects of disability via sports events.

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Human Postural Stability During Dog Walking by Adults with Intellectual Disability

Selected Oral Presentation

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ABSTRACT

The purpose of this study was to investigate whether or not walking a dog can increase stability in the walking performance of individuals with intellectual disability (ID). Individuals walked on a narrow balance beam, while a dog walked parallel to them on a narrow bench. Task manipulations included walking with normal vision (FV) and while blindfolded (BF), and walking with (WD) and without a dog (ND). When walking blindfolded on a narrow surface with accompanying dog, the participants showed better postural stability and gait regularity than when walking without a dog. Therefore, we concluded that the ID individuals were able to use the dog's leash to detect haptic properties in order to achieve postural control (e.g., stability in speed performance) while walking.

Key Words: *Haptic perception, Animal assisted activity, Postural stability, Intellectual disability*

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INTRODUCTION

The study of *haptics* has important implications for Turvey's theory of perception as it relates to the understanding of the phenomenon of the nervous system's dynamic detection of physical invariants (i.e., torque and motion) during the body's use of tools and other biological and non-biological implements (Turvey, 1996). Individuals can use tools for exploration (e.g., handling tools in everyday activities) as well as for postural orientation (e.g., a blind person using a cane to navigate). During the maintenance of the upright position or during walking, an individual can rely on objects for the purpose of stability. Humans often detect information by exploring different textures and dimensions indirectly, rather than via "biological detectors" (i.e., directly touching a surface with their hands or fingertips) (Mauerberg-deCastro et al., 2010). For instance, when a person walks a dog on a leash, interaction mechanisms between human and dog are responsible for their mutual navigation of a pathway, and this provides a type of "anchorage" for the human, which he or she uses to make postural adjustments while walking. Accordingly, Mauerberg-deCastro used an "anchor" metaphor (Mauerberg-deCastro, 2004) to illustrate the mechanism by which individuals explore—via an anchor system[1]—the adjacent environment in order to control the forces that act on their postural system. This mechanism relies on *haptic perception*. Indeed, recently, Périco and colleagues (2013) demonstrated that, when blindfolded adults held the leash of a walking dog, their locomotion performance significantly ($p \leq 0.05$) improved relative to the condition without a dog, as assessed by temporal and spatial parameters of the gait, as well as its variability—via inter-limb relative phase.

Besides postural difficulties, the cognitive skills of individuals with intellectual disabilities often prevent them from detecting relevant information related to motor performance in general. Since the use of the anchor system requires a voluntary process, and because it is embedded in a postural task, it seems relevant to study whether or not haptic perception is affected in this population. That is, do individuals with intellectual disabilities successfully use haptic information when walking a dog on a leash (i.e., a non-rigid tool), therefore reducing the locomotion instability created by restricted vision during the task? The purpose of this study, then, was to investigate whether or not walking a dog can provide stability to individuals with intellectual disability (ID) during a walking performance task. We predicted that walking a dog could improve walking temporal parameters by decreasing their variability in the gait relative phase, as well as by improving performance (walking duration), especially while walking blindfolded.

METHOD

Six adults with moderate intellectual disability (mean age = 23.5 years) were invited to participate in this study. One female, 3 year-old Akita canine took part in the experiment. Legal guardians signed a permission form designed specifically for this study (UNESP/IB/CEP nº 1024/2012), and the dog owner signed an animal protection form (UNESP/IB/CEA nº 1841/2012), both approved by the university's Ethics Committee.

Participants walked on a narrow balance beam (6 m long x 10 cm wide x 34 cm high), with a dog walking on a parallel narrow bench (6 m long x 28 cm wide x 34 cm high) (see Figure 1). Task manipulations included three repetitions of walking with normal vision (FV) and while blindfolded (BF), and walking with (WD) and without a dog (ND).

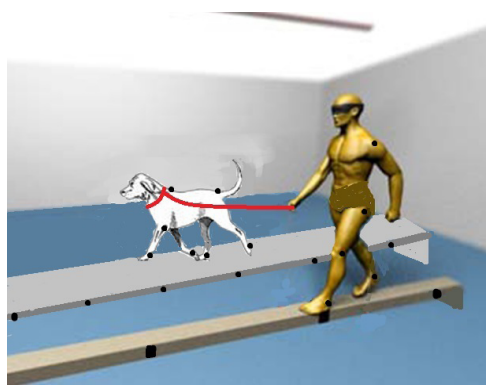

Figure 1. Illustration of the task design. (This schematic does not include illustration of the personnel used for safety and task control of the participant and the dog.)

[1] The anchor system metaphor was first presented by Mauerberg-deCastro (2004) requires a person to hold a pair of flexible cables that are attached to varying loads—which remain resting on the floor, while simultaneously performing a balance challenging task.

Video data processing included an integrated video analog-to-digital capturing interface, and marker trajectories were digitized and reconstructed in 2-D space using the software *DVideow* 5.1. We calculated each gait's relative phase using the formula:

Relative phase right leg =
(tol – TOR)/(FSR-TOR)
Equation 1a

Relative phase left leg =
(tor – TOL)/(FSL-TOL)
Equation 1b

Where *tol* = toe-off left leg; *TOR* = toe-off right leg; *FSR* = foot strike right leg; *TOR* = toe-off right leg; and vice-versa. The result of a perfect temporal synchronization between legs resulted in a relative phase equal to 0.5. We used the standard deviation of the relative phase as a measure of variability. Step duration (in seconds) was the time it took between one leg touching the ground and the opposite leg touching the ground. The shorter the duration of steps, the more efficient was the walking performance.

RESULTS

We performed a two-way ANOVA (2 vision conditions [FV and BF] x 2 tasks [ND and WD]) with repeated measures on both variables for step duration. Results showed a significant effect for vision ($F_{1,5}$ = 37.69, p = 0.002, η^2 = 0.88), and for task ($F_{1,5}$ = 28.06, p = 0.003, η^2 = 0.85). As expected, when walking blindfolded, participants slowed down, and, therefore, step duration increased significantly. When participants walked with a dog, step duration decreased. However, a significant interaction between vision and task factors ($F_{1,5}$ = 33.61, p = 0.002, η^2 = 0.87) indicated that this occurred only during dog walking without vision. When walking with the dog, magnitude of step duration without vision decreased nearly 50%; while with vision, the presence of the dog did not affect the performance (Figure 2).

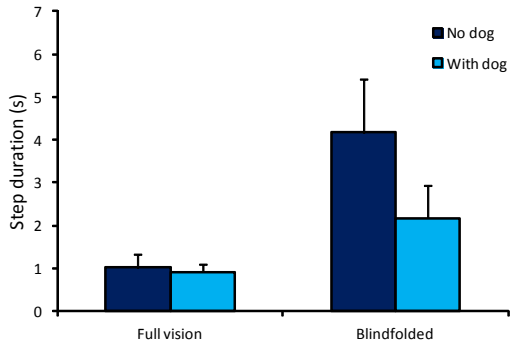

Figure 2. Mean and standard deviation of step duration when walking with full vision and walking blindfolded, with no dog (dark blue) and with dog (light blue).

Variability of the relative phase showed a significant effect for the vision condition ($F_{1,5}$ = 350.32, $p \leq 0.001$) and task ($F_{1,5}$ = 7.11, p = 0.045). Variability increased during blindfolded walking; however, during dog walking in both vision conditions, performance improved, reflected in reduced variability of the relative phase (Figure 3).

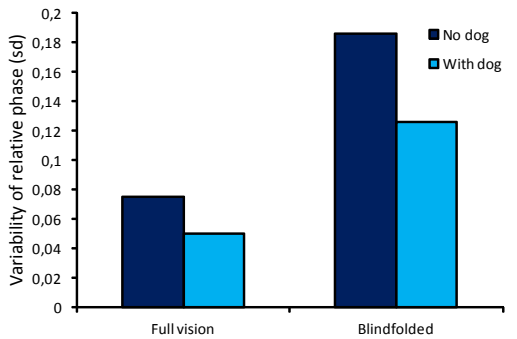

Figure 3. Variability (i.e., standard deviation) of the relative phase (RP) during walking with full vision and walking blindfolded, with no dog (dark blue) and with dog (light blue).

DISCUSSION

When the participants walked blindfolded on the narrow surface with the dog, they showed better postural stability and gait regularity than without the dog. We assume, therefore, that these individuals were able to detect haptic properties via the dog's leash and used them to achieve postural control (e.g., stability in speed performance) while walking. Also, after initial instability, they

resumed coherent symmetry between the right and left legs throughout the sequence of steps. The implication of such results is that a task such as walking a dog can illustrate an organism's dynamic relationship with systems outside of itself, whether coupled with tools or with other biological systems (in our case, a dog connected by a leash). During the exploratory movement, the dog acted as an anchor system, and, although behaviorally dynamic and unpredictable, it became a subsystem of the human walker, or conductor. The absence of vision (the blindfold) created an intrinsic perturbation to the stability state, which "pushed" the biological system (i.e., the human) to cooperate with the external system (i.e., the dog). Too, the dog was affected by the participant's movements, although she relied on vision to maintain direction. It seems important to note that the participating dog was trained to obey heeling commands and other basic obedience protocols; therefore, it is unlikely that she pulled the participant. However, visual inspection of the data shows that the dog reacted to pulls from the participants when they attempted to regain control after loss of balance. In another study using a similar task protocol, but with college-aged participants without disabilities walking a male golden retriever dog, Mello (2011) found a significant improvement in several walking parameters (including reduced step duration and reduced variability of relative phase) when restriction of vision was associated with dog walking. Similar to our results, participants who walked with full vision, with and without a dog, showed no difference in these parameters.

The intellectual condition of the individuals seems not to be a constraint to the quality of strategies they used for controlling the dog while walking on the balance beam. The need for stability—reached through exploratory actions—is not crucially associated with level of intelligence. Control strategies, which ensure behavioral solutions, also illustrate adaptation. Therefore, just as we found a robust effect of the anchor system in our previous studies (Mauerberg-deCastro, 2004; Mauerberg-deCastro et al., 2010; 2012), here again we corroborate the same findings for individuals known to have balance problems.

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Comparison of Scapular Dyskinesia, Shoulder Pain and Function in Wheelchair Basketball and Amputee Soccer Players

Selected Oral Presentation

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ABSTRACT

The purpose of this study was to compare the scapular dyskinesia, shoulder pain and function in wheelchair basketball and amputee soccer players. 19 male (age = 29.0 ± 6.4 years) from amputee soccer and 22 male (age = 25.2 ± 9.1 years) from wheelchair basketball team total of 41 players participated in our study. The data related to the descriptive and clinic characteristics of the subjects were collected. Visual Analog Scale (VAS) was used to assess shoulder pain intensity (at night and during game). Quick disabilities of the arm, shoulder and hand questionnaire (Q-DASH) was used to assess upper extremity function. Scapular dyskinesia was evaluated with Lateral Scapular Slide Test (LSST) designed by Kibler. There were significant differences for pain intensity (at night and during game), Q-DASH and LSST (1st test position) scores between wheelchair basketball players and amputee soccer players ($p < 0.05$). So we concluded that LSST-1 position is more similar position for both sports. Scapular dyskinesia and functionality scores were poor in quality in amputee soccers players.

Key Words: *Wheelchair basketball, Amputee soccer, Scapular dyskinesia, Pain*

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INTRODUCTION

After 1960s, sport activities for people with disabilities gradually increased with developments in medicine and special operation techniques, demands and production of adaptive device for sport activities (Messner and Benedick, 1995).

The abnormal scapular biomechanics that occur as a result of dysfunction create abnormal scapular positions that decrease normal shoulder function and predispose for shoulder injuries (Glousman et al., 1988; Kibler, 1998b; Kuhn et al., 1995). Also shoulder pain, scapular and functional problems commonly occur results of shoulder injuries (Zatsiorsky, 2000).

Wheelchair users rely largely on the upper extremities for mobility and transfers which eventually results in degenerative structural or physiological joint changes (Curtis et al., 1995). In addition to wheelchair athletes, athletes with amputations who use conventional crutches have same problems in different ways (Segura and Piazza, 2004).

The etiology of shoulder pathology is lack of evidence for wheelchair basketball and amputee soccer players.

The purpose of this study was to compare the scapular dyskinesia, shoulder pain and function in wheelchair basketball and amputee soccer players.

METHOD

Subjects: 19 male (age=29.0 ±6.4 years; body mass index (BMI)= 22.9 ±2.1 kg/m^2) from amputee soccer and 22 male (age= 25.2 ±9.1 years; BMI= 21.2 ±3.6 kg/m^2) from wheelchair basketball team total 41 players participated in our study. Before study participation, all subjects were informed verbally for the details of the study and all of them signed informed consent forms. The ethical approval was taken from Turkish Sports Federation of Physically Disabled.

Data Collection Instruments: Before study participation, all subjects were informed verbally of the details of the study and all of them signed informed consent forms. The data related to the descriptive and clinic characteristics of the subjects were collected before the study began.

Pain Intensity: Visual Analog Scale (VAS) was used for evaluating shoulder pain intensity (at night and during game) (Dixon and Bird, 1981). Subjects were asked to indicate intensity by marking a 100-mm-long horizontal line that was labeled with the anchors on the one hand "no pain" and "worst pain possible" at the other end (Briggs and Closs, 1999).

Functionality: Turkish version of the quick disabilities of the arm, shoulder and hand questionnaire (Q- DASH-T) was used to assess upper extremity function. The questionnaire consists of a disability/symptom scale (11 items) and two optional scales: work (four items) and sports/performing arts (four items). To calculate Q-DASH score at least 10 of the 11 items must be completed. Each item has 5 response options and from the item scores, scale scores are calculated, ranging from 0 (no disability) to 100 (most severe disability) (Gummesson et al., 2006; Koldas- Dogan et al., 2011).

Scapular Dyskinesia: Scapular dyskinesia was evaluated with Lateral Scapular Slide Test LSST designed by Kibler to evaluate scapular asymmetry under varying loads. According to Kibler, three test positions were used (Kibler, 1998a; Odom et al., 2001). For test position one (LSST-1), subjects was instructed to keep their upper extremities relaxed at their sides. In test position two (LSST-2), the subject was instructed to actively place both hands on the ipsilateral hips and consequently, the humerus was positioned in medial rotation at 45° of abduction in the coronal plane. In test position three (LSST-3), subjects were instructed to actively extend both elbows and to elevate with maximal internal rotation at both upper extremities to 90° in the coronal plane. The distance between inferior aspect of the inferior angle of the scapula and the closest spinous process in the same horizontal plane was measured bilaterally with a tape measure for all three positions. A difference of 1.5 cm or more in any of the three positions was considered a positive result (Kibler, 1998a; Odom, 2001; Ozunlu et al., 2001).

Data Collection: Measurement methods were performed in wheelchair basketball and amputee soccer players' own practice fields, by the same

physiotherapist and took 20 minutes for each player.

Data Analysis: The Statistical Package for the Social Sciences, version 17.0 (SPSS 17.0) was used to perform statistical analysis. Means, standard deviations and percentiles were calculated for descriptive and clinical characteristics of players. Mann-Whitney-U test was used in comparison of groups. P-value of ✣ 0.05 was accepted as the level of statistical significance for the comparison data.

RESULTS

Descriptive and clinical characteristics of participants are shown in Tables 1 and 2. Outcome measurements are shown in Table 3.

(X±SD: mean±standart deviation, *p✣0.05, VAS: Visual Analog Scale, cm: centimeters, Q-DASH: Quick disabilities of the arm, shoulder and hand questionnaire, LSST: Lateral Scapular Slide Test, LSST 1: Difference in LSST position one, LSST 2: Difference in LSST position two, LSST 3: Difference in LSST position three.

Table 1. Sociodemographic and clinical characteristics of wheelchair basketball and amputee soccer players

	Wheelchair basketball players n (%)	Amputee soccer players n (%)
Sex		
Female	0	0
Male	22 (100)	19 (100)
Disability Status		
Amputation	6 (27.3)	18 (94.7)
Poliomyelitis	6 (27.3)	0
Spina Bifida	2 (9.1)	0
Spinal Cord Injury	4 (18.2)	0
Others	4 (18.2)	1 (5.3)
Wheelchair User		
Yes	15 (68.2)	0
No	7 (31.8)	19(100)
Dominant Extremity		
Right	15 (68.2)	17 (89.5)
Left	7 (31.8)	2 (10.5)

(N: number of participants, %: percentages)

Table 2. Descriptive and clinical characteristics of wheelchair basketball and amputee soccer players

	Wheelchair Basketball Players X±SD	**Amputee Soccer Players X±SD**
Age (years)	25.27±9.19	29.00±6.43
BMI (kg/m✣)	21.29±3.67	22.99±2.10
Duration Of Using Wheelchair (Years)	9.27±7.98	0
Numbers Of Daily Wheelchair Transfer	9.22±9.34	0
Duration Of Working And School Time (Hours\ Week)	25.45±15.74	20.36±19.99
Duration Of Sports And Recreational Activities (Hours\ Week)	11.45±13.30	9.15±5.00

(X±SD: mean±standart deviation, kg: kilograms, cm: centimeters, BMI: body mass index, m:meters)

Table 3. Outcome measurements of wheelchair basketball and amputee soccer players

	Wheelchair Basketball Players X±SD	**Amputee Soccer Players X±SD**	**P**
VAS-(At -Night) (cm)	2.00±2.00	0.52±1.21	0.008*
VAS-(During Game)(cm)	3.86±3.21	1.52±2.31	0.009*
Q-DASH Score	13.92±9.71	32.64±11.74	0.000*
LSST 1(cm)	0.72±2.04	-0.20±0.70	0.017*
LSST 2 (cm)	0.52±1.86	-0.10±1.80	0.054
LSST 3 (cm)	0.24±1.44	-0.23±0.93	0.266

DISCUSSION

Participation in sport activities for people with disabilities continues to gain in popularity. Although recent literature mention about the relationship between wheelchair athletes and shoulder problems, it does not involve amputee soccer players and their relation with shoulder problems. But according to our knowledge; it could be in similar relation also in this sport.

According to our results; statistically significant difference was found in LSST-1 test position between both sports. So we concluded that LSST-1 position is more similar position for both sports. Also LSST 2 and LSST 3 positions are not functional positions for using crutches and wheelchair propulsion. Scapular dyskinesia and functionality scores were poor quality in amputee soccer players. Pain (at night and during game) and dyskinesia are found worse in wheelchair basketball players than amputee soccer players. This expected result could be the cause of the wrong positioning in the wheelchair or repetitive use of the upper extremities for propulsion.

In addition to these, our study results showed that amputee soccer players' functionality scores were higher than wheelchair basketball players. There could be several reasons; Q-DASH does not only evaluate shoulder joint but also evaluates elbow and hand functions and also forces at the crutch are transferred directly and primarily to the hand and then wrist before the shoulder.

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Volleyball with a "Butt": 'I Am Jumping Inside!'

Selected Oral Presentation

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ABSTRACT

In Adapted Physical Activity (APA) field is it widely accepted that physical activity is inherently empowering. However, to date, tools to empirically assess the validity of this assumption are scarce and underdeveloped (Hutzler, 2008; Reid, 2003; Silva & Howe, 2012). Drawing upon a three-year ethnographic investigation into the culture of sitting volleyball (SV) in the United Kingdom (UK) aimed at evaluating the impact of the sport on the personal capabilities of players with impairments, we defend that the human development focus of capabilities approach offers ethical, conceptual and methodological guidance essential to evaluate APA potential to promote the empowerment of its public. Because this approach is grounded in the defense of essential values of a life worthy of human dignity such as freedom, agency and self-determination (Nussbaum, 2006, 2011; Sen, 1999, 2009), this connection would also help APA to reinforce its social legitimacy. The present paper outlines this study's methodological design and presents a summary of significant findings.

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RESEARCH PROJECT

To assess the impact of SV on the personal capabilities of players with impairments (in the UK), the current research adopted ethnographic methods, which allowed a morally committed and thorough phenomenological investigation into the SV cultural milieu. The lead author was well suited to embody the role of participant observer, as after a lifetime of experience in competitive mainstream volleyball culture in Portugal, a knee injury in the twilight of her career enabled her to be accepted as a member of SV community. Over three years, she adopted the role of player and coach at the grassroots level and of technical support member for Team GB. She also visited and participated in the training sessions of most of the SV clubs active in the UK. The views, observations and insights gathered from these experiences were diligently recorded in a reflexive diary; accompanied by a collection of ethnographic data. A considerable number of key members of the SV community were interviewed and a survey undertaken at the end of the 2010/11 competitive season. An interpretative phenomenological analysis of the interviews and the triangulation of all the data sources supported the findings now reported.

Capabilities Approach: Capabilities approach was developed in economic and political philosophy influenced by authors such as Aristotle, Adam Smith, and Karl Marx (Nussbaum, 2006). Capabilities approach is a flexible and multi-purpose framework grounded in two core normative claims. First, the freedom to achieve well-being is of primary moral importance for social justice and secondly, this well-being ought to be assessed by examining people's genuine opportunities to do and be what they have reason to value (capabilities) as well as the realizations of those opportunities (functionings) (Nussbaum, 2006; Sen, 2009). For a more developed introduction to capabilities approach and its usefulness in APA see Silva and Howe (2012).

Sitting Volleyball Impact on Personal Capabilities: What were the ethically valuable and valued "beings" and "doings" which SV players with impairments expanded through their participation in SV?

In this research, the selection of valid and valuable capabilities influenced by participation in SV was undertaken in close observance of Nussbaum's (2006) proposed list of ten central capabilities, which she defends needs to be enjoyed up to a minimum level by every human being for their lives to be worthy of human dignity. After a thorough analysis of the research data set, ten core capabilities were identified by the main researcher. Some capabilities are very close to Nussbaum's original list (1, 4, 5, 9, 10) while some new capabilities emerged as significant in this study's context (2, 3, 6, 7, 8). The reader will perhaps notice its intuitive moral value as these are "beings" and "doings" that most human beings would reasonably wish to enjoy.

Table1. List of relevant capabilities for Sitting Volleyball players with impairments in the UK

Capabilities	Description
Life and health	Preserve or improve physical and psychological health and living a satisfactory life.
Explore one's own potential	Face challenges that promote the exploration of one´s limits and possibilities.
Knowledge	Expand knowledge on impairment and disability, oneself and others.
Practical reason	Use SV experience to help forming a conception of the good and engage in critical reflection about the planning of one´s practical life.
Affiliation	Develop meaningful social relations, in which one feels respected.
Achieve, respect and love oneself	Expand positive self- perceptions, through experiences of achievement and success.
Feeling and being morally equal	Feel morally equal and to be recognised as such, in acceptance of individual differences, including impairment.
Doing good for others	Do good for others and be recognised for one's valid contribution.
Play	Enjoy playing SV just for the sake of it.
Control over one's own environment	Participate effectively in the way things happen in SV.

After a summary of SV development in the UK, we will focus on the capabilities more significantly related with impairment and disability (2, 7, 8).

In 2006, after London was made host of the 2012 Olympic and Paralympic Games, a renewed energy catalyzed financial and social interest in sports development, particularly at the elite level. The UK Sport (state agency responsible for elite sport) "no compromise" strategy proclaimed a maximum commitment in the pursuit of medals, therefore the funding allocation depended mainly on the sport's chance to medal. Volleyball institutions, financially supported by UK Sport, perceived this moment as a golden opportunity to raise volleyball national profile. Within this context, SV could confer to Volleyball a mark of universality. Also, the chances of competitive success were assessed as stronger in SV than in the mainstream version. Thus, led by mainstream institutions (especially Volleyball England), SV development focused primarily on the preparation of the GB teams with a requirement from UK Sport to develop minimal grassroots provision, which was achieved through the creation of regional SV centers (open to any participant) and of a national Grand Prix competition. Hence, a person with impairment joining a SV center entered an exciting developing sporting community where he/she could interact with able-bodied (AB's), minimally disabled (MD's) and disabled (D's) players, and where, he/she could quickly accede to the elite level. It is within this context that the vital importance of capabilities such as "Explore one's own potential", "Feeling and being socially equal" and "Doing good for others" must be understood. Their commonality lies in their potential to challenge stereotypical views on impairment and disability. The next section focus on the examination of these capabilities, illustrated with statements from some of the SV players interviewed (fictional names).

Explore one's own potential: Catherine suffered a traffic accident leaving her with no functionality in her right leg. She soon started to incorporate others' views of her limited competence: "Since I've had the accident I've found that impairment gives me an excuse to stop trying. Because everyone tells me: 'Oh, never mind. You tried your hardest.'"

For Catherine and many other players with impairments, SV provided a context where the usual low expectations of others were challenged. Though they felt that most people expected them to "sit around all day doing nothing" (Hannah), SV was so challenging that there was no space for self-commiseration: "In volleyball if I don't try my hardest I let everybody else down. And I know I let everybody else down. And they'll know I've let them down. It gives me that push to challenge myself and REALLY do my best" (Catherine). During this process of stretching and testing one's own limits, new movement possibilities were engendered, increasing one's own self-knowledge. Moreover, non-impaired colleagues reshaped their expectations of the competency of people with impairments.

Feeling and being socially equal: Though people with impairments are generally perceived as socially inferior (Morris, 1991), in SV the physical levelling of bodies seemed to induce social equalisation: "Sitting volleyball puts all at eye level, which is really important. When I'm on the court, I stand up and there are people on wheelchairs, I feel different, whereas if we sat on the floor on a mutual field I feel we are the same" Alice (MD player). Moreover, SV provided a "neutral" field because both, people with and without impairments, needed to adapt to moving whilst seated on the floor. Contrary to usual expectations, people with impairments did not need to "overcome" their impairment nor did they require "special" rules for equal chances of competitive success: "People are playing the same sport without different adaptations... It is an equal game and there is no advantage" (Catherine). Since a D player could be more efficient than an AB or MD, at least in some aspects of the game (e.g. movement speed), people started to understand the "Other" beyond the reductive distinction able/disabled: "It's like different disabilities have different strengths and weaknesses on the court" (Jenny).

Doing good for others: For the majority of people with impairments help is a contentious matter, because they are much more frequently the recipients of *good* rather than its agents. Help can act as a power mechanism, if/when unequally and inadequately practised (Nadler & Fisher, 1986; Goodwin, 2001). Ikäheimo (2009) argues that the personhood feeling is intimately tied up with "deeply

inbuilt hopes of having something to contribute to the good of others and the hope that others would value them as contributors" (p.82). Such perspectives were confirmed in this study. The opportunity to help was one of the SV benefits most strongly valued, and practiced in diverse ways, for instance, helping others dealing with disability: "I'd like to think that I have encouraged and helped people in similar situations to myself in some way, shape or form" (Peter) or contributing for the success of the team: "I love that when you're on court, people have to rely on you. There is a great amount of responsibility on your shoulders. I love that!" (Irvin). Besides the internal contentment that being able to contribute grants to its agents, to feel one is recognised for it was equally important: "I remember when I played with another team. They took me on straightaway and I didn´t feel like a spared tire. I WAS INVITED! [Slowly stressed] They WANTED me!" (Jeremy).

IMPLICATIONS

Because all too often assessments of the impact of sport's participation are predominantly focused on health parameters, overlooking other equally important dimensions of people´s lives; the identification of central personal capabilities would provide a useful holistic framework to evaluate the quality of APA programs. Such a holistic concern is the only perspective compatible with the inherent multidimensionality and complexity of each human being. However, due to space constrains, only three capabilities (of a list of ten capabilities relevant for SV players) were presented in this paper. They highlight crucial aspects in the personal experience of SV players that may be relevant in other contexts: the engagement with appropriately challenging tasks; a socially equalising environment and the opportunity to do good for others.

If APA was organised and implemented aiming towards the expansion of personal capabilities such as these, not only would its positive impact on personal lives be extended much beyond the health benefits but also potential negative impacts would be attenuated because a whole set of vital capabilities and its interactions would be considered. Moreover, since capabilities approach is ethically individualistic (the ethical focus is primarily on each individual); APA professionals and the athletes themselves would be challenged to question normative assumptions on sporting performances and to proactively build alternative physical cultures, more attuned with their essences; to exercise their right to "Jump inside!" while sliding on their "butts", as in SV.

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The Role of Higher Education to Foster Certified Adapted Physical

Selected Oral Presentation

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ABSTRACT

A shortage of Certified Adapted Physical Educators (CAPEs) has been reported since 1975. Currently, only 57 universities in the U.S. offer an Adapted Physical Education (APE) major in either undergraduate or graduate level and 21 states do not have any universities offering an APE major. This study examines differences between states with and without universities offering an APE major with regard to the relationship of the number of CAPEs and the number of students with disabilities taking special education. Multivariate analysis of variance (MANOVA) test statistics revealed a statistically significant difference between states with universities offering an APE major compared to states without universities offering an APE major on the multivariate mean of number of CAPES and number of students with disabilities, $F(2, 48) = 5.918$, $p = .005$, $\eta^2 = .198$. Roy-Bargmann step-down procedure revealed a statistically significant difference in the population of students with disabilities taking special education between states with and without an APE major, $F(1, 49) = 10.106$, $p = .003$. The second step ANCOVA revealed a non-significant difference in the number of CAPEs after controlling for the size of the population of students with disabilities, $F(1,48) = 1.605$, $p = .211$. There was a significant difference between states with and without universities offering an APE major on the multivariate mean of the number of students requiring APE service and the number of CAPEs. The population of students had influenced whether the state had any universities providing an APE major.

Key Words: *Certified adapted physical educator, APE major, Higher education, MANOVA*

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INTRODUCTION

APE is vitally important to the quality of life for students with disabilities. It provides a safe and successful experience in meeting the specific needs of students with disabilities through physical education (Hodge, 2012). However, studies focusing on the need for more university APE professors and CAPEs (Zhang and Chen, 2004; Zhang, Joseph, and Horvat, 1999) have noted a shortage of qualified APE professionals since 1975. For example, Zhang and Chen (2004) showed that there was a significance shortage of qualified APE teachers, and 403 APE teacher positions were filled by individuals without APE certifications or left vacant. More recently, prevalence-based and market-based models revealed that 20,087 more qualified APE teachers are required to meet needs of students requiring APE services (a shortage of 75.96%), and that 640 more qualified APE teachers are needed to fill all of the APE positions currently funded (a shortage of 9.15%) (Zhang, 2011).

Currently, in the United States, there are 548 universities that offer physical education teacher education (PETE) programs. However, only 33 universities offer an APE major in undergraduate and 41 universities offer an APE major in graduate level. Twenty-one states do not have any university offering an APE major in undergraduate/graduate level. This study examines the difference between states with universities offering an APE major and states without universities offering an APE major in undergraduate/graduate level based on the number of CAPE and the number of students with disability taking special education.

METHOD

Data Source: Primary data were obtained from the 30th annual report to congress on the implementation of the Individuals with Disability Education Act (USDE, 2008). A modified version of the full USDE data set was used to estimate the number of students with disability receiving special education in public school. The number of CAPEs by state was provided by the national Certification of Adapted Physical Education database (APENS, 2012). Data about the number of universities offering an APE major in undergraduate/graduate level was from the National Consortium for Physical Education and Recreation for Individuals with Disabilities (NCPERID, 2012).

Data Analysis: A multivariate analysis of variance (MANOVA) was utilized to evaluate differences in the number of CAPEs and population of students with disability taking special education in states with universities offering an APE major ($M_{Students\ With\ Disability}$ = 196887.86, $SD_{Students\ With\ Disability}$ = 177113.79; M_{CAPEs} = 849.29, SD_{CAPEs} = 830.69) and states without any universities offering an APE major ($M_{Students\ With\ Disability}$ = 84769.07, $SD_{Students\ With\ Disability}$ = 65786.96; M_{CAPEs} = 329.29, SD_{CAPEs} = 238.27). All analyses were performed with SPSS (version 20).

RESULTS

Manova: Using Wilk's lamda, factorial MANOVA test statistics revealed a statistically significant difference between states with and without universities offering APE $F(2, 48) = 5.918$, $p = .005$, $\eta^2 = .198$ on the multivariate mean of number of CAPEs and number of students with disability.

Impact of main effect on the individual variables was investigated through Roy-Bargmann stepdown analyses on the prioritized dependent variables. Here the highest priority dependent variable (population of students with disability receiving special education) was evaluated within a univariate ANOVA framework. Then the higher priority dependent variable is used as covariate in ANCOVA to evaluate number of CAPEs. There was a statistically significant difference in the number of students with disabilities taking special education between states with and without an APE major, (EMM_{APE} = 196887.86, SEM_{APE} = 27049.53; $EMM_{without\ APE}$ = 84769.07, $SEM_{without\ APE}$ = 22631.26; $F(1, 49) = 10.106$, $p = .003$). ANCOVA revealed a non-significant difference in number of CAPEs after controlling for the number of students with disabilities taking special education (EMM_{APE} = 636.19, SEM_{APE} = 91.87; $EMM_{without\ APE}$ = 478.80, $SEM_{without\ APE}$ = 75.61; $F(1,48) = 1.605$, $p = .211$.

DISCUSSION

We investigated the relationship between states with and without universities offering an APE major in undergraduate/graduate level and the

number of CAPEs by states and the number of students taking special education. Results indicated a significant difference between states with and without universities offering an APE major in undergraduate/graduate level on the multivariate mean of the number of students taking special education and number of CAPEs. The population of students had an influence on whether the state had APE program in graduate level or not. However, after controlling for the population of students with disability, the number of CAPEs was not significant.

We observed that one of the factors that affected the trend of higher education offering APE major was the population of students of disabilities in the state. Since most of universities set their operations based on environmental conditions and opportunities (Sykes, 1999), states with a larger population of students with disabilities tend to have at least one university offering an APE major. However, this does not mean that universities are providing appropriate education to meet the demand for CAPEs in their state. Educators trained to work with students with disabilities are in short supply (Brownell and Smith, 1993; Lauritzen and Friedman, 1993) and studies have shown that an increasing amount of uncertified special education service providers in the area they are teaching (Smith, Smith, and Boone, 2000).

Finally, the awareness of need for higher education to foster increased training of CAPEs is required. Although studies reveal the shortage in CAPEs (Zhang, Kelly, Berkey, Joseph, and Chen, 2000; Zhang and Chen, 2004), it is hard to observe any movement in higher education to alleviate the shortage. Currently, there are only 57 universities are offering an APE major in undergraduate or graduate level in the U.S., and previous studies revealed that faculty appointments to adapted physical education programs were often either going unfilled or being filled with unqualified professionals (Dunn and McCubbin, 1991; McCubbin and Dunn, 2000). It is questionable that a small number of universities with unqualified professionals can provide quality education to future pre-service general physical education teachers and pre-service APE teachers. To fulfill the shortage in CAPEs, higher education administrators must reevaluate their academic programs if they are to meet the needs of society.

A limitation of the study is that policy factors, such as a state's endorsement of APE certification, were not included as variables in the model. Since each state has its own criteria to be a fully certified APE teacher, variation between states was hard to control. For future research, it is recommended that additional dependent variables like wages need to be included and tested.

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In-Service Teachers and Attention to Students with Physical Disability: Training, Concerns and Needs

Selected Oral Presentation

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ABSTRACT

The purpose of the study was to delve into the training of an in-service Physical Education Teachers (PET) in schools where students with a physical disability attend, their concerns and needs, as well as the relationship with other professionals. The participants were 57 in-service teachers and 3 physiotherapists (PT). The data were gathered from questionnaires from all the teachers and an interview of 8 PET and 3 PT. The results indicate they need to improve their training, and, in varying degrees, in such areas as certain sports, learning tasks and curriculum adaptations. The study reveals PT ensure that exercises are conducted which benefit students with disability and not those types which are designed for non-disabled students. Furthermore, teachers' perception of a lack of training results in feeling unable to deal with students with disability, and becoming dependent on the PT.

Key Words: *Students with a physical disability, In-service Physical Education Teachers, Physiotherapists. Concerns and needs.*

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INTRODUCTION

The attention given to students with disabilities, in compulsory education at Primary and Secondary schools in Spain, has changed in the last few decades to its present focus of an inclusive orientation incorporated into the curriculum (LOE, 2006). Likewise, it has been established that it is the responsibility of the school administrations to grant these students access to the curriculum. Furthermore, it is the faculty, given the autonomy and flexible constitution in the present curriculum, who establishes these pertinent adaptations.

The conceptual evolution, from the term integration to inclusion and affected at regulation level, entails joint responsibility and commitment of the teaching staff in the design and implementation of the curriculum in its evident degrees of specification. This change encompasses, in reference to the attention to diversity, and as proposed by Arnaiz & Ballester (1999, p. 8) "that the focus of education shift from the contents to the students." This statement could be interpreted to indicate that teachers are to be proficient not only in the content which they are to teach in its broadest sense but the instruction of it as well as the curriculum (Shulman, 1987), which encompass an adequate knowledge of the specific characteristics of the student with regards to his/her disability and environment.

In this sense, the possibility of assisting a student with a disability implies taking into account a great variety of factors. Accordingly, Booth, Ainscow, Black-Hawkings, Vaugham & Shaw (2000) consider inclusive education to be a distinct process for each school which involves the different agents who participate in it, and, thus, a complex one.

The involvement of the different agents who intervene in the inclusion process requires a conjunction of beliefs, resources, knowledge, which does not always occur (Hodge, Ammah, Casebolt, Lamaster & O'Sullivan, 2004). Consequently, according to Pivik, McComas & Laflamme (2002), physical barriers (e.g. ramps, doors, etc.), attitudes (physical and emotional bullying, isolation ...), lack of awareness and incomprehension by specialists and teachers result in lessons which do not adequately support the student with disability. The outcome has the student with disability acting as an assistant to the teacher or being excluded. Along these lines of study, researchers (e.g. Caus & Santos, 2011; Díaz del Cueto, 2009; Gita, Bognár, Kalbli & Dorogi, 2008) mention that the principal difficulties experienced by teachers may be found in little specific training in adapted physical activity, the limited information relating to the student's disability, the high student-teacher ratio, little communication among teacher, student and family in addition to limited cooperation with other teachers.

In response to this situation, the purpose of the study was to delve into the training of PET with experience in primary and secondary levels who deal with students with a physical disability, their concerns and needs as well as the relationship with other professionals.

METHOD

Context and Participants: There were 57 (30 male and 25 female) in – service PET in the metropolitan area of Madrid. 39 teachers were from mainstream Primary School (PS) and 18 from mainstream Secondary School (SS). Additionally, there were three PT working in three of the schools.

Data Collection: Data were gathered from a questionnaire comprised of 39 questions and five dimensions of information. We have used the following in this document: (a) professional details; (b) initial and on-going training; and (c) degree of coordination among the varying professionals in the schools.

The questionnaire was designed specifically for this study, after a broad ranging revision of pertinent bibliography, and taking into consideration the focus of the study. It was validated by experts within the department of PE and disability at the university.

A semi-structured interview was conducted (Patton, 2002) of eight PET (four from PS and four from SS) and three PT with the purpose of probing and clarifying the information culled from the questionnaire.

Confidentiality was respected and participants were informed of their right to abandon the study should they desire to do so.

Data Analysis: The statistical analysis centred on the frequency of answers and standard deviation (SPSS 17.0 SPSS Inc., Chicago, Illinois, USA), no significant differences were found due to gender or

educational stages. The interviews were recorded and transcripts were made. Inductive analysis was employed on the content of each transcript which related to the objective of the study and the dimensions of the questionnaire.

RESULTS

Professional Details: Most of the teachers (79,5% of PS and 82.4% of SS) were permanent members of staff in their schools. The PS teachers had less experience (46.2% had between 5 and 10 years of experience in PE and 46,2% had < 5 years' experience teaching students with disability). Furthermore, 83.3% of the SS teachers had more than 15 years' experience in PE, and 38.9% had more than 15 years' experience teaching students with disability.

Initial and on-going training: 69.2% of the PS teachers and 61.1% of the SS teachers have had instruction in attention to students with disability during their initial professional training. In both groups, attendance to courses, conferences, work groups or congresses, etc. has been limited.

Aspects which teachers identify as being their highest concern are improving their training in disability, specific sport, learning tasks and adaptations to curriculum.

In this sense, Maria (PS teacher) indicates, in the interview, that the lack of training is the source of her anxiety and uncertainty during the course of the lesson:

Very insecure and worried because I want to do things and I am aware that if I had help or if I had a smaller group, I would do so many things.

Coordination among the different professionals: PS teachers (42.2%) as well as SS teachers (44.4%) declare they work together and discuss with fellow faculty members of other departments and PT in order to learn about their specific characteristics. The low rates observed reflect the need for coordination to compensate the need for training, as indicated by Andrés (SS teacher):

Above all, problems arise in coordination. Depending on the tasks which have to be done in class, the students attend a class or they are sent to the physiotherapist.

In both educational levels, the PS teachers (43.6%) and SS teachers (61.1%) state they rarely meet with the parents of students with disability, which is confirmed by Rosa (a SS teacher) when she says,

Normally the person most parents speak to is Alicia (the physiotherapist).

From this we may deduce that the physiotherapist serves the role of intermediary between the family and the PE teacher.

CONCLUSION AND DISCUSSION

It could be said that the PET in this study would seem to be professionally stable given the years of experience in their schools; however PS teachers have less experience teaching both PE and groups which include students with disability. This stability allows them to get to know other faculty and specialists in their school and coordinate with them if so deemed necessary. Despite the training in supporting students with disability undergone, the teachers perceive and state that training needs to improve in areas of content and didactic instruments which provide them with ways to modify the teaching–learning process to accommodate the needs of students with disability (Caus & Santos, 2011; Díaz del Cueto, 2009; Gita et al, 2008). The teachers believe that training which may be enriching could use real and specific cases and experiences within a theoretical-practical format. Furthermore, professional stability not only provides teachers with the opportunity to collaborate with a variety of professionals, but also we believe it is the physiotherapist the person who provides specific information. As a result of feelings insecurity generated by perceived deficiencies in the type of professional training they have received, PET depend on the criteria established by the physiotherapist and other professionals to provide support to the student with disability. This situation could negatively affect participation of students with disability in the inclusive process.

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Does Handwriting Speed Influence Pencil Grip Force and Muscular Activity?

Selected Oral Presentation

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ABSTRACT

Handwriting proficiency, or fluent strokes that individuals perform without a large amount of effort and speed in order to produce an output that is readable, is not universal. Approximately 12 to 21 percent of students have difficulties writing at the elementary level (Weintraub, Gilmore-Graul and Weiss, 2010). This outcome is significant as many handwriting interventions are made to correct student pencil grasp and writing mechanics. When these students reach university, they may be required to produce quick and efficient handwriting patterns. There is, however, limited information on the muscle activity levels and gripping force needed to handwrite efficiently during speeded and non-speeded situations at the university level. This study examined the impact of students' handwriting speed (characters/min) on their hand muscle activity levels and pencil grip force. Forty university students (25 females, 15 males) comprising 93% right-handed and 3% left-handed participated in this study. Handwriting speed was measured in characters per minutes. Surface Electromyography (SEMG) was used to assess muscle activity in each participant's dominant hand. The pencil grip force was recorded using a pen designed to measure lateral forces. A discriminant analysis compared fast and slow handwriting performance in relation to muscle activity and gripping force. No significant differences were found between fast and slow hand writers in terms of muscle activity and grip force, $F(3,36) = 0.580$, $p>.05$. These results reflect the maturity and automaticity of university students' handwriting. This unique protocol holds promise for the development of remedial programs for persons with disabilities. Children with developmental coordination disorder (DCD), adults with carpal tunnel syndrome, and persons recovering from stroke, for example, could improve coordination of fine motor skills through strengthening of weak muscle patterns, modifications of grasp and modulations of gripping force (Smits-Engelsman, Niemeijer and van Galen, 2001).

Key Words: *Handwriting speed, Grip force, SEMG, University students*

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INTRODUCTION

It is reported that between 10% and 20% of elementary school children display handwriting problems (Alston and Taylor, 1987; Salvesen and Undheim, 1994; Svensson, Lunbert and Jacob, 2001; Weintraub et al., 2010). This finding is significant because in addition to the gross motor coordination difficulties that children experience, a common reason for referring them to occupational therapy is for handwriting (Naider-Steinhart and Katz-Leurer, 2007). This combination of gross and fine motor difficulties is commonly seen in children with DCD (Hoare, 1994). When these students reach university, the use of proficient handwriting becomes essential for noting lecture material and finishing examinations on time.

One measure of students' proficiency in handwriting is their handwriting speed. Handwriting speed is commonly evaluated by calculating the average number of letters written per minute (Graham, Berninger, Weintraub and Schafer, 1998). In handwriting tasks longer than 20 minutes, however, calculating average number of words per minute (wpm) is an optimal measure (Connor, 1995).

Handwriting speed can influence the level of grip force that students exert on the pencil. This effect can result in a change of students' handwriting proficiency (Schomaker and Plamondon, 1990). According to van Drempt, McCluskey and Lannin (2011), the grip force that students apply to the pencil during handwriting tasks is exerted in two directions: a) downward onto the writing surface through the writing pencil, and b) laterally onto the barrel of the pencil through the fingers. Between 1.4 and 1.5 Newtons of force is exerted onto the page when writing at a normal pace (Baur, Schenk, Furholzer et al., 2006). When writing at a faster pace or in larger text, however, an individual can exert up to 1.7 Newtons of force (Wann and Nimmo-Smith, 1991).

Handwriting speed can also affect the level of muscle activity that students display during handwriting tasks. One measure used to assess the level of muscular activity is surface electromyography (SEMG) (Naider-Steinhart and Katz-Leurer, 2004). SEMG is used to investigate the activity of specific muscles during functional neuromuscular tasks (Hall, 2007). For example, Naider-Steinhart and Katz-Leurer (2004) conducted a study that used SEMG technology to assess muscular activity of proximal and distal muscles to the hand during specific handwriting tasks. They found less variability in the proximal than distal muscles. That is, less variability in the proximal muscles was associated with better speed of writing. The researchers concluded that in efficient handwriting, proximal muscles (e.g., shoulder muscles) are used primarily for stabilization and may require minimal muscle activation.

When assessing student proficiency in writing in relation to their handwriting speed, researchers developed and used stylus instruments to assess vertical and lateral grasp forces during handwriting tasks. For example, Suzuki, Misue, and Tanaka (2010) developed a pressure-sensitive (PS) stylus that can detect an individual's grip pressure. The stylus has 3 pressure sensors that measure the amount of finger force exerted on the pencil during use.

While grip force and SEMG measures have been used in combination with pencil technology to assess levels of muscular activity and grip force during handwriting tasks, there is a need to build on this existing literature (van Drempt et al., 2011) by examining the influence of handwriting speed on grip force and muscle activity of persons without disabilities as an avenue to establish performance guidelines. This approach may be beneficial for researchers, educators, and therapists in selecting appropriate handwriting interventions. Based on this research need, the purpose of the current study was to examine the influence of students' handwriting speed (characters/min) on hand muscle activity levels and pencil grip force when conducting a handwriting task. The question guiding this study was: To what extent does handwriting speed influence university students' pencil grip force and hand muscle activity when performing a three minute handwriting task?

METHOD

Participants: Forty Kinesiology students (15 males and 25 females) from Lakehead University participated in this study. The majority of the participants were right handed (93%) while

only three were left handed (7%). Students were excluded if diagnosed with any illnesses or conditions that impeded their ability to handwrite.

Instruments: A proprietary electronic pencil was used to measure students' grip forces during a three minute handwriting task. The electronic pencil was instrumented with a force sensing resistor (FSR) placed around the barrel. The FSR was connected to a customized electronics amplifier and the analog signal was interfaced to a data acquisition system "POWERLAB" to digitally quantify students' pencil grip force. Surface Electromyography (SEMG) technology "DELSYS" was used to measure muscle activity in the extrinsic and intrinsic muscles of the dominant hand. The SEMG technology was also connected to the data acquisition system "POWERLAB" to digitally quantify students' muscle activity levels. **Procedure:** Students were introduced to the electronic pencil technology and allotted two minutes of practice. Surface electrodes were placed over the thenar eminence and muscle belly of the flexor digitorum superficialis using the research protocol of Naider-Steinhart and Katz-Leurer (2007). Students copied a designated passage for three minutes. This time period was selected to ensure that the intrinsic and extrinsic muscles of the hand were stressed during the trial. Grip force and SEMG were recorded via the PowerLab software. The pencil grip force was measured in Newtons and SEMG in units of volts. The researcher instructed the students when to begin and end the trial. Speed was measured in characters per minute by dividing the total number of characters produced in the handwriting trial by the length of the trial. A character was defined as any letter or punctuation mark written during the trial.

RESULTS

The chi square goodness of fit test revealed that data distribution for student handwriting speed fit the model of a normal distribution, $\chi^2(1, 40) = 9.30$, $p > .05$ and therefore, it was possible to separate the data into equal proportions of fast and slow hand writers (M = 130.4). Fast writers (M = 145, SD = 12.91) produced more than 130.4 characters/minute while slow writers (M = 117, SD = 9.89) produced less than 130.4 characters/minute. Interestingly, the participants in the fast handwriting group (FHG) (M = 145.94 characters/min) had a similar outcome to second-year university students in the study of Summers and Catarro (2003) (M = 145.8 characters/min). The t-test for independent samples revealed that students in the fast and slow groups (SHG) were significantly different in terms of their handwriting speed $t(38) = 7.89$, $p < .01$. Descriptive statistics revealed that the FHG had a higher average pencil grip force (M =1.85, SD=0.14) than the SHG (M=1.69, SD = 0.12). In addition, the average muscular activity of the thenar eminence muscles for the FHG (M = 0.032, SD=0.012) seemed to be lower than the SHG (M = 0.034, SD = 0.023). In contrast, the average muscular activity of the flexor digitorum superficialis for the FHG (M = 0.030, SD = 0.014) seemed to be higher than the SHG (M = 0.026, SD = 0.013). Discriminant analysis, however, revealed that there were not significant differences between fast and slow hand writers in terms of their muscle activity and grip force at the hand, $F(3,36) = 0.580$, $p>.05$.DISCUSSION

This study investigated the influence of university students' handwriting speed on hand muscle activity and grip force when performing a handwriting task. The outcome suggested that students in the FHG exerted higher forces and lower muscle activity levels than those in the SHG when conducting a three minute handwriting task. Inferential statistics, however, revealed no significant differences in terms of muscle activity levels for intrinsic and extrinsic hand muscles as well as grip force between slow and fast hand writers. These findings may be related to the notion that persons without disabilities; with mature and proficient handwriting abilities use not only hand muscles but also muscles proximal to the hand (e.g., shoulder muscles) as stabilizers for handwriting movement (Naider-Steinhart and Katz-Leurer, 2004). Proximal stabilization promotes more efficient use of intrinsic and extrinsic hand muscles (e.g., thenar and digitorum superficialis) and lower levels of muscle activity and grip force (Naider-Steinhart and Katz-Leurer, 2004). As Peper and Carson (1999) stated, higher hand muscle variability during handwriting tasks is reflected in individuals who are unable to use shoulder muscles efficiently for stabilization. Van

Galen, Portier, Smits-Engelsman, and Schomaker (1993) also indicated that increased variability in kinematic components and hand muscle activity due to a lack of handwriting maturity may be attributed to proximal muscle movements (e.g., shoulder muscles) that are unnecessary for proficient handwriting. The results of the current study, however, may be used as a guide to further examine the influence of handwriting speed on muscle activity and grip force on individuals across different ages and abilities. The outcome of this additional inquiry would have specific application for persons with a disability. For example, young children with DCD, older adults with carpal tunnel syndrome, or persons recovering from stroke who may need to improve coordination of fine motor skills through strengthening of weak muscle patterns, modifications of grasp and modulations of gripping force.

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Use of a Web-based Adapted Physical Education Consultant Model to Increase the On-Task Attention and Response of a Student with Autism in an Inclusionary Class: An Exploratory Investigation

Selected Oral Presentation

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INTRODUCTION

Adapted physical educators are searching for more effective strategies to provide effective and efficient consultative services to general physical educators who are teaching in inclusionary classes. The number of consultations has been increasing with more students with disabilities being placed in general physical education classes. Many of these students have been classified as autistic and emotionally disturbed and who exhibit severe behavior disorders (Lavay, French, & Henderson, 2007; Rose & Gallup, 2004).

Many of these students' behavior problems are reflected in their inability to attend and respond to the general physical educators' instructions (Gibson, Pennington, Stenhoff, & Hopper, 2010). General physical educators, if they are unable to manage these students' behaviors, become frustrated and may want the students to be returned to a segregated physical education environment or ignore them during the class.

Choi, French, and Silliman-French (in press, Jan. 2012) suggested one strategy to reduce the time of face-to-face consultation is through the use of web-based consultation. In this type of consultation, general physical educators submit a video to an adapted physical education consultant from their district, another district, or from a local university for advice on how to reduce or eliminate a specific behavior problem such as lack of attention or response.

Gibson, Pennington, Stenhoff, and Hopper (2010) evaluated the positive impact of desk-

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top videoconferencing consultation on reducing inappropriate behavior of a preschool student with autism in a classroom environment. They demonstrate that the teaching staff was able to implement the intervention with a high degree of fidelity and the inappropriate behavior was significantly reduced during intervention phase. It seems a similar web-based consultant model could be effectively infused into inclusionary physical education environments to assist physical educators reduce behavioral problems that are exhibited by students with autism such as inattentiveness and lack of responsiveness. Through the use of this type of consultative model, the face-to-face time could be reduced with appropriate consultation still provided.

This is particularly important in rural districts where there is enormous travel time required to travel from school to school, numerous consultants are required, or not adapted physical educators are employed in a district and collaborative assistance is only from adapted physical educators in other school districts or maybe the nearest university.

Therefore the primary purpose of this field-based pilot study was to investigate the feasibility of the use of a web-based adapted physical education consultation model. The secondary purpose was to increase the duration of attentive and nonresponsive behavior of a student with autism class specifically during the warm-up activities.

METHOD

Participants: The participant was a 13-year old male student with autism enrolled in a inclusionary middle school physical education class in Korea with 32 other students without disabilities. His physical educator reported that the student frequently avoided interactions with peers or teacher, and would frequently leave the instructional area within the gymnasium or field. It was also noted that when the teacher tried to block the student from leaving the instructional settings the student quickly had a temper tantrum in the total class causing a disruption and ultimately the student ran away from the specific instructional setting but stayed in the physical education environment.

The certified general physical educator who participated in this investigation had 3 years teaching experience in a non-inclusive high school and this was his first year teaching an inclusive middle school class. The two consultants were university faculty in adapted physical education with expertise in delivering on-site and face-to-face consultation support to adapted physical educators. Both consultants provided the consultative services from a university in the southern region of the United States. The role of the two consultants was: (a) to conduct a functional behavioral assessment using the video recording of the student's behavior during warm-up activities; (b) to develop the intervention and provide general suggestions to the general physical education by e-mail or web-site; (c) to provide corrective feedback to the physical educator each class; and (d) to collect on the inter-observer agreement between the two consultants and on the duration on time of on-task time of attentive behavior during the warm-up activities through the use of the web-based video consulting system.

Procedures: The student's behavior during a warm-up session were videotaped and analyzed. The warm-up session consisted of a Korean nationally disseminated approximately 5-minute warm-up exercise routine and lasted. During the warm-up, all the students performed the routine in a squad formation with 5 to 6 students in each squad.

A portable digital camera was used to collect the video data. A website (http://apess.hubweb.net) was developed. In this website, the digital data were uploaded and downloaded for the communication between the general physical educator and two consultants. To maximize the viewing area and to reduce or avoid the student's distraction of video-taping, the physical educator fixed the camera in the corner of the field or gymnasium and centered to be able to view on the class instructional area.

Research Design and Data Analysis: An A-B-BC-BCD with a maintenance phase [2 sessions in baseline phase (A); 2 sessions each in the 3 preventive intervention phases (B-BC-BCD); and 2 sessions in the maintenance phase] single sub-

ject design was used to evaluate the effectiveness of the web-based consultation model to increase the student's on-task attention and response time by staying in the assigned area and attempting to perform the warm up activities in the class during the class warm up activities.

The specific reversal single-subject, field-based design was developed over time based on the results of the daily consultation. Initially preventive strategies were implemented and if the strategies were not successful new strategies were infused into the next class worm-up activities will also be implemented.

The duration of the on-task time the child attended to the instructions during the warm-up activities (approximately 5 minutes) were the data collected or two times a week for four weeks. The term "on task" was described as the participant staying in an approximate 4' x 4' area during the warm-up activities attending to the general physical educator's instruction.

In addition, the data of the physical educator's satisfaction level were collected after each class by a written daily reflection in the form of qualitative. The general physical educator provided his perception of the student's behavior and on the use of the web-based consultation system. Further at the competition of the investigation, the student's classroom teacher was asked if she had noticed any change in the student's behavior over the past 4 weeks. The general physical educator also presented his teaching log to provide qualitative data. The data were used to reflect the degree of usefulness of the video recordings in using this collaborative model.

RESULTS

To effectively increase on-task attentive behavior during warm-up activities of the participant, 12 consultations were required. Preventive techniques were not initially effective alone and required the infusion of intervention techniques. Once the target behavior was achieved, the preventive and intervention strategies were faded out.

During the two sessions in the baseline phase (A), the participant did not stay in the assigned area during class warm-up activities (0%; See Figure 1 need to incorporate into manuscript). During the first session of the first preventive phase (i.e., 4 x 4 exercise mats were used for all the students in the class, the participant still did not stay in the assigned area. However, during the second session of the first preventive phase (B), the student stayed on the mat and there was an immediate increase to 35% on-task attention time. After the second introduction of the preventive procedures (BC) the physical educator proximity was added, the mean percentage increased to 100% for the two sessions. However, the response to the activity involvement was limited.

After introduction of the verbal prompt, preventive procedures (BCD) for one session and the peer modeling for one session, the mean percentage increased to 100% with attentive behavior and active involvement in warm-up activities. During the maintenance phase compared to the baseline phase, the mean percentage was maintained during the warm up (100%) but the mean percentage decreased to 90% for the field class.

Related to the physical educator, satisfaction based on a written daily reflection in the form of qualitative, through the web-based video consultation, the consultants were able to analyze the behavior that positively and negatively impacted the participant's inability to attend and respond during the warm up activities and recommend appropriate prevention and intervention strategies. He also indicated that he was able to receive more support, feedback, and recommendations in a timely manner because the consultants were available to observe the student several times and collect more data compared to a traditional face-to-face consultation. Further, the physical educator stated that he felt that the continual direct observation positively affected the student rather than a consultant giving general teaching tips after one consultation and then leaving him to implement the suggestions with minimal or no support.

The participant's classroom teacher, who did not know about the consultation in physical education, was questioned by the physical educator about the child's behavior over the last 4 weeks. She stated that the student's behavior had changed over the 3 to 4-week period and the student was more focused on the class work and positively interacted more with her.

DISCUSSION

Based on the results of this pilot study, the web-based video consultation model of behavior management was effective in increasing the on-task attention and response of a child with autism the class warm up activities within an inclusive physical education class. The consultants assisted the general physical educators to behavioral preventive and intervention procedures to implement using an internet-based video consultation system. In addition, the physical educator was very satisfied with the strategies that were suggested through the use of distance communication technology. This has led numerous tentative outcomes of this pilot study which needs to be discussed.

First, based on the analyzes of the data collected the web-based video consultation model for behavior management may be useful when consulting with general physical educators about effective strategies to reduce many other problem behaviors that may be exhibited in inclusive physical education setting by students who are autistic or are emotional disturbed. Based on the data, there was an immediate and substantial increase of on-task attentional behavior (i.e., being in the mat area) when the web-based video consultation model of behavior management was implemented. This clearly supports Tarbox, Wallace, and Williams (2003) contention that conducting assessment and intervention sessions in the actual environment and real time may provide access to naturally occurring contingencies and may facilitate intervention generalization (Tarbox, Wallace, & Williams, 2003).

Second, the general physical educator, who was provided the consultative services though the web-based video behavior management consultation model, was able to implement the prevention and intervention with an acceptable degree of fidelity. Although a training period in the model was not provided, the teacher was able to: (a) identify the student's problem behavior, (b) implement the procedure after consultative feedback, and (c) successfully collaborate with the consultants.

Third, the general physical educator's individual class and a written daily reflection indicated that the behavior management consultation through the web-based video and feedback through web-site and email was effective in increasing the student's appropriately attending and responding to the physical educator's instructions. The teacher reported preference for frequent contact and more feedback as compared to what is typically delivered in a face-to-face consultation which is generally provided one time. The frequency of consultation, based on educational need, may be a significant factor that contributed to the teacher's preference for this type of consultation though the web-based video behavior management consultation model.

There are also several implications of this study. General physical educators may be able to treat serious problem behaviors within the inclusive physical education class with this type of consultation. Through the use of the web-based video behavior management consultation model was major time barrier eliminated that may cause decreased consultant availability to provide the appropriate direct services. For instance, the consultants were able to provide the physical educator services from the United States that were implemented in the Korea., This type of international service itself would not be possible in a face-to-face consultant model. This is especially significant in times when consultation services are in high demand, travel expenses are increasing, and the availability of qualified personnel is limited such as in the case of highly qualified adapted physical educators, particularly those who are also behavior management experts.

Further, frequent and immediate feedback based on direct observation of teacher practice and student performance in the class was provided using minimal equipment and technical expertise. Providing the appropriate feedback by qualified personnel is essential for this model to be effective in an inclusive general physical education environment. If the general physical educator is implementing inappropriate prevention and/or intervention strategies or the recommended practice suggested by the consultant was not effective, quick adjustments can be almost immediately suggested rather than the next scheduled visit. This reduces the implementation of inappropriate strategies that could be used over time.

Teachers tend to change their behavior when they are being observed (Gibson et al., 2010). This system with the use of a camera allowed the consultant access to almost everything in the classroom with minimal effect on the experimental context.

As a supplementary note, information gathered through the use of this type of consultative process, could also be used to provide evidence-based data about a student's behavioral improvement during an Individual Education Program meeting and discussing a student's Behavior Intervention Plan.

CONCLUSION

While the results were positive, in the increase of the on-task attention and response of this youth during the warm up period in his inclusionary physical education there are limitations in the present field-based pilot investigation that need to be addressed. These are fundamental behaviors that must be learned before a student can appropriately learn (Lavay, French, & Henderson, 2006). Only one student-teacher pair participated in this present study. To determine the generalization of the model in physical education environments that include students with formally identified behavior disorders, a larger number of students and teachers are needed with more diverse problem behaviors within different age groups. Other factors that must be considered in future investigations are: (a) the development of a website, (b) the need for a camera to take the digital data and computer to download the information to a consultant website, and (c) parental permissions of any student who could be identified in the digital recording.

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The Importance of Parental Involvement in Swimming Lessons for Person with Disability

Selected Oral Presentation

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ABSTRACT

The Ecolological Theory of Human Development proposed by Urie Bronfenbrenner assumes that the activities and people involved in an evironment are essential to stimulate the aquisition of new abilities . Analyze the strategy of parent's presence with their children in a swimming class for PWD during the teaching process. Also, verify the parent's views on this experience and the participation of their child during practice. It is a qualitative and action-research. To collect data was utilized observation during to analyse the activities developed in a swimming class for PWD, on the presence of parents with their children. A semi-structured interview was used to analyse the perception parents after the experience of the classroom. Analysis of activities and the interview were based on the assumption of Bronfenbrenner (1996). It was found that 100% of the parents rated the positive experience of being with their children in the pool. We found that only 25% of parents reported that had entered the pool to play with their children. We emphasize that 75% had never entered in the water with their children, whether because of fear, lack of opportunity or not knowing how to swim. The proposal of parents' participation in the swimming class with the PWD generated a favorable environment for development the activities. Parents identified the improvement, the potential and difficulties of PWD.

Key Words: *Swimming class, Person with disability; The ecological theory of human development;*

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INTRODUCTION

The stimulating environment experienced by the Person With Disability (PWD) is essential for gaining confidence, bringing out their potential and overcome their limitations. The Ecological Theory of Human Development proposed by Bronfenbrenner (1996) assumes that the development activities and interpersonal relationships generated in determined environment, for example, in swimming lessons, are fundamental in stimulating the acquisition of new skills and human development.

According to Bronfenbrenner (1996) whenever a person in an environment pays attention to the activities of another person, or participated of that, there is a relationship which is called dyad. A dyad can be: a) observational, which occurs when an individual is careful and continuous paying attention to another activity, which, in turn, at least recognizes the interest being shown; b) a dyad of both joint activity in which two participants perceive themselves as doing something together; c) and a primary dyad that continues to exist phenomenological for both participants even though they are distant, but present in their thought, influencing the behavior of each other. The three forms of dyads need not to occur together or they may occur simultaneously and separately.

Studies of Prado Jr. et al. (2003), Fregolente (2005) and Manso (2003) demonstrated behavioral changes in motor, cognitive, affective and social appearance of person with disabilities in the inclusion of swimming practice on their daily lives.

The addition of swimming lesson in the routine of PWD, as well as being a new stimulation context looking for autonomy, also generates motivation, socialization and learning environment (Prado Jr, 2006).

Fregolente (2005) and Fregolente et al. (2005) studies have clearly shown the importance of the relationship between student-teacher for the effective participation in the activities of PWD, consequently on the process of learning how to swim. Fregolente (2005) also adds that it is important for parents to participating in the child activities, recognizing the evolution progress and that enhancing their child. However, this does not occur that often, when the scenario is inclusion of PWD in water activities.

The problem that can arise is: 1. The parents know how to swimming? 2. The parents encourage the PWD to play in the pool on their day by day activities? Most likely the lack of experience on the water, or even the fear of water, is a decisive factor that parents do not enter to the pool and, therefore, that is the reason why the parents cannot effect the inclusion of PWD swimming in their lifestyle. Thus, this study is proposed to create an environment of swimming lessons where parents and children experience this together.

Objective: Analyze the strategy of parent's presence with their children in a swimming class for PWD during the teaching process. Also, verify the parent's views on this experience and the participation of their child during practice.

METHODOLOGY

It is a qualitative research, action-research. According Thiollent (1996) "it is possible to study dynamically problems, decisions, actions, conflicts and awakenings that occur between agents during the process of transformation of the situation" (p. 19).

To collect data was utilized observation during to analyse the activities developed in a swimming class for PWD, on the presence of parents with their children, as well as a semi-structured interview with parents after the experience of the classroom.

Twelve PWD participated in this study, four being with general disorders (ADHD) and eight with disabilities (Down syndrome, Cerebral Palsy, Multiple Disability, Intellectual Disabilities). We had participation of eight parents actively at the lesson in the pool, one father was out of water and three parents were not in class with their child. The analysis of activities developed and the interview, was based on identifying the interaction between parents and children, participation in the activity, persistence in performance of the skills, recognition of the potential and difficulties, whether the activity was significant and it was reflected in other environments experienced by parents and by PWD (house and institution).

RESULTS

From the analysis of the interview, it was found that 100% of the parents rated the positive experience of being with their children in the pool, there were expressions like "pleasant", "wonderful", "good", "emotional", used to describe this living experience. These reports also could be observed during the activity where the affective relationship between parents and children could be evident, both in parents helping the PWD as well as exchange information about the aquatic activities with their parents. These observations reinforce the ideas of Bee (2003), Bronfenbrenner (1996), Prado Jr (1998, 2001) about the importance of knowing the child and the family involvement in the activities performed by the person, to value those experience, which generates a positive affective relationship.

When asked if parents had entered the pool with their children, we found that only 25% of parents reported that had entered the pool to play with their children. We emphasize that 75% had never entered in the water with their children, whether because of fear, lack of opportunity or not knowing how to swim. The fear, the insecurity and the lack of knowledge in the aquatic manipulation techniques of PWD are factors that contribute to difficult access of this population in water activities (Prado Jr et al., 2001). Therefore, it became evident that the work with parents should follow the same logic as work with PWD, in other words, water adaptation looking for safer ways to do locomotion, mastery of breathing control and flotation, and to later start of water propulsion (Manso, 2003; Prado Jr, et al. 2005; Prado Jr , et. al., 2004; Prado Jr, 2006; Fregolente, 2005).

All parents recognized changes in the performance of their children in the water since the beginning of the project and reported:

Parent 1 - "never imagined that my son would dive and move underwater";

Parent 2 - "she learned to swim fast in a short time, does things that I cannot do, even helped me in the pool";

Parent 3 - "she's not afraid ... already is able to move her arms and legs ... dives to the bottom, which I never expected that she could do it ";

Parent 4 - " in the water she is more agile, is faster than me in the pool ... she gets looser and can make the movements with the arm that she has difficulty with;

Parent 5 - "he learned to swim ... and I do not want to stop to encourage this ... is a sport that he loves.

The parents recognition in many of these reports were followed by admiration, since in many cases they did not imagine that their children would be able to achieve body control in a liquid environment, as found in the reports of the parent 1, 2, 3. The change of parent perspective towards their children from experiencing it together is a fundamental aspect of Ecological Theory of Human Development to occur changes in the behavior of people involved in an environment (Brofenbrenner, 1996; Prado Jr., 2001).

All parents reported that it is fundamental to continue the activities seeking to overcome the difficulties that exist in their child motor performance in the water. This class also has been commented in other environments (house and other family environments) evaluating their results positively. For example: in class was evident the motivation, the importance of observation between parents and children during the development of the activity; conducting activity together with their children and the children briefly explaining and helping their parents to perform activities. These aspects show that the activities were significant and had influenced the behavior of parents and children involved in both the microsystem (swimming lessons) as the mesosystem (family), making this so essencial.

CONCLUSION

The proposal of parents' participation in the swimming class with the PWD generated a favorable environment for development the activities. The interactions between parent and child generated the possibility for parents identify the improvement, the potentiality and difficulties of PWD, on a perspective to continuing the practice and seek overcoming the limitations.

In conclusion the proposal was significant, with permanents behavior changes and can generate new perspectives for inclusion of PWD in aquatic activities and in other environmental

contexts along with parents, which, in effect contributes to development.

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Service Quality and User Satisfaction in Sports Facilities for Persons with Disabilities in Japan

Selected Poster Presentation

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ABSTRACT

Sports facilities for persons with disabilities in Japan can be categorized into two types: "persons with disabilities-only facilities" (PWDO) and "inclusive-type facilities" (IT). The purpose of this study was to identify the factors that affect user satisfaction with these two different types of facilities by assessing how users evaluate the quality of the services they receive. A questionnaire survey was conducted among individual users of a PWDO in Osaka and an IT in Kobe. The questionnaire included 33 items related to service quality and an additional item related to user satisfaction. A total of 105 responses were obtained (69 users of the PWDO, and 36 users of the IT). The 33 items related to service quality were assessed by factor analysis (principal factor analysis and normal varimax rotation) for each facility. Using the factor scores obtained for each facility, multiple regression analysis (stepwise method) was then performed to examine the factors affecting user satisfaction. The analysis results were as follows: 1) Only 4 affecting factors were identified for the IT (Cronbach's α: 0.961-0.905, cumulative contribution ratio: 69.6%), compared with 7 factors for the PWDO (Cronbach's α: 0.948-0.653, cumulative contribution ratio: 68.6%). 2) Only the "tangibles" factor was associated with user satisfaction in the IT (R^2 = 0.345, F = 8.678). 3) The "empathy" and "information" factors were associated with user satisfaction in the PWDO (R^2 = 0.287, F = 10.972). 4) The PWDO provided a wider range of services than the IT. In general, persons with disabilities value information on sports facilities.

Key Words: *Sports facilities for persons with disabilities, User satisfaction, Service quality, Persons with disabilities-only facilities, Inclusive-type facilities*

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INTRODUCTION

"The Japan Sports Association for the Disabled" has 23 member facilities, all of which are major sports facilities that accommodate persons with disabilities in Japan. Based on the systems used and the types of users they serve, these sports facilities can be categorized into two types: "persons with disabilities-only facilities" (PWDO) which specifically serve persons with disabilities and their carers, and "inclusive-type facilities" (IT) that mainly serve persons with disabilities and elderly people but are also open to other users. Kitano (2009) and Miyahara (2007) have emphasized the importance of users' subjective evaluation of the services provided by welfare organizations. SERVQUAL, which was initially proposed as a scale applicable to a wide range of services, has become a typical measurement scale used to evaluate service quality (Parasuraman et al., 1985; Parasuraman et al., 1988). It has been critically evaluated and empirically studied in several service areas. Yamashita et al. (2003) and Kanayama et al. (2005) used SERVQUAL to measure the quality of the services provided at various types of sports facilities, including those for persons with disabilities, and observed some unique features related to the empathy of instructors providing services at sports facilities for persons with disabilities. To date, there is no evidence available as to the specific factors that affect user satisfaction with services provided by PWDO and IT facilities, respectively. The purpose of this study was to identify the factors that affect user satisfaction with these two different types of facilities by assessing how users evaluate the quality of the services they receive.

METHODS

Questionnaires were distributed to PWDO and IT facility users and collected at a later agreed date. In principle, questionnaires were completed by the users themselves. Subjects selected for this present study were individual users of a PWDO in Osaka and of an IT in Kobe. The survey was carried out during April 2011 in the PWDO and during March 2011 in the IT. A total of 105 responses were obtained. Subject characteristics were: male (n = 63, 60.0%), female (n =42, 40.0%), PWDO users (n = 69, 65.7%), IT users (n = 36, 34.3%), people with physical disabilities (n = 93, 88.6%), people with mental illness or psychiatric disabilities (n = 9, 8.6%), and people with multiple disabilities (n = 3, 2.9%). The questionnaire included 33 items related to service quality (items derived from the SERVQUAL model and other items related to the principles of universal design) and an additional item related to user satisfaction. A 5-point Likert scale ranging from 1 (not at all), to 5 (very much) was used. The SERVQUAL model used in our study was based on the model used by Yamashita et al. (2003) and Kanayama et al. (2006) to evaluate service quality in general sports facilities or sports facilities that accommodated the needs of individuals with disabilities. It consisted of 25 items grouped under the following 5 dimensions of service quality: (1) tangibles, (2) reliability, (3) responsiveness, (4) assurance, and (5) empathy. In the present study, explanatory factor analysis (principal factor analysis and normal varimax rotation) was applied to each facility separately to analyze reliability and validity, and to summarize data. The extracted factors were subsequently examined. To investigate the factors affecting user satisfaction, multiple regression analysis (stepwise method) was conducted using user satisfaction as a dependent variable and the factor score as an explanatory variable.

RESULTS

Factor analysis of service quality: The question items related to service quality were selected specifically for the purpose of this study. To analyze the reliability and validity of the scale as well as to summarize data, the factor analysis (principal factor analysis and normal varimax rotation) of service quality was performed for each facility. The data were interpreted according to the standard way of interpreting SERVQUAL data, since the present study used a 5-dimension SERVQUAL model to evaluate service quality. Table 1 and Table 2 show the items with a factor loading of 0.4 or higher.

Table 1 shows the results of factor analysis performed for the PWDO. Seven factors with an eigenvalue of 1.0 or greater were extracted for this facility (Cronbach's α: 0.948-0.653, cumulative contribution ratio: 68.6%). Factor 1 was labeled "empathy". Factor 2 was labeled "reli-

ability" (factor related to services provided by an organization). Factor 3 was labeled "responsiveness". Factor 4 was labeled "assurance" (factor related to services provided by instructors in the PWDO). Items under the "tangibles" dimension were distributed over Factors 5, 6, and 7. Factor 5 was labeled "information" (factor related to physical safety). Factor 6 was labeled "physical environment" (factor related to the facilities and equipment provided by the sports facility). Factor 7 was labeled "people" (factor related to the appearance of instructors and users' behavior).

Table 1. Factor analysis of service quality evaluation: PWDO (N=69)

		Factors							
		1	2	3	4	5	6	7	
Original dimension	Items (central idea)	Empathy	Reliability	Responsive-ness	Assurance	Information	Physical environment	People	communalities
		α: 0.948	α: 0.859	α: 0.899	α: 0.912	α: 0.783	α: 0.740	α: 0.653	
Tangibles	Facility scenery						0.712		0.694
	Equipment function					0.499	0.488		0.684
	Level of information exposure					0.579			0.456
	Appearance of instructors							0.489	0.624
	Manners of users							0.777	0.889
	Size and Space for Approach and Use: Appropriateness of size						0.549		0.665
	Simple and Intuitive Use: Usage system		0.528						0.396
Reliability	Consistency of content		0.526				0.572		0.719
	Punctuality		0.831						0.820
	User-friendliness		0.686						0.652
	Ensured freedom of use		0.646						0.667
	Response capacity								0.654
	Safety and User-Friendliness: Assurance of physical safety					0.578			0.445
Responsiveness	Promptness of greetings			0.726					0.716
	Deftness			0.820					0.867
	Positivity	0.646							0.655
	Amount of options	0.427			0.479				0.617
	Situational readiness	0.516							0.563
Assurance	Wealth of knowledge				0.770				0.847
	Professional competence			0.406	0.559				0.708
	Equality of handling				0.443				0.645
	User orientation	0.678							0.811
	Politeness	0.468		0.545	0.420				0.710
	Equitable Use: Targeted users		0.615						0.573
	Perceptible Information: Verbal (human)	0.601							0.631
	Tolerance for Error: Prevention of mistakes			0.502		0.480			0.756
Empathy	Extent of attentiveness	0.689			0.488				0.867
	Expression of hospitality	0.531			0.460				0.725
	Attitude of sharing problems	0.575				0.429			0.780
	Sincere coping strategy	0.585							0.612
	Range of responsibility	0.762							0.793
	Low Physical Effort: Appropriateness of training programs	0.658							0.718
	Size and Space for Approach and Use: Sense of distance of instructors	0.520							0.679
	Eigenvalue	6.112	3.777	3.273	2.889	2.649	2.394	1.547	

Table 2 shows the results derived from the factor analysis performed for the IT. Five factors with an eigenvalue of 1.0 or higher were extracted for this facility. Based on the interpretability of these factors, a decision was made to retain 4 factors (Cronbach's α: 0.961-0.905, cumulative contribution ratio: 69.6%). Factor 1 was labeled "assurance" (factor related to the ability of individual instructors, reliability of the organization, and service usage system). Factor 2 was labeled "responsiveness" (factor related to the empathy, responsiveness, and promptness of instructors). Factor 3 was labeled "empathy". Factor 4 was labeled "tangibles".

Factors that affect user satisfaction: Based on the factor scores calculated for the PWDO and IT facilities, multiple regression analysis (stepwise method) was performed using user

Table 2. Factor analysis of service quality evaluation: IT (N=36)

Original dimension	Items (central idea)	Factors 1	2	3	4	communalities
		Assurance	Responsiveness	Empathy	Tangibles	
		α: 0.958	α: 0.961	α: 0.951	α: 0.905	
Tangibles	Facility scenery				0.721	0.692
	Equipment function				0.734	0.897
	Level of information exposure				0.802	0.759
	Appearance of instructors		0.609	0.583		0.873
	Manners of users				0.755	0.791
	Size and Space for Approach and Use: Appropriateness of size	0.503			0.505	0.755
	Simple and Intuitive Use: Usage system	0.685			0.583	0.903
Reliability	Consistency of content		0.442		0.527	0.686
	Punctuality	0.565				0.715
	User-friendliness	0.568		0.428	0.406	0.685
	Ensured freedom of use					0.656
	Response capacity	0.478	0.506			0.660
	Safety and User-Friendliness: Assurance of physical safety	0.515		0.462		0.707
Responsiveness	Promptness of greetings		0.710			0.829
	Deftness		0.453	0.638		0.878
	Positivity		0.575			0.902
	Amount of options		0.584	0.422		0.719
	Situational readiness	0.874				0.852
Assurance	Wealth of knowledge	0.699		0.415		0.742
	Professional competence	0.801				0.796
	Equality of handling		0.792			0.702
	User orientation	0.405	0.642			0.729
	Politeness			0.697		0.738
	Equitable Use: Targeted users	0.718	0.424			0.935
	Perceptible Information: Verbal (human)			0.655		0.695
	Tolerance for Error: Prevention of mistakes	0.559				0.660
Empathy	Extent of attentiveness	0.453	0.813			0.956
	Expression of hospitality	0.641	0.505			0.787
	Attitude of sharing problems		0.748			0.874
	Sincere coping strategy			0.778		0.907
	Range of responsibility	0.786	0.504			0.914
	Low Physical Effort: Appropriateness of training programs	0.687			0.426	0.877
	Size and Space for Approach and Use: Sense of distance of instructors	0.477		0.751		0.951
	Eigenvalue	7.469	6.028	4.921	4.566	

satisfaction as dependent variable and service quality factors as explanatory variables. Table 3 shows the relationship between the service quality factors extracted for the PWDO and user satisfaction. "Empathy" (β = 0.370, t = 3.527, p < 0.001) and "information" (β = 0.368, t = 3.508, p < 0.001) were associated with user satisfaction in the PWDO (R^2 = 0.287, F = 10.972, p < 0.05). This result suggests that users of PWDO value the competence of individual instructors and the clarity of information provided by the organization. Table 4 shows the results for the IT. "Tangibles" (β = 0.399, t = 2.537, p < 0.05) was the only factor associated with user satisfaction in the IT (R^2 = 0.345, F = 8.678, p < 0.05). This result suggests that users of the IT value the superficial aspects of service. In both facilities, user satisfaction was associated with factors related to the provision of information.

Table 3. Multiple regression analysis (stepwise regression) of user satisfaction: PWDO (N= 69)

	B	S.E	β	t-value		R	R^2	F	
Empathy	0.294	0.083	0.370	3.527	***	0.536	0.287	13.092	*
Information	0.309	0.088	0.368	3.508	***				

*p<0.05, ***p<0.001

Table 4. Multiple regression analysis (stepwise regression) of user satisfaction: IT (N= 36)

	B	S.E	β	t-value		R	R^2	F	
Tangibles	0.246	0.097	0.399	2.537	*	0.399	0.159	6.436	*

*p<0.05

DISCUSSION

In total, only 4 factors were extracted for the IT whereas 7 factors were extracted for the PWDO. The comparison of factor analyses performed for the PWDO and IT facilities reveals that the PWDO provides a wider range of services that satisfy all the needs of users, who use the facility for various motives. This is evidenced by the fact that, in the PWDO, many of the items under the "empathy" dimension loaded on factor 1. This factor suggests that users of the PWDO value careful, individualized attention from the instructors. Services provided by welfare organizations are characterized by the ability to empathize with and address the specific circumstances of each user (Tao, 2001).

Furthermore, and interestingly, while items under the "tangibles" dimension of service quality loaded on a single factor in IT, they were distributed over three different factors (namely "people", "physical environment", and "information") in the PWDO. The IT accommodates not only persons with disabilities but also elderly persons, and is open to other users as well. It is difficult to communicate to users exactly what kind of service they may expect. However, the fact that many of the items under the "tangibles" dimension loaded on the "tangibles" factor suggests that a wide range of users were aware of the services available to them.

The satisfaction of all the users surveyed in the two facilities was associated with information provided to users. The PWDO provides services that meet the needs of every user, including both those who are able to use the facility independently and those who need assistance. This is done in a flexible manner to address the specific circumstances of each individual user. These services appear to form the core of adapted sports services (Tao, 2001). Only the "tangible" factor was associated with user satisfaction in the IT. The "tangible" factor of service quality in the IT seems to reflect the characteristics of adapted sports services provided at this facility, which allow people who are not good at or who have little experience in sports to participate in sports activities with relative ease. This attracts a relatively large number of new visitors to the facility. An association between user satisfaction and empathy of instructors was observed in the PWDO but not in the IT. Thus, in order for the IT to improve user satisfaction, they may have to focus efforts on providing empathy-based services. In general, persons with disabilities value information that highlights the usability of sports facilities.

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Analysis of Centre of Pressure in The Standing Position in Young Adults with Down Syndrome

Selected Poster Presentation

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ABSTRACT

The two purposes of the study were to analyze Centre of Pressure (COP) behavior in a standing position in a group of young adults with Down Syndrome (DS) in different visual conditions, and to compare the results with a control group (CG). All participants were a part of a dance training program. There were 11 young adults with DS, six females and five males, aged 20.5 (1.3) and 12 non DS adults, eight females and four males, aged 20.3 (2.0). All participants were previously studied related to an anamnesis and physical exam. Bipedal standing position was evaluated in closed eyes and open eyes conditions for 30 seconds. Data were collected relative to COP from the platform (AMTI-SGA6-4): sway area, anteroposterior and mediolateral displacement, and also maximum displacement excursion. Differences in all parameters were compared between both groups using Mann-Whitney U test. Wilcoxon test was applied to compare differences between open and closed eyes in both groups. Significant differences were found ($p<.05$) between groups in sway area, lateral and anteroposterior displacement, and maximal displacement excursion in open eyes condition. In closed eyes, the only differences between both groups were found in sway area and anteroposterior displacement but not in lateral. DS group didn't show differences between open and closed eyes, and control group demonstrated significant differences in anteroposterior displacement. It was concluded that young adults with DS demonstrated a poor postural control in the standing position. Differences with CG were more evident in open eyes than closed eyes condition. When conditions changed from open to closed eyes, the control group increased their anteroposterior displacement, but this did not happen in DS group.

Key Words: *Down syndrome, Balance, Standing position, Force platform, Centre of pressure.*

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INTRODUCTION

Individuals with Down syndrome (DS) have some difficulties in motor control during social and sport activities (Latash & Anson, 1996). However, there is some evidence in favor of proper training being a good technique to improve motor organization (Latash & Anson, 1996). An important factor to take into account is the difficulty in static standing balance. DS individuals show worse postural control when studied using a force platform. Control of the Centre of Pressure (COP) is worse in individuals with DS (Cabeza-Ruiz, García-Massó, Centeno-Prada, Beas-Jiménez, Colado et al., 2011; Galli, Rigoldi, Mainardi, Tenore, Onorati et al., 2008; Rigoldi, Galli, Mainardi, Crivellini & Albertini, 2011; Villarroya, González-Agüero, Moros-García, Marín, Moreno et al., 2012). In some studies, it appears that the differences in postural control between CG and DS group is larger in the medial-lateral than in the anteroposterior displacement (Galli et al., 2008). The conditions surrounding static standing balance and the type of sensory information to use may influence postural control. There are previous experiences regarding the use and influence of factors such as vision and tactile input on postural control. Gomes and Barela (2007) studied a group of young adults with DS and a control group without DS standing on the force platform. Both groups were using the visual and tactile control to modify the COP. According to the results of Vuillerme, adaptive mechanisms to changes in visual and tactile conditions vary quantitatively rather than qualitatively (Vuillerme, Marin & Debû, 2001) In terms of age groups, children, youth and adults, all of them with DS, have been studied. Their differences versus CG were accentuated with age, especially in the degree of medial-lateral displacement of COP (Rigoldi et al., 2011).

The purpose of this study were to compare and contrast differences in control postural behavior between groups and within groups of youth, last ones based on the presence or absence of visual information. Advances in the use of visual sensory information in young adults with DS may increase knowledge related to the integration system used by DS and may increase the possibility to improve the adaptive mechanisms through motor and physical training.

METHOD

Participants: Participants were selected from special schools and higher education centers in the province of Barcelona, Spain. The young adults with DS and a CG (Table 1) signed a consent form. Inclusion criteria for the DS group participants were to be aged between 17 and 22 years, level of intellectual disability between 33% to 65%, and intellectual coefficient from 30% to 70%. Those Prospective participants who presented vestibular or neuromuscular disease, or ingestion of certain drugs related to additional psychiatric diagnosis were not accepted into the investigation. CG meet same criteria except those related to intellectual deficiency and disability. The approach of the study followed the criteria of the Helsinki Declaration and was approved by the Ethics Committee of the University Ramon Lull.

Table 1. Mean values and standard deviations of descriptive data

Parameter	CG (n = 11)	DSG (n = 11)
Age (years)	20.27 ± 2.05	20.55 ± 1.37
Height (cm)	1.68 ± 0.11	1.50 ± 0.11
Weight (kg)	63.64 ± 10.56	60.00 ± 10.04
BMI (kg/m^2)	22.47 ± 3.20	26.81 ± 4.46

Abbreviations: CG, control group; DSG, Down syndrome group;

BMI, body mass index

Procedures: Anamnesis, morphological, and postural observation, body fat percent and other descriptive data were collected (Table 1). Each participant was evaluated on the force platform (AMTI- SGA6-4) in a static standing position for a period of 30 s in open eyes condition looking at a wall in front of him/her (OE). After a break of 30 s, the evaluation was repeated in closed eyes condition with a blindfold (CE). All raw data from force platform were smoothed through a moving average algorithm (window 50 ms). From each trial, the following data were collected: Sway Area (SA), Range of Motion in Anterior-Posterior axis (ROM AP), Range of Motion in Media–Lateral axis (ROM ML) and Maximal Displacement (Max. Displ.)

Table 2. Mean values and standard deviations and comparison between groups

		OE			CE		
		CG	DSG	*p*	CG	DSG	*p*
ROM AP (cm)	Mean	1.546	2.742	.000*	1.936	2.556	.036*
	SD	0.195	0.626		0.571	0.545	
ROM ML (cm)	Mean	1.029	1.734	.005*	1.013	1.362	.349
	SD	0.261	0.788		0.358	0.733	
SA (cm^2)	Mean	0.709	2.081	.000*	0.864	1.696	.000*
	SD	0.208	1.206		0.445	1.179	
Max.Displ (cm)	Mean	0.950	1.743	.000*	1.164	1.548	.000*
	SD	0.152	0.566		0.423	0.374	

Abbreviation: OE, open eyes; CE, closed eyes; ROM, range of motion; AP, anterior-posterior; ML, medial-lateral; SA, Sway Area; Max.Displ., Maximal Displacement.
* $p < .05$ is considered significant of the comparison between control group (CG) and Down syndrome group (DSG)

Statistical Analysis: Mann Whitney U test was applied to obtain comparison between groups (Table 2). Wilcoxon test was used to compare data obtained in different visual conditions (OE versus CE) within DS group and CG (Table 3). All tests were applied using IBM-SPSS version 20 for Windows (IBM Corp ©).

RESULTS

Mann Whitney test showed significant differences between groups in all parameters analyzed on force platform in OE. DS group showed more displacement of COP. In CE, only significant differences were observed in ROM AP and SA (Table 2). Wilcoxon test showed significant differences in CG in OE versus CE in ROM AP, showing more displacement in CE, but DS group did not in any of analyzed parameters (Table 3).

DISCUSSION

The group of young adults with DS demonstrated larger displacement of COP in the standing position than CG. This is in accordance with anterior studies, although some differences in technical aspects can exist (Galli et al., 2008; Rigoldi et al., 2011; Villarroya et al., 2012; Vuillerme et al., 2001).

In contrast, only average sway velocity differences were reported between SD and CG in other studies (Webber, Virji-Babul, Edwards & Lesperance, 2004). It's important to consider the different age range of this sample used in this case, adults from 19 to 40. It could be interesting to analyze if differences in evolution of different parameters analyzed exists from infancy to adulthood. It is important to consider that increase in sway velocity is related to an increase in stiffness. It is greater in CE than in OE and

Table 3. Comparison among the different visual conditions analyzed within Down syndrome group and control groups

		CG			DSG		
		OE	CE	*p*	OE	CE	*p*
ROM AP (cm)	Mean	1.614	1.872	.041*	2.742	2.566	.721
	SD	0.292	0.588		0.626	0.546	
ROM ML (cm)	Mean	0.978	0.977	.859	1.727	1.363	.093
	SD	0.305	0.359		0.793	0.734	
SA (cm^2)	Mean	0.747	0.931	.213	2.238	1.975	.646
	SD	0.284	0.576		1.208	1.144	
Max.Displ (cm)	Mean	1.001	1.121	.213	1.743	1.548	.959
	SD	0.231	0.432		0.566	0.375	

Abbreviation: OE, open eyes; CE, closed eyes; ROM, range of motion; AP, anterior-posterior; ML, medial-lateral; SA, Sway Area; Max.Displ., Maximal displacement.
* $p < .05$ is considered significative of the comparison between control group (CG) and Down Syndrome group (DSG)

probably associated with an important co-contraction of ankle muscles (Vuillerme et al., 2001; Webber et al., 2004). There was a larger variability of data in SD than in CG in the present investigation, this probably means that young adults with DS can have different degrees of difficulty although they had similar disability degree. This variability also was seen in the anterior results (Cabeza-Ruiz et al., 2011; Galli et al., 2008). The differences were observed in the OE conditions, but in CE only differences were noted between groups in ROM AP. In addition, when changing conditions, no differences were found in DS in CE versus OE.

In contrast, CG increase their ROM AP. That is in accordance with recent results obtained by Villarroya et al. (2012). This suggests that visual information does not change COP behavior in the DS group.

It is concluded that young adults with DS show poor postural control in the standing position. Differences with CG are more evident in the open eyes condition. CG increases their anteroposterior range of motion in close eyes versus open eyes condition, but not the DS group. It's important to know if those differences can change depending on age groups. It is recommended that in the future to investigate the possible improvement of postural control of this population based on specific training.

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Active Video Games as an Adjunct to Physical Therapy for Children with Cerebral Palsy

Selected Poster Presentation

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ABSTRACT

Aim: to examine the type and frequency of functional movements elicited by children with cerebral palsy (CP) and typically developing (TD) children when playing active video games. The intent was to determine if these games could be used to supplement physical therapy programs. Method: A Delphi group of physical therapists developed a list of 18 functional movements typically prescribed for home-based therapy. Subsequently, the therapists identified six active video games that were likely to elicit these movements. The type and frequency of movements produced by children aged 5-11 years (four CP, GMFCS Level 1 or 2; and four TD) playing these games was coded from videotape. Results: The most commonly observed movements were lateral weight shifts, stepping with a weight shift, lateral trunk flexion, and reaching forward. The rate of functional movements per minute varied between the games; however a series of independent t-tests revealed this rate did not differ between the CP and TD groups. Children with CP and TD children often used different movements to play these games. Children with CP were able to play the games successfully and they reported generally enjoying the games. Conclusion: These findings suggest that active video games could be used to supplement physical therapy. However, therapists need to observe the movement responses elicited by the child playing the games rather than presuming that particular functional movements would be performed.

Key Words: *Functional movements, Physical therapy, Cerebral palsy, Children, Active video*

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INTRODUCTION

"Cerebral palsy (CP) is a chronic neurologic disorder of movement and posture caused by damage to the immature brain and accompanied by associated dysfunctions" (Sherrill, 2003, p.674). Therapy plans for children with CP vary; however improved motor function is often a primary goal. With limited resources, parent facilitated home-based programs are often prescribed (Law & King, 1993). Parent adherence to these programs is associated with improved function in children with CP (Law & King, 1993); however adherence is often a challenge (Pless & Carlsson, 2000). As enjoyment is a key factor in program adherence (Rhodes & Fiala, 2009), therapists and researchers have turned to alternative treatment modalities such as active video games to improve adherence (Snider, Majnemer, & Darsaklis, 2010).

Active Healthy Kids Canada released a position statement highlighting that active video games should not be a replacement for other forms of physical activity. Though they do suggest that active video games may reduce sedentary time, improve motor skills, and promote rehabilitation in children with disabilities (Active Healthy Kids Canada, 2012). Active gaming systems and older virtual reality systems have had promising results as rehabilitation tools (Bryanton et al., 2006; Deutsch, Borbely, Filler, Huhn, & Guarrera-Bowlby, 2008). Participants have performed prescribed exercises on these active gaming systems with increased frequency and intensity, which researchers attributed to enhanced motivation and enjoyment.

The Wii™ (Nintendo Systems) is a very popular video game system that is relatively affordable, widely available, and does not take complex training to set up. Research examining the efficacy of the Wii™ as a therapy tool for children with CP is sparse, but preliminary findings have shown improved function in children with CP (Deutsch et al., 2008). Given the difficulty that many parents and children have sticking to their home-based therapy program, the relative ease of access to the Wii™, and potential of these games to be motivating; the aim of this study was to identify functional movements typically prescribed for home-based therapy. The type and frequency of functional movements elicited by children with CP and typically developing (TD) children when playing active video games were also examined.

METHOD

Children with CP were eligible to participate if they were aged between 5 and 12 years, were receiving physiotherapy services from Queen Alexandra Centre for Children's Health (QACCH), and their gross motor function was level I or II as measured by the Gross Motor Function Classification System (Palisano, Rosenbaum, Bartlett, & Livingston, 2008). Four boys with CP participated (hemiplegic CP, n=2; diplegic CP, n=1; and dystonic CP, n=1). An age-matched sample of TD children (boys = 3) also participated. There was no difference in age between the groups (CP, M = 7.3 ± 2.3y; TD, M = 7.7 ± 2.7y; $t(6)$= .222, p=.83). However, on a 3-point scale, the CP group was a little more experienced with the Wii™ than their TD peers (CP, M = 1.7 ± 0.2; TD, M = 1.3 ± 0.2; $t(6)$=2.61, p =.04). This study had University and Health Authority ethics approval. Signed informed consent was obtained from parents and children provided assent.

A two-round Delphi survey approach (Hasson, Keeney, & McKenna, 2000) was used to develop a list of functional movements commonly prescribed for at-home therapy. In the first round QACCH therapists generated a list of activities. This list was compared to programs prescribed to children in the preceding year in the second round. The 18 functional movements are identified in Figure 1. Following this process, therapists observed all of the Wii Sport, Wii Fit, and Wii Outdoor Adventure games being played to identify which of these games were most likely to elicit the 18 functional movements identified. Ultimately, six games were chosen.

The children were videotaped playing the six selected Wii™ games (tennis, boxing, hula hoop, step aerobics, outdoor challenge beginner 1 and intermediate 1) three times each. Demographic information and past experience playing each of the games were recorded. The duration of play for each game as well as the frequency of each functional movement was coded from the video. The extent to which children enjoyed each game was recorded on a 5-point scale (1 = not fun at all, 5 = really fun) at the conclusion of each game. The frequency of each functional movement was

averaged per game for children with CP and TD children, and group differences in the rate per minute of functional movements of each game were compared using independent t-tests.

RESULTS

Figure 1 illustrates that all of the functional movements were elicited across the complement of games, but the frequency of each type of movement varied widely. The most commonly observed movements were lateral weight shifts, stepping with a weight shift, lateral trunk flexion, and reaching forward. The rate of functional movements per minute varied between the games; however a series of independent t-tests revealed there were no significant differences between groups. Table 1 demonstrates that children with CP and TD children often used different movements to play these games. For example, when playing tennis, the most common functional movement by both groups was stepping with a weight shift; however the next most frequent movements for the CP group were lateral weight shifts and reaching overhead. Whereas the 2nd and 3rd most common movement for the TD group were swing (i.e. from the shoulder as if swinging a racquet) and reaching across the midline (i.e. as in a follow through). Both groups enjoyed the games and there was no difference in overall enjoyment by group (Mean enjoyment: CP = 20.5 ± 2.9, TD = 23.0 ± 0.8; $t(6) = 2.78$, $p = .147$).

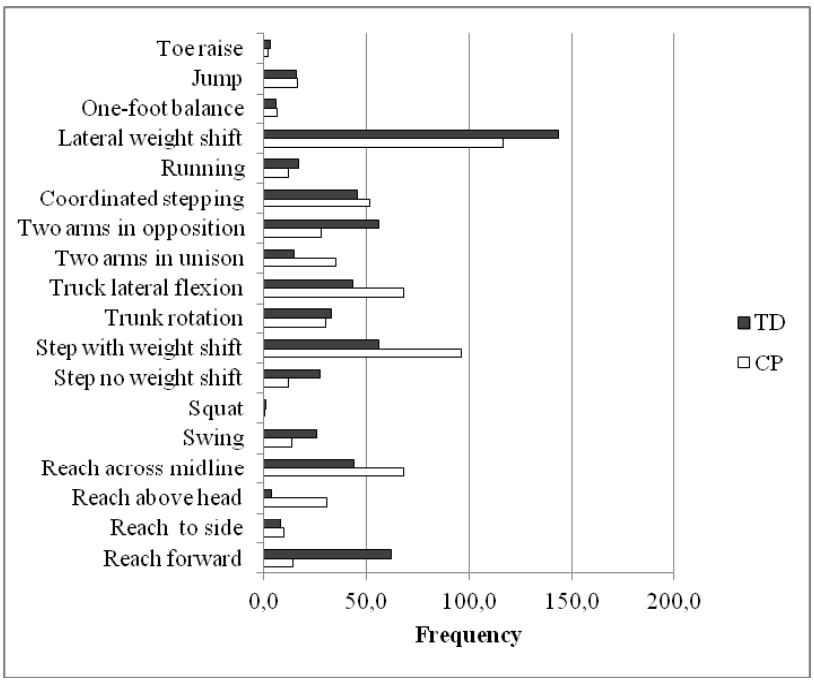

Figure 1. Mean frequency of each functional movement for all six games.

Table 1. Most frequent (and proportion) of functional movement for each group of children

Tennis		Boxing		Hula		Step aerobics		Outdoor challenge – Beginner 1		Outdoor challenge – Intermediate 1	
CP	TD	CP	TD	CP	TD	CP	TD	CP	TD	CP	TD
Step with weight shift (26.1%)	Step with weight shift (28.4%)	Reach across midline (29.0%)	Reach forward (29.4%)	Lateral weight shift (30.0%)	Lateral weight shift (62.6%)	Step-ping (37.3%)	Step-ping (59.9%)	Step with weigh shift (25.3%)	Reach forward (19.0%)	Arms in unison (38.1%)	Arms opposite (50.0%)
Lateral weight shift (15.9%)	Swing (13.1%)	Arms op-posite (29.0%)	Arms op-posite (28.5%)	Lat-eral trunk flexion (23.9%)	Lateral trunk flexion (21.1%)	Reach across midline (20.0%)	Step with weight shift (13.6%)	Step-ping (11.0%)	Trunk rotation (14.9%)	One foot balance (14.3%)	Arms in unison (21.4%)
Reach overhead (13.8%)	Reach across midline (12.7%)	Lateral weight shift (9.3%)	Coordin-ated steps (13.9%)	Reach overhead (14.6%)	Trunk rotation (15.3%)	Swing (18.7%)	Lateral weight shift (6.8%)	Reach across midline (7.7%)	Arms opposite (13.8%)	Reach to side (10.7%)	Step with weigh shift (11.2%)

DISCUSSION

The aim of this study was to identify functional movements typically prescribed by therapists at QACCH for home-based therapy, and to determine whether a commercially available active video game system could be used as an adjunct to this home-based therapy. Eighteen functional movements were identified and pilot testing established that six games within the Wii™ suite of games were very likely to facilitate engagement in all of these functional movements. Our findings support this intent. All of the functional movements were elicited during game play by children with CP and TD children; however the frequency of each movement varied considerably. The children did not often squat, balance on one foot, engage in a running action, reach to the side, or jump.

The rate of functional movement engagement differed between the games, but not between the two groups. What did differ between the children with CP and TD children was the type of movement used to play each game. This finding is consistent with the Newell's constraints perspective (Newell, 1986). Constraints are features of the individual, the task, or the environment that limit movement. Individual constraints experienced by children with CP (such as hypertonicity and co-activation of unnecessary muscles) are very different from those experienced by TD children. The movement solutions employed by children with CP in this study sometimes differed from their TD peers. For example, children with CP tended to completely shift their weight when playing games such as Mole Stomp (part of Outdoor Challenge Beginner 1), whereas TD children would balance on one foot and step without a complete weight shift to 'stomp' on a mole. The complete shift of weight was a movement response that allowed the children with CP to achieve the goal of stomping on a mole while stabilizing themselves to maintain balance.

If the goal of a home-based therapy program is to produce specific functional movements, this study suggests that therapists need to observe children playing specific games rather than presuming that 'typical' responses will occur. However, if the goal of the program is to afford more opportunities for movement at home, then it was also clear that the children with CP found their own movement solutions within their existing constraints. The children with CP were able to play the games successfully and they reported generally enjoying the games.

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Changes of Negative Behaviour in Girls as a Result of Adapted Physical Education

Selected Poster Presentation

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ABSTRACT

PURPOSE: to measure the influence of adapted physical activity to change the negative behaviour of girls living in the Socialization Centre. METHODS: (1) Behaviour Assessment System for Children, Second Edition (BASC-2) a Self-Report of personality scale; (2) Pedagogical experiment (started one month ago); (3) Observation System; (4) Reflection; (5) Case study; (6) BASC – 2 ASSIST™ Plus scoring and reporting system. RESULTS: At the moment there are ten 12-14 years old delinquents girls at the Socialization Centre. According to the survey results the main problems among girls are negative attitudes toward school (average T-score Range from 61 to 71), a relatively high level of sensation seeking (T-score from 60 to 75), a below-average sense of control (T-score from 60 to 78), relatively high number of stressful feelings in social situations (T-score from 65 to 72), depress feelings (T-score 61 to 63), feelings of inadequacy (t-score from 64 to 71), poor interpersonal relations (T-score from 25 to 31), below-average levels of self-esteem (T-score from 29 to 35). CONCLUSIONS: T score results showed that most of the girls are in the "At-Risk Range" and indicate the presence of significant problems indicating potential or emerging problems.

The results of a few girls are in the "Clinically Significant range". It indicates a high level of maladaptive behaviour or absence of adaptive behaviour. Subjective experiences of the girls reveal that adapted physical activity influences decision-making, social interaction, leadership, problem solving, critical thinking skill, decrease of aggression, tension, and dissatisfaction.

Key Words: *Negative behaviour, Delinquent girls, Adapted physical activity, BASC-2, Behaviour modification.*

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INTRODUCTION

Young people feel great pressure both in school and beyond in today's world. Changes in values in Lithuania and the world caused by economic and social crisis, emigration, unemployment etc. had the most painful impact on teenagers, who are the most susceptible to stress and cannot cope with stressful situations. That has lead to increasing numbers of delinquent teenagers who succumb to social pressure and violate or ignore social norms and rules.

After-school physical activities are one of the alternatives that can help delinquent children. Studies of many researchers (Sandford, Duncombe and Armour, 2008) have shown that 'joy of movement' has a positive effect on mental well-being, i.e. it helps to cope with stressful situations, relieve mental fatigue and alleviate the sense of loneliness. Children who are involved in regular physical activities have higher motivation to perform better at school (they are better organized), they have higher self-esteem and body image, and higher social status among peers. Physical activity was found helpful for adaptation to social norms and rules because every sport has specific rules that must be observed. Sport teaches to accept the existing values and norms in a rational manner. It also develops the feeling of belonging and empathy.

Purpose: to measure the influence of adapted physical activity on the change of negative behaviour in girls living in Socialization Centre.

METHODS

Subjects and setting. The study is conducted in Children Socialization Centre where 25 girls aged 12 – 17 are housed following the decision of Child Welfare Commission. Children Socialization Centre is a state school of comprehensive education implementing a measure of medium supervision for minors. The measure of medium supervision is a correctional programme under which a minor is educated, fostered, receives learning support and other services in Children Socialization Centre. Our sample included one 12-year-old, one 13-year-old and eight 14-year-old girls. 6 girls come from families where they live with biological parents and four girls come from foster homes. The subjects were brought to a corrective institution of medium supervision for minors for the following reasons: absenteeism from school (10 girls), running away from home or foster home (8 girls), alcohol and substance abuse (2 girls), theft (1 girl), violent behaviour (1 girl).

The measure of medium supervision may be arranged for the period on one year, however until the age of 18. The measure of medium supervision may be arranged for minors aged 14 and older. Minors under 14 are subject to the measure of medium supervision only in exceptional cases if the minor's behaviour poses a real threat to his/her or other people's life, health or property.

Experimental design and procedures: Behaviour Assessment System for Children (BASC-2) (Reynolds and Kamphaus, 2004) a Self-Report of personality scale (SRP –A, ages 12 through 18) was used to find out emotional and behavioural disorders in girls. SRP is an omnibus personality inventory consisting of statements that respondents answer in one of two ways. Some of items require a *True* or *False* response, while others call for rating on a four-point scale of frequency, ranging from *Never* to *Almost Always*. The SRP takes about 20 to 30 minutes to complete.

Pedagogical experiment: has been going for three months till now. Activities take place once a week for 90 minutes after school. The activity is followed by a half-hour discussion. Selected active games are aimed to raise self-confidence and confidence in others, to develop team building and leadership skills, to teach responsibility for own decisions and for team members. The girls are taught to abide the rules, to manage and relieve stress, aggression, dissatisfaction caused by temporary isolation. Every physical activity class is followed by a reflection of that day. The girls discuss emotions that prevailed in the activity, share their experiences, tell what they learned and what they did not like. The goal of each game is reflected and the possibilities of applying the same goals in actual life are discussed. The change in girls' behaviour and emotions is observed during the activity and their actions are corrected accordingly. Afterwards physical activity plans are adjusted in accordance with observation findings.

Data Analysis: Data was processed by means of *Behavior Assessment System for Children* Scoring and Reporting System BASC-2 ASSIST™ Plus (2004). Each program generates profiles, calculates validity indexes, identifies strengths and weaknesses, and computes multirater comparisons and progress reports. The BASC-2 ASSIST™ Plus offers the additional features of reporting content scales, target behaviours for intervention, and relationships to DSM-IV-TR diagnostic criteria. Two types of normative scores are provided for the scale: T score and percentiles. T scores describe distance from the mean, and percentiles describe rarity. A descriptive label may be applied to each scale of BASC-2 system and a composite score using the classification system in Table 1.

Table 1: Scale and composite score classification

Classification		T-Score Range
Adaptive scales	Clinical scales	
Very High	Clinically Significant	70 and above
High	At-Risk	60-69
Average	Average	41-59
At-Risk	Low	31-40
Clinically Significant	Very Low	30 and below

RESULTS

These reports are based on the girls' personal ratings using the BASC-2 Self-Report of Personality form. The narrative and scale classifications in this report are based on T scores obtained using the norms. Scale scores in the Clinically Significant range suggest a high level of maladjustment. Scores in the At-Risk range may identify a significant problem that may not be severe enough to require formal treatment or may identify the potential of developing a problem that needs careful monitoring in Table 2.

The results showed, that mean T scores on *Attitude to School* (65), on *Sensation Seeking* (66), on *Atypicality* (69), on *Locus of Control* (67), on *Anxiety* (65), on *Depression* (62), on *Sense of on Inadequacy* (67) on *Attention Problems* (63), on *Hyperactivity* (63), on *Self-Esteem* (33) fall in the At-Risk classification range, and follow-up may be necessary.

T-scores on *Attitude to Teachers* (57), to *Social Stress* (56), on *Somatization* (53), to *Relations with Parents* (49), to *Self-Reliance* (42) are similar to date held by others of the same age. Mean T scores on *Social Stress* (67), on *Interpersonal Relations* (29) fall in the Clinically Significant classification range, and usually warrant follow-up.

DISCUSSION

The girls' *Attitude to School* results show that they dislike school and sometimes wish to be elsewhere. *Sensation Seeking* means that respondents report a preference for engaging in behaviours that are generally considered by others as risky, and can be hazardous. *Atypicality* results report occasionally having unusual thoughts and perceptions. T score on *Locus of Control* reports sometimes having little control over events occurring in their life and reports sometimes being blamed for things that they did not do. Mean T score on *Social Stress* results reports having difficulty establishing and maintaining close relationships with others, and reports being isolated and lonely. *Anxiety* scores showed substantial worrying, nervousness, and/or an inability to relax.

Data on *Depression* report sometimes feeling sad, being misunderstood, and/or feeling that life is getting worse and worse. *Sense of Inadequacy* data report sometimes being dissatisfied with the ability to perform a variety of tasks, even when putting forth substantial effort. *Attention Problems* means having difficulty maintaining necessary levels of attention. These problems might disrupt academic performance and functioning in other areas. *Hyperactivity* data report engagement in a number of restless and disruptive behaviours. *Interpersonal Relations* reports having substantial difficulty establishing and maintaining relationships with others. *Self-Esteem* showed a lower self-image than others their age. Mean T score on *Self-Reliance* reports having about as much confidence as others of their age in their ability to make decisions, solve problems, and/or be dependable.

T score results showed that most of the girls are in the "At-Risk Range" and indicate the presence of significant, potential or emerging problems. The results of a few girls are in the "Clini-

Table 2: The results of 10 girls of the Self-Report of personality scale

Scales	***T* scores**										**Mean *T* scores**
	*No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	
Attitude to School	65	61	61	65	61	67	62	61	71	71	65
Attitude to Teachers	54	43	41	62	60	39	77	65	79	53	57
Sensation Seeking	68	61	65	63	65	60	70	60	66	74	66
Atypicality	64	50	65	65	65	62	79	65	93	82	69
Locus of control	72	64	60	62	62	78	71	67	64	73	67
Social Stress	70	65	66	65	66	72	65	65	68	65	67
Anxiety	59	56	73	61	51	72	67	58	70	80	65
Depression	63	61	61	62	63	62	61	61	62	63	62
Sense of Inadequacy	64	66	64	66	69	66	70	64	70	71	67
Somatization	43	44	56	47	44	56	63	56	63	56	53
Attention Problems	60	54	50	59	72	66	66	54	79	66	63
Hyperactivity	81	51	60	45	54	69	54	63	72	81	63
Relations with Parents	62	30	53	57	38	36	65	38	48	60	49
Interpersonal Relations	31	32	30	28	29	26	30	25	28	30	29
Self-Esteem	35	30	35	29	29	29	34	35	30	35	32
Self-Reliance	50	30	47	35	35	47	50	33	38	58	42

*Number of the girl

cally Significant range". It indicates a high level of maladaptive behaviour or absence of adaptive behaviour.

We have only preliminary results of the experiment and can see some trends. Further testing is required to see a statistically significant change in the behaviour of girls engaging in physical activities. However, subjective experiences of the girls reveal that adapted physical activity influences decision-making, social interaction, leadership, problem solving, critical thinking skills, decrease of aggression, tension, and dissatisfaction.

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Accessibility of Physical Activity Facilities in Local Surroundings According to Elderly with Disabilities

Selected Poster Presentation

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ABSTRACT

The aim of the study was to identify the main factors that influence the accessibility of physical activity facilities in the opinion of elderly residents with disabilities in Lithuania.

The questionnaire was developed according to recommendations of Lithuanian Governmental Physical Education and Sport Department and European Physical Activity Guidelines (2008) and consisted of 17 questions about the demand for participation and the type of participation in physical activity, reasons for inactivity and environmental conditions. 150 respondents (age 71.2 ± 3.6) from different places of Lithuania filled in questionnaire anonymously. The data analysis showed that 86% of respondents were irregularly engaged in uninstructed physical activity. 94% of respondents had no information about possibilities to engage in structure exercise training of older people in their community. Some respondents pointed out the lack of basic knowledge about physical activities that prevent them from practicing independently. The main reasons of inactivity were: health condition, not appropriate sport facilities in locality, overpriced physical activity facilities. Women admitted to have lack of will power. Only 32% of respondents noticed that organized physical activity facilities are accessible. Conclusion: Physical activity of older people could be increased by improving accessibility of physical activity facilities in local communities and providing more information about the different possibilities to be not only physically but also socially active and involved in organized activities.

Key Words: *Physical activity, Elderly with disabilities, Accessibility, Local surroundings*

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INTRODUCTION

The world, especially developed countries face significant demographic changes caused by decreasing birth rates and rising life expectancy and subsequent social and economic problems. We live in a rapidly ageing society; however we are not yet prepared to meet the needs of elderly age group, especially elderly people with disabilities. Ageing is associated with maturity, wisdom, competence and respect. However, ageing also invokes a negative image related with deteriorating physical condition and cognitive skills, passiveness, poverty, social isolation and social dependency. Most of elderly people have functional limitations due to age or disability. The society should prevent this problem by persuading elderly people, their family members and carers to be physically active. Scientific studies have proven that physical activity is the most important factor for premature ageing prevention, retaining functional independence, reducing the risk of primary and secondary disabilities and improving overall health and wellness. The increasing number of elderly people and lower level of their physical activity, should encourage us to look for ways to prevent problems caused by population ageing and how to facilitate equal opportunities for elderly people to engage in physical activities. Promotion of physical activity among elderly people is very important because many studies have proven that physical activity has a positive effect on health, physical capacity and independence. Health is influenced not only by lifestyle about also by surrounding conditions (Armstrong and Welsman, 1997; Welk, 1999; Kardelis et al., 2001; Griniene and Dudoniene, 2003). The purpose of the study was to identify the main factors that influence the accessibility of physical activity facilities in the opinion of elderly residents with disabilities in Lithuania.

METHOD

The sample consisted of 150 physically active and inactive elderly individuals with disabilities between the ages of 60 and 89 years (average age 71.2 $\pm$ 3.6), randomly selected from different cities communities and day centres for older people. 80% females and 10% males participated in the study. The opinions of elderly individuals on the accessibility of physical activities to the elderly age group were surveyed by means of questionnaires. The questions defining the contents of the study were designed basing on the studies conducted by the Department of Physical Education and Sports by the Government of the Republic of Lithuania (2011) and EU Physical Activity Guidelines (2008). The subjects of the survey were instructed on how to fill in the questionnaire and the survey was conducted in accordance with the principles of ethics, legitimacy and anonymity. The questionnaires were filled in the presence of the researcher, so the person can explain the question or response options, where necessary. Information was systemized using descriptive statistical data analysis. Data set characteristics were analysed and data was visualized by percentage expression.

RESULTS

132 respondents of 150 indicated that they were involved in uninstructed physical activity. 81 % of physically active females and 50 % of males most often chose structured exercise training. 67 % of physically active males and 76 % of females preferred uninstructed physical activity. Subjects with the lowest income most often noted that they did uninstructed physical activity. Subjects with average and higher income preferred structured exercise training and 50 % of subjects who preferred structured exercising belonged to the highest income group. Subjects who preferred uninstructed physical activity indicated that their preference is related to the fun they have while doing the activity and the possibility to chose the location for exercising. Their choice was also determined by lack of money to attend structured exercise training. The major obstacle for uninstructed physical activity is lack of exercising equipment and basic knowledge. According to the study results, 44 % of respondents indicated more convenient routes of getting to the place of exercise and lower costs as the main advantages of uninstructed physical activity compared to structured exercise training. The study respondents indicated that they prefer structured exercise training because they do not like exercising alone, but the exercising environment as well which well adapted to elderly individuals, and that the amount, intensity and frequency of exercising is appropriate. 15 %

of respondents engage in structured exercise training because of the acceptable price. 9 % of respondents indicated that they prefer structured exercise training because their friends do the same physical activity and the training is supervised by competent instructors. The study results showed that physically inactive subjects do not exercise due to poor health, high service price and inappropriate exercising facilities. 57 % if respondents noted that they did not exercise because they prefer other types of leisure-time activities and because they don't have the enthusiasm or energy for it. 43 % of subjects indicated lack of will power to exercise and see no individual benefits of exercising to health. The prevailing reason of physical inactivity among male subjects is high service price (75 %). 67 % of female subjects indicated lack of will power volition to exercise. 85.7 % of respondents living in towns choose the place for doing physical activity according to recommendations of specialists. 60 % of city dwellers indicated that price was an important factor influencing the selection of the place of exercise. The quality of exercising services was important to 20 % of the subjects and 17.1 % of respondents noted that they choose the same place where their friends exercise. None of the city dwellers noted that distance is important for the selection of the place of exercise. Subjects from rural areas chose exercising places attended by their friends (40 %) and recommended by specialists (60 %). In view of gender, 30 % of males and 47 % of females indicated they could easily find a place where to do physical activity they like. 30 % of males and 13 % of females noted it was difficult for them to find a place for physical activities. The majority of subjects (50 %) believed that better accessibility of physical activity to elderly people would increase their physical activity level. 34 % of middle-aged and elderly subjects were not sure if better accessibility would increase their physical activity level. 16 percent of respondents stated that they would not engage in any exercising programme even if accessibility of physical activity were improved. 60-74 aged respondents indicated that improved accessibility of exercising facilities would increase their level of physical activity. 58.3 % of 75-89 year old subjects did not know whether they would be more physically active if accessibility to facilities for exercise for elderly people were improved.

DISCUSSION

Elderly people with disabilities were most often engaged in more than one physical activity, i.e. uninstructed physical activity and structured exercise training and most often did uninstructed physical activity just for fun. The main disadvantages of uninstructed physical activity are lack of equipment and basic knowledge about physical activity and its benefit to health. A. Loukaitou-Sideris (2004) claims that uninstructed physical activity, such as bicycle riding or walking requires appropriate environment in order to avoid such obstacles as driving vehicles, noise, and distraction. Such activity is truly fun in parks and it gives you the pleasure of being in the open air. Older age subjects were mostly positive about such types of physical activity in their living environment. The study subjects engaged in structured exercise training because of the adapted environment and because they did not just exercise alone. Physical appearance (exercising surroundings, music) may become the major distinctive feature in a highly competitive service market (Kindurys, 2002). Elderly indicated that the main shortcomings of structured exercise training are: lack of information, outdated equipment and no programmes tailored to elderly people. In the study of people with disabilities James H. et al. (2004) revealed a number of obstacles that prevent physical activity. The main obstacles are: inappropriate surrounding, high transportation costs, badly maintained equipment, and high membership fees. In the opinion of the subjects, the main advantage of uninstructed physical activity compared to structured exercise training is the lower cost. The main reasons of physical inactivity among elderly are the poor health and expensive services. Physically inactive subjects were dissatisfied with existing exercising and sports facilities. The study data showing that physical inactivity is related to poor health confirms the findings of the study conducted by Physical Education and Sports Department (2011) indicating that lack the of energy, will power and willingness are the main reasons of physical inactivity. L. Michael et al., (2000) claims that participation of friends

and family can encourage physical activity. Irrespective of the place of residence and income, all subjects of the study indicated that the main factor determining their choice of location of exercise was specialist recommendations. The findings of R. Jankauskiene's study (2008) revealed insufficient promotion of physical activity among Lithuanian population, she states that very few subjects indicated being advised by a clinician or family physician to increase the level of physical activity. Frenckmann (1999) claims that the task of the government is not to protect human health, but to guarantee equal opportunities and appropriate conditions to assure the good health of every citizen. The study results confirm the opinion of other authors that urban planning can encourage healthy behaviour by enhancing health care, investments into active transportation, safe city planning, physical activity promotion, traffic control (Petkevicius, 2010). In summary we may claim that physical inactivity and accessibility of physical activity depends on economic, social, cultural, psychological and physical environment factors.

CONCLUSION

Physically active elderly people with disabilities more often choose structured exercise training because of adapted environment and socializing possibilities. They find affordable price as an advantage of structured exercise training, and old equipment and lack of information of organized activities as a disadvantage. Lack of exercising equipment and basic knowledge about physical activity were the most frequently indicated disadvantages of uninstructed physical activity. The prevailing reasons of physical inactivity among elderly people with disabilities are poor health, inappropriate existing sports facilities and high service prices. Both males and females indicated that closer proximity to home and lower service price were the basic criteria influencing the selection of the place for exercising. For city dwellers it is easier to find a place where they can do physical activity they like. Younger respondents stated that improved accessibility of physical activity in their surroundings would have a positive effect on their physical activity behaviour, whereas older respondents did not have a definite opinion.

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The Incidence of Osteoporosis in Wheelchair Rugby Athletes

Selected Poster Presentation

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ABSTRACT

Introduction: The evaluation of the bone health on sport players with disabilities is essential to diagnose the presence of osteopenia or osteoporosis, taking into account that, individuals with spinal cord injury (SCI) may exhibit calcium metabolism alteration, leading to a state of osteoporosis below the level of the injury due to reduced mobility. Objectives: To evaluate the incidence of osteoporosis in WR athletes with SCI, aiming to outline preventive measures in order to reduce or even avoid fractures owing to this pathology. Methodology: This study included 14 male athletes with incomplete SCI, injury level ranging between C5-C7, and average time of injury of 7.4±4.4 years. All the athletes have been playing WR for 3.1±1.7 years, on a 2.4±0.5 hours of training per session basis. Athletes were evaluated by the Health Department of the Wheelchair Rugby Brazilian Association. Bone mineral content of the lumbar spine and femur neck was carried out with a DEXA system, according to the WHO (World Health Organization) protocol for osteopenia and osteoporosis. Results: Five out of 14 athletes presented Lumbar Osteopenia and Femoral Osteoporosis, 02 Femoral Osteopenia, 02 Femoral Osteoporosis, 01 Lumbar Osteopenia, 01 Lumbar and Femoral Osteopenia and 01 Lumbar and Femoral Osteoporosis. Conclusion: This study demonstrated that only two athletes presented no osteopenia/osteoporosis, and therefore, indicating the importance for taking higher attention concerning WR athletes bone health.

Key Words: *Spinal cord injury; Athletes; Wheelchair rugby; Osteoporosis; Osteopenia; Brazilian Wheelchair Rugby Association.*

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INTRODUCTION

Osteoporosis is common metabolic disturbance, characterized by bone mineral density (BMD) decrease, progressive deterioration of the bone tissue 'micro-structure' and bone mass reduction, leading to fracture risks. In people with spinal cord injury (SCI), bone loss onset usually occurs between the 4th to the 6th month after the trauma and can stabilize between the 12th – 16th months, when the bone density may reach as low as 2/3 of the pre-injury state. In the paralyzed limbs, bone loss is approximately 4% per month in the trabecular bone and 2% per month in the cortical structure, through the first year (Demirel et al., 1998; Lee et al., 1997; Jiang et al., 2006). According to Lazo et al. (2001), fracture risks are at least twice for each bone loss standard deviation related to young adult, at the level of femur neck, and the BMD in this area might be utilized to quantify the fracture risks levels in the people with SCI. Fractures incidence in these individuals ranges from 1 to 7%, and mostly occurs due to their daily-life activities, such as transfers, stretches, etc (Lazo et al., 2001). In fact, osteopenia/osteoporosis after SCI has been considered a worldwide public health matter and also rises several discussions into the Paralympics health professionals. The increasing number of individuals with disabilities in the high performance sports, has bringing concerns and the need to elaborate and tailor prophylactic strategies in attention to the health of these athletes, in order to avoid other risks and secondary complications related to their initial condition. Therefore, such programs should offer not only clinical analysis of the athletes, but also a multidisciplinary and thoroughly intervention, aiming, among other benefits, reduce incidence of injuries related to the athlete injury (such as fractures owing to an osteopenia/osteoporosis state). In addition, wheelchair rugby (WR) is high contact sport, where mostly of its participants sustain a high level SCI (usually cervical level), and the falls to the ground are invariably frequent, offering fracture risks to their participants. Therefore, risk fractures assessments are an important strategy to minimize secondary traumas in WR athletes and thus, reduce training program interruptions. Also, in Brazil, 90% of the WR national team players are individuals with SCI, this action is additionally important to the national team players health integrity.

Objectives: To evaluate the incidence of osteoporosis in WR athletes with SCI, aiming to outline preventive measures in order to reduce or even avoid fractures owing to this pathology.

METHOD

This study included 14 male athletes with incomplete SCI, injury level ranging between C5-C7, and average time of injury of 7.4±4.4 years. All the athletes have been playing WR for 3.1±1.7 years, on a 2.4±0.5 hours of training per session basis. Athletes were evaluated by the Health Department of the Wheelchair Rugby Brazilian Association. Bone mineral content of the lumbar spine and femur neck was carried out with a DEXA system, according to the WHO (World Health Organization) protocol for osteopenia and osteoporosis.

RESULTS

Twelve out of 14 wheelchair rugby athletes from the Brazilian national team presented osteopenia/osteoporosis (Figure 1). Five out of 14 athletes presented Lumbar Osteopenia (Figure 2) and Femoral Osteoporosis (Figure3), 02 Femoral Osteopenia, 02 Femoral Osteoporosis, 01 Lumbar Osteopenia, 01 Lumbar and Femoral Osteopenia and 01 Lumbar and Femoral Osteoporosis.

DISCUSSION

Disuse osteopenia/osteoporosis is a common secondary pathology in people who sustain a SCI, and corresponds to bone loss due to skeletal mechanical unloading. In fact, it manifests in almost every SCI individual (Jiang et al., 2006). The data from this study corroborates to the literature, as 12 out of 14 athletes with SCI presented, at some level, osteopenia/osteoporosis (Figure 1).

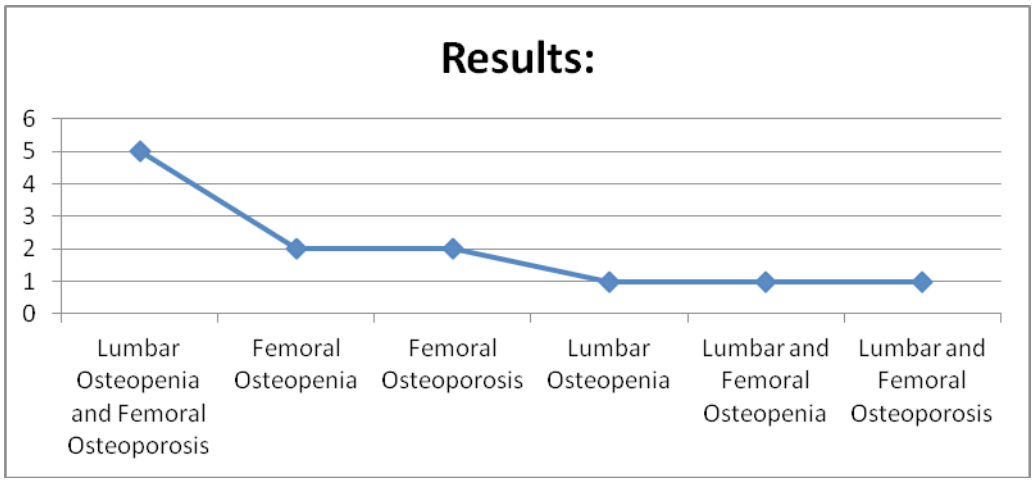

Figure 1 The incidence of osteopenia/osteoporosis in 14 wheelchair rugby athletes.

The mechanisms for osteoporosis in SCI may vary and bone loss not always occur in a similar way, neither in the same bone sites (Dauty et al., 2000; Lazo et al., 2001; Kiratli et al., 2000), and several factors appear to have a major influence on bone mass in SCI individuals, such as the degree of injury, duration of the injury, muscle spasticity, endocrine function and others like age, gender, and nutritional habits (Jiang et al., 2006).

Complications from fractures in athletes lead to interruption in their training routine, health and fitness levels and obviously, decrease in performance, which in turn, may jeopardy their position as an athlete in a local or national team. This study demonstrated that only two athletes presented no osteopenia/osteoporosis, and therefore, indicating the importance for taking higher attention concerning WR athletes bone health. Therefore, alternatives for reducing fracture risks and their secondary consequences are needed. Some alternatives such as WR customization, a proper athlete positioning into his WR and also their personal safety gear should be carefully considered for avoiding fractures due to osteopenia/osteoporosis in this population.

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