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Research Article

Investigating the Perceptions of Individuals with Disabilities Related to Participating into Exercise

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ABSTRACT

The aim of this study was to investigate the perceived benefit/barrier perceptions of individuals with disabilities. A total of 321 disabled individuals, N = 145 (45.2%) female, N = 176 (54.8%) male, participated in the study. Among these disabilities, N = 143 (44.5%) orthopedically impaired, N = 105 (32.7%) visually impaired, N = 73 (22.7%) hearing impaired individuals (aged 18-69.) In order to determine the participants' perceptions about exercise, the "Exercise Benefits/Barriers Scale (EBBS)" developed by Sechrist, Walker, and Pender (1987) was used. EBBS included 43 items with 29-item benefit and 14-item barrier sub-dimensions. To understand whether the data obtained from the scales show normal distribution or not, the Shapiro-Wilk normality test was applied first ($p>0.05$). T-test and ANOVA tests were used for the analysis of obtained data. Also, the post-hoc test was used to determine which group caused the difference in multiple comparisons. Aside from these, multiple regression analysis was used to determine the role of individuals' age, gender, and disability types on their perceptions of exercise. Perceptions of disabled individuals on participating in the exercise were found to differ significantly in both sub-dimensions (benefit and barrier sub-dimensions) according to gender, age, and exercising or not ($p<0.05$). There was a significant difference in the benefit sub-dimension of participants' perceptions of participating into exercise according to disability types ($p<0.05$), at the same time there was no difference in exercise perceptions of individuals with visual, hearing, and orthopedic disabilities related to disability sub-dimension ($p>0.05$). In conclusion, it could be said that perceptions of orthopedically, visually, and hearing-impaired individuals related to participating in exercise differed according to gender, age, type of disability, and exercising or not.

INTRODUCTION

Physical inactivity leads to social and psychological side effects in individuals besides physical adverse effects. However, improving technology has contributed to individuals' awareness of the disadvantages of inactive life that have gradually become a problem and understanding the benefits of exercise on health.

It is seen that the term "exercise" is sometimes used instead of "physical activity" (Taylor, 1983). However, when considered in terms of definition, physical activity has a more comprehensive meaning. Physical activity is any kind of body movement produced by skeletal muscles consuming energy. Moreover, exercise is defined as the planned and repetitive physical activities aiming to protect and develop one or more components of physical fitness (USDHHS, 1996). About this definition, it is possible to notice that the term of exercise is named as the sub-item of physical activity (Wilmore & Costill, 1994).

According to 2008 dated American Physical Activity Guide of American Health and Human Services Department, it is indicated that physical activity, in general, improves health. Regular exercise provides several benefits such as protecting and increasing muscle strength and amount, gaining balance increasing muscle-joint control, providing fit body composition, and strengthening the bones. Moreover, it has been known that it decreases cardiac problems (infarction, hypertension), type-2 diabetes, colon and breast cancer, obesity, gallbladder diseases and osteoporotic fractures, and depression and anxiety disorders, cognitively (Lee et al., 2012; Ehrman et al., 2005; Kesaniemi et al., 2001; Soares et al., 2018; Vuori, 1998). On the other hand, a physically inactive lifestyle can increase the risk for diseases more (Richards et al., 2006). Whereas exercise is important for all individuals, it is possible to gain importance for disabled individuals due to their limited living conditions. Disabled individuals can decrease the risk for secondary health problems by adopting a physically more active lifestyle, and enhancing their all motor functioning levels positively, as well (Van Der Ploeg et al., 2004). Several health specialists and researchers have emphasized that the highness of vitality level in exercising activities performed with a rehabilitation program positively affect biological and physiological properties of disabled individuals (Drewnowski & Evans, 2001). It has been indicated in various studies that physical activity has positive effects upon the health of disabled individuals, as well as in healthy individuals, besides its physiological benefits and positive psychological and social effects (Longmuir et al., 2000; Martin et al., 2006; Martin et al., 2012; Savucu, 2009). Besides all these benefits, exercise fulfills as essential remarkably important function for the "integration" aimed to be reached in unique education providing

opportunities for disabled individuals to come together with other disabled individuals and non-disabled individuals. In such an environment, disabled individuals maintain a positive attitude observing the problems of other disabled individuals, their creativity is encouraged, their feeling of loneliness is minimized, they become more sociable and grasp the chance for leading a happier life (Atay, 1995; Brouwer et al., 1997).

How participating in an exercise that has such remarkable importance for increasing the life quality of disabled individuals is perceived by disabled individuals is very important. Therefore, investigating the benefit/barrier perceptions of disabled individuals related to exercise was the purpose of this study to shed light on further studies to be carried out to understand the difficulty of participating in exercise, if available for the participants, and for revealing this difficulty. In addition, there are some similar studies in the world literature (Harrison et al., 2010; Valis et al., 2017; Anderson et al., 2005; Goodwin et al., 2004; Rauzon, 2003; Rimmer et al., 2000) about this topic, but a similar study in populations with disabilities has not been found in Turkey.

METHODS

Study Groups

The study was carried out on orthopedic, visually, and hearing impaired women and men living 18-69 in disabled associations, sports clubs, and rehabilitation centers in Ankara. The sample of the study was chosen by convenience sampling method. A total of 321 disabled individuals, N = 145 (45.2%) female, N = 176 (54.8%) male, participated in the study. Among these disabilities, N = 143 (44.5%) orthopedically impaired, N = 105 (32.7%) visually impaired, N = 73 (22.7%) hearing impaired individuals. Cronbach's alpha value was found as 0.82 in the reliability analysis. Before collecting the data, the consent form was signed by the participants. Also, this study was approved by Başkent University Institutional Review Board (Project no: KA19/16.) and supported by Başkent University Research Fund.

Considering the studies in which disabled individuals are participants, 321 participants is a high number. However, since there are three different types of disability, different age categories, and of course two different genders in this number, some statistical analyzes that are not required were not carried out due to the concern that the reliability would decrease. Therefore, this situation can be considered as a limitation of the study.

Demographical information of the participants was presented in the table below. It was performed upon orthopedically, visually, and hearing impaired females - males at 18-69 age

interval. Totally 321 disabled individuals including n=145 (45.2%) females and n=176 (54.8%) males participated in the research. Among these disabilities, n=143 (44.5%) were orthopedically disabled, n=105 (32.7%) were visually impaired, and n=73 (22.7%) were hearing impaired.

Table 1. Demographical information related to disabled individuals who participated in the research

Variable		Frequency	Percentage
Gender	Female	145	45.2
	Male	176	54.8
	Total	321	1000
Age	18-35	177	55.1
	36-52	121	37.6
	53-69	23	7.1
	Total	321	100.0
Type of Disability	Orthopedic	143	44.5
	Visual	105	32.7
	Hearing	73	22.7
	Total	321	100.0
Exercising	Yes	78	24.3
	No	243	75.7
	Total	321	100.0

Data Collection Tools

Exercise Benefits/Barriers Scale (EBBS):

Exercise Benefits/Barriers Scale was developed by Sechrist, Walker, and Pender (1987), and adapted into Turkish by Güven Karahan, Aşçı, and Esatbeyoğlu (2011) who also performed validity and reliability studies. The scale evaluates the benefits adult disabled individuals perceive on exercise and the barriers encountered while exercising. EBBS totally includes 43 items with 29-item benefit (Cronbach alpha value 0.98) and 14-item barrier (Cronbach alpha value 0.93) sub-dimensions and is organized as a Likert scale required only one choice to be selected among four choices.

Personal Information Form

The information related to age, gender, disability type, and their exercise or not was obtained with the Personal Information Form developed by the researcher.

Data Collection

All individuals who voluntarily participated in the study were informed about the research, and they signed the informed consent form. Each data set was provided to be filled in interviewing with each participant face to face. In some associations and rehabilitation centers, the researchers read the scale to the participants groups and ensured that it was answered.

Data Analysis

Obtained data were analyzed using the statistical software (SPSS) version 21.0 prepare for social sciences (IBM SPSS Statistics for Windows, Armonk, NY: IBM Corp.). In order to understand whether the data obtained from the scales show normal distribution or not, the Shapiro-Wilk normality test was applied first ($p>0.05$). According to the normality analysis of the data independent samples t-test was used for comparing two groups. Parametric tests (ANOVA) were performed for analyzing the differences between groups. The Post-hoc test was used to determine which group caused the difference in multiple comparisons. Aside from these, multiple regression analysis was used to determine the role of individuals' age, gender, and disability types on their perceptions of exercise. The results were evaluated at $p<0.05$ level of significance at 95% reliability interval.

RESULTS

The results indicating the perceptions of female and male disabled individuals who participated in the study were presented in Table 2.

Table 2. Comparing the Perceptions of Disabled Individuals on Participating in Exercise According to Gender

EBBS Sub-Scales	Gender	N	$\bar{x}$	Sd	t	p
Benefits Scale	Female	145	1.82	0.37	2.230	**.026***
	Male	176	1.72	0.42		
Barriers Scale	Female	145	2.66	0.47	-4.142	**.000***
	Male	176	2.88	0.46		

***p<0.05**

According to the result of the Levene test, group variances were homogenous because the p-value related to the benefits scale was (0.073) > 0.05. Moreover, the group variances were also homogenous because the p-value related to the barriers scale was (0.293) > 0.05.

Because the p-value related to the benefits scale at the end of the t-test was (0.026) < (0.05), the benefits of disabled individuals related to participating in exercise differed significantly according to gender.

Table 3. Comparing the Perceptions of Disabled Individuals on Participating in Exercise According to Age

EBBS Sub-Scales	Age	N	$\bar{x}$	Sd	F	p
Benefits Scale	18-35	177	1.71	0.40	3.83	**.023***
	36-52	121	1.81	0.39		
	53-69	23	1.90	0.44		
	Total	321	1.76	0.40		
Barriers Scale	18-35	177	2.85	0.47	3.96	**.020***
	36-52	121	2.72	0.46		
	53-69	23	2.63	0.50		
	Total	321	2.78	0.48		

***p<0.05**

At the end of the ANOVA test, because the p-value related to the benefits scale was (0.023) < 0.05 and the p-value found for the barriers scale was (0.020) < 0.05, both variables differed significantly according to age groups.

As could be seen in Table 3, there was a significant difference between the groups with the p-value lower than 0.05 at the end of the ANOVA test performed on disabled participants. Namely, there was a significant difference between all age groups except from the comparison of 36-52 age group and 53-69 age groups in terms of benefits scale. According to post-hoc test, this difference arose from the 18-35 age group.

In terms of the barriers scale, there was a significant difference between the comparisons except from the 36-52 age group and the 53-69 age group. Here, the perceived barrier average of the 18-35 age group was higher rather than the 36-52 and 53-69 age groups.

Table 4. Comparing the Perceptions of Disabled Individuals on Participating in Exercise According to Disability Type

EBBS Sub-Scales	Type of Disability	N	$\bar{x}$	Sd	F	p
Benefits Scale	Orthopedic	143	1.72	0.41	4.868	**.008***
	Visual	105	1.86	0.42		
	Hearing	73	1.70	0.32		
	Total	321	1.76	0.40		
Barriers Scale	Orthopedic	143	2.74	0.52	1.161	.314
	Visual	105	2.79	0.47		
	Hearing	73	2.85	0.39		
	Total	321	2.78	0.48		

***p<0.05**

As could be seen in Table 4, because the p-value related to the barriers scale was (0.314) > 0.05 at the end of the ANOVA test, there was no significant difference between the barriers perceived according to disability type. However, because the p-value related to the benefits scale was (0.008) < 0.05, there was a significant difference between benefits perceived according to disability type. The post-hoc test was performed in order to find from which groups this difference arose.

At the end of the multiple comparisons, whereas no significant difference was found between physically disabled and hearing-impaired individuals, there was a significant difference between orthopedic disabled and visually impaired individuals. Perceived benefit scores of the visually impaired individuals were higher. Furthermore, there was a significant difference between hearing and visually impaired individuals. Perceived benefit scores of the visually impaired individuals were higher.

Because the variable of exercising or not included two independent groups, performing independent samples t-test was considered to be appropriate for the hypothesis test. The results were presented in Table 5.

Table 5. Comparing the Perceptions of Disabled Individuals on Participating in Exercise According to Exercising or not

EBBS Sub-Scales	Group	N	X	Sd	t	p
Perceived Benefit	Exercising	78	1.57	0.37	-5.035	**.000***
	Not exercising	243	1.82	0.39		
Perceived Barrier	Exercising	78	3.04	0.46	5.830	**.000***
	Not exercising	243	2.70	0.45		

***p<0.05**

As seen in Table 5, as a result of the Independent sample t-test, it was found that the perceived benefit and perceived barriers scores of the participants regarding exercise differ significantly according to whether they are regular exercise participants or not ($p < 0.05$).

The results of the multiple regression analysis in which the perceived benefit is taken as the dependent variable; the gender, age, and disability type are used as independent variables are given below in Table 6.

When we examine the results, the negative beta of the gender variable indicates that it does not have a significant effect. On the other hand, when the results of the age variable are examined, it can be said that it has a significant effect since the b value is in the confidence interval and the p value is less than 0.05, but it should also be taken into account that it does

not agree with the correlation analysis. Finally, when the effect between the disability type and the utility-scale is examined, it shows that although it is in the confidence interval, it has no statistically significant effect since the p-value is greater than 0.05.

Table 6. Multiple Regression Analysis for Age, Gender, and Disability Type of Perceived Benefit

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
	B	Std Error	Beta			Lower Bound	Higher Bound	Tolerance	VIF
Constant	1.686	.113		14.972	.000	1.465	1.908		
Gender	-.104	.045	-.129	-2.336	.020	-.192	-.016	.995	1.005
Age	.006	.002	.163	2.953	**.003**	.002	.010	.997	1.003
Disability type	.016	.028	.031	.571	.568	-.039	.071	.993	1.007

The results of the multiple regression analysis in which the perceived barrier is taken as the dependent variable and the gender, age, and disability type are used as independent variables are given below in Table 7.

Table 7. Multiple Regression Analysis for Age, Gender, and Disability Type of Perceived Barrier

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
	B	Std Error	Beta			Lower Bound	Higher Bound	Tolerance	VIF
Constant	2.653	.131		20.298	.000	2.396	2.911		
Gender	.216	.052	.225	4.173	**.000**	.114	.319	.995	1.005
Age	.008	.002	-.173	-3.210	**.001**	-.012	-.003	.997	1.003
Disability type	.037	.033	.061	1.140	.255	-.027	.102	.993	1.007

As seen in Table 7, as a result of the multiple regression analysis, the beta value of the gender is in the confidence interval, and the p-value is less than 0.05, so it appears that it has a statistically significant effect. On the other hand, when the effect of the age variable is examined, it is seen that the beta value is not within the confidence interval, so a significant effect was not found. Lastly, when the effect of the disability type was examined, it was seen that although the beta value was in the confidence interval, it did not have a statistically significant effect due to the p-value greater than 0.05.

DISCUSSION

According to the findings of this study, there was a significant difference between perceived benefit and perceived barrier sub-dimensions of orthopedic disability, visually and hearing-impaired individuals who were resident in Ankara province in terms of doing exercise. Perceived benefits of disabled individuals related to doing exercise differed significantly according to gender. In the literature, there were several studies supporting these results. For example; In the study carried out by Hughes & Hughes in 1997, whether daily physical activities differed significantly or not according to gender in old individuals was investigated, and 5151 individuals participated in this study. In the study, 1837 of the individuals were female, and 3255 were males. For six years between 1984 and 1990, longitudinal data analysis was performed for disabled old individuals, and gender differences were obtained in disabled old individuals. According to these results, disabled individuals lost their physical activity capabilities more as they got older. However, this differed according to gender in females and males. In the researches, there was a lack of knowledge on experiences of disabled old female individuals in terms of taking part in exercise, healthy life, and health developing activities (Harrison et al., 2010). This lack of knowledge in female disabled individuals can cause difference with males in terms of exercise perceptions. In another research, perceived barrier levels related to exercising differed significantly according to gender (Valis et al., 2017). In the same study, whereas there was no difference between learning-disabled students and students with hyperactivity disorder, effects of gender upon physical activity were noticed (Valis et al., 2017). The research carried out on exercising according to gender determined personal or individual barriers in terms of females' participation in exercises. The researchers defined that low exercise participation of females caused due to lack of time, energy, and motivation (Anderson et al., 2005; Goodwin et al., 2004; Rauzon, 2003; Rimmer et al., 2000).

Some researches were not similar to the findings obtained in the literature besides supporting these findings. For example, in the research carried out by Demir and İlhan (2019), 80 licensed athletes from the visually impaired sports federation participated. At the end of the research, no significant difference was found in exercising of visually impaired athletes according to gender (Demir et al., 2019). However, it was revealed in terms of participating in sports that the motivations of visually impaired athletes were at a high level. Equivalent results were also obtained in another research. For example, 152 individuals (69 males and 83 females) participated in the research carried out by Malone (2012). The purpose of the study

was to investigate the perceived benefits and barriers of exercising among individuals with a physical disability. According to the result of the study, no significant difference was determined between genders, age groups, or physical activities, and participation (Malone et al., 2012).

The results of disabled individuals' perceptions related to exercising according to age indicated a significant difference between all age groups including 18-35, 36-52, and 53-69 in terms of benefits scale. Furthermore, in terms of the barriers scale, there was a significant difference in all age groups (18-35, 36-52, and 53-69). In the literature, there were studies supporting these results. For example, in the studies carried out by Jin, Yun, and Agiovlasitis in 2017, whether school-based physical activity programs were beneficial for healing health of disabled students or not in case performed regularly was investigated. It was suggested as a hypothesis that school-based and entertaining physical activities had a positive effect upon the physical health of students when more participation was provided, and this changed between age groups of disabled children. At the end of the research, a relationship was noticed on general health to get better after regular physical activity participation. The children who participated in physical activities more were determined to be healthier rather than their friends. However, this relationship was noticed in children at 12-15 age groups that were older than the others when considered in terms of age groups (Martin et al., 2006). Another study supporting the results related to participation in an exercise in terms of age was analyzed, and according to this study carried out by Diana et al., the data of 2009-2012 National Health Interview Survey (NHIS) were obtained from 86.361 disabled adult individuals at 18-64 age groups. Types of disability hear, visual, cognitive, and physical impairment. The possibility for individuals to contract a chronic disease, individuals' participation in physical activity, exercise, and being active was analyzed. According to obtained results, it was revealed at the end of the study that nearly half of disabled individuals were not physically active and had a higher possibility to have a chronic disease (Carroll et al., 2014). In another study carried out by Jaarsma et al., 27 individuals with spinal cord injury participated. At the end of the research, it was concluded that experiencing the barriers and facilitators before participating in exercise depended upon age, and disability type (Jaarsma et al.,2014). Experiencing the barriers and facilitators before participating in an exercise was related to age. This should be taken into consideration while offering suggestions to disabled individuals on sports and exercise. Especially the content of participation in an exercise in terms of Orthopedically, disability and visually impaired individuals could be increased by selecting the most appropriate exercise for age.

It was revealed that whereas there was a significant difference in perceptions of disabled individuals related to participation in an exercise according to disability type in terms of the benefit of exercise, there was no significant difference in their barrier perceptions. According to this, the results revealed for benefit and barrier perceptions of disabled individuals related to exercise were similar to the results of some researches.

Experiencing the barriers and facilitators before participation in sports was possible depending upon disability type. For example, in the study carried out by Kehn & Kroll (2009), the exercising experiences of individuals with spinal cord injury were investigated. Totally 26 individuals with spinal cord injury participated in the study; 15 of these individuals defined themselves as doing exercise and 11 defined as disabled individuals who did not do exercise. The participants expressed their experiences related to active and perceived benefits and barriers before perceived health effect before and after spinal cord injury through semi-structured telephone calls. As a result, the participants defined motivation and socio-environmental factors for participation into exercise. However, although the individuals with spinal cord injury who participated in exercise regularly had the motivation to participate in exercise, they mentioned their several encountering barriers (Kehn & Kroll, 2009). Revealing or facilitating the barriers/obstacles encouraging the facilitating factors in participation in exercise and availability of exercise according to disability type could increase participation in the exercise. Perceived benefit difference revealed in this study could be arisen from the difference of needed benefits. Besides not finding a significant difference in barrier perceptions according to disability types of the participants, the result averages revealed here indicated the presence of barriers related to exercise in all disability types. Urban/regional planners should never forget that each disability type could require different environmental facilitators. According to the results of multiple regression analysis, it was revealed that age had a significant effect on perceived benefit, while age and gender had a significant effect on the perceived barrier. Güven et al. (2019) stated that women with disabilities faced more significant barriers than men in their participation in sports/exercise. This result is similar to the result of the study.

According to the results of this study, the difference was determined between perceived benefit and perceived barrier sub-dimensions related to exercising of licensed Orthopedically disability, visually and hearing-impaired individuals who were resident in Ankara province. Several studies supporting these results in the literature (Groff et al., 2009; Côté-Leclerc et al., 2017; Te Velde et al., 2018). In the study carried out by Groff, Lundberg & Zabriskie (2009), the effect of participating in sports upon athletic identity and the effect of

doing sports upon life quality for the individuals with cerebral palsy (CP) who attended to CP World Games were aimed to be investigated. Totally 73 international athletes who attended to CP World Games were included in the study. At the end of the research, a meaningful relationship was found between the effect on the life quality of disabled individuals and athletic identity. The effect of athletic identity of disabled individuals upon life quality was possible to increase participation in exercise. Several health specialists and researchers have emphasized that the highness of vitality level in exercising activities performed with a rehabilitation program is possible to have positive effect on the biological and physiological properties of disabled individuals (Drewnowski & Evans, 2001). And this could affect the participation of licensed disabled individuals in exercise positively. In a similar study carried out by Demir and İlhan (2019) upon 80 licensed visually impaired athletes, it was concluded that motivations of visually impaired athletes into exercise and sports were high. In the literature, there were studies supporting these obtained findings besides the ones that were not similar to these. For example, in the study carried out by Tasiemski et al., Athletic Identity Measurement Scale was used for individuals with spinal cord injury (SCI), and the barriers against participating in exercise were investigated. Totally 678 individuals with SCI participated in the research. At the end of the research, no relationships were found between athletic identity and depression, anxiety or life satisfaction, and participation in sports (Tasiemski et al., 2004).

The increase in the number of studies aiming to encourage physical activity in disabled adult individuals is an optimistic tendency for exercise participation and disability. Previous studies underlined that the maturity of disability literature was still at its early stage and should be developed more (Nery et al., 2013). At this point, the presence of licensed athletes was remarkable for potential athletes' heading towards sports. In the general sense, this could be considered as an opportunity that would enable disabled individuals to be healthier at later ages.

CONCLUSIONS

In conclusion, it was possible to mention that perception of orthopedically disabled, visually and hearing-impaired individuals' resident in Ankara province related to participating in exercise differed according to gender, age, disability type, and whether exercising or not. Based on this study, the comparison of regular exercise participation and adaptation periods in the literature such as disabled individuals with the environment can be examined. Also, what kind of motivation sources licensed athletes with disabilities have to

participate in the exercise and whether this varies according to the disability type can be investigated. In detail, gender and age variables can be analyzed separately for a disability type. The most important thing is state encouragement for the authorities to develop and implement projects on persons with disabilities, such as the European Union, which will provide opportunities for further advancement in the field of disability and physical activity.

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Authors' contributions

The first author contributed to this paper by taking responsibility of data collection, data analysis, interpretation processes, preparation, and critical analysis of the manuscript. The second author contributed to this paper by determining its main ideas and hypothesis and designing the methodology of the study. She also mentored the first author and contributed to his responsibility areas with her expertise. Both authors have read and approved the final version of the manuscript and agree with the order of the presentation of the authors.

Declaration of conflict interest

The article does not find any personal or financial conflict of interest of the authors.

REFERENCES

Anderson, D. M., Bedini, L. A., & Moreland, L. (2005). Getting All Girls into the Game: Physically Active. *Recreation for Girls with Disabilities*. 27.

Atay M, (1995). The Importance of Sports Activities in Self Development of Disabled People. *Statement Book of Antalya International Sports Symposium on Disabled People. General Directorate of Youth and Sports, Department of Sports Education Publications:* 97-100, Ankara

Brouwer J, Ludeke W, (1997). Philosophically Sports in Disabled People. *Statement Book of Antalya International Sports Symposium on Disabled People. Republic of Turkey, Prime Ministry, General Directorate of Youth and Sports, Department of Sports Education Edition* No: 1. 11- 17, Ankara.

Carroll DD, Courtney-Long EA, Stevens AC. (2014). *Vital signs: disability and physical activity.* United States, 2009-2012. MMWR Morb Mortal Wkly Rep. 2014;63(18):407-413. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5779402/

Côté-Leclerc, F., Boileau Duchesne, G., Bolduc, P., Gélinas-Lafrenière, A., Santerre, C., Desrosiers, J., & Levasseur, M. (2017). How does playing adapted sports affect quality of life of people with mobility limitations? Results from a mixed-method sequential explanatory study. *Health and Quality of Life Outcomes*, *15*(1), 22. https://doi.org/10.1186/s12955-017-0597-9

Demïr, G. T., & İlhan, E. L. (2019). Spora Katılım Motivasyonu: Görme Engelli Sporcular Üzerine Bir Araştırma. *Gaziantep Üniversitesi Spor Bilimleri Dergisi*, *4*(1), 157–170. https://doi.org/10.31680/gaunjss.525455

Drewnowski, A., & Evans, W. J. (2001). Nutrition, physical activity, and quality of life in older adults. *Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*, 56 Spec No(Ii), 89–94. https://doi.org/10.1093/gerona/56.suppl_2.89

Ehrman JK, Gordon PM, Visich PS, et al. (2005). *Clinical Exercise Physiology*. 2nd ed. USA: Human Kinetics Publishers; 17-19.

Goodwin, D. L., & Compton, S. G. (2004). Physical Activity Experiences of Women Aging with Disabilities. *Adapted Physical Activity Quarterly*, *21*(2), 122–138. https://doi.org/10.1123/apaq.21.2.122

Groff, D. G., Lundberg, N. R., & Zabriskie, R. B. (2009). Influence of adapted sport on quality of life: Perceptions of athletes with cerebral palsy. *Disability and Rehabilitation*, *31*(4), 318–326. https://doi.org/10.1080/09638280801976233

Güven Karahan, B., Asci, F.H., Esatbeyoglu, F. (2011). "Egzersiz Fayda / Engel Olcegi"-Psikometrik Ozelliklerinin Incelenmesi. *1. Uluslararası Katılımlı Engellilerde Beden Eğitimi ve Spor Kongresi.* Konya, Turkey. 05-07 May 2011. Proceeding Book, 112.

Güven B, Kara FM, Özdedeoğlu B. (2019).The socialization process for women with disabilities in sports: A double barrier?. *Pamukkale Journal of Sport Sciences*, 10(3):7-17. https://dergipark.org.tr/tr/download/article-file/904355

Harrison, T. C., Umberson, D., Lin, L.-C., & Cheng, H.-R. (2010). Timing of Impairment and Health-Promoting Lifestyles in Women With Disabilities. *Qualitative Health Research*, *20*(6), 816–829. https://doi.org/10.1177/1049732310362987

Haskell, W. L., Lee, I-M., Pate, R. R., Powell, K. E., Blair, S. N., Franklin, B. A., Bauman, A. (2007). Physical activity and public health: Updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation*, *116*(9), 1081-1093. https://doi.org/10.1161/CIRCULATIONAHA.107.185649

Jaarsma, E. A., Dijkstra, P. U., Geertzen, J. H. B., & Dekker, R. (2014). Barriers to and facilitators of sports participation for people with physical disabilities: A systematic review: Barriers to and facilitators of sports. *Scandinavian Journal of Medicine & Science in Sports*, *24*(6), 871–881. https://doi.org/10.1111/sms.12218

Jin, J., Yun, J., & Agiovlasitis, S. (2017). Impact of enjoyment on physical activity and health among children with disabilities in schools. *Disability and Health Journal*. https://doi.org/10.1016/j.dhjo.2017.04.004

Kehn, M., & Kroll, T. (2009). Staying physically active after spinal cord injury: A qualitative exploration of barriers and facilitators to exercise participation. *BMC Public Health*, *9*(1), 168. https://doi.org/10.1186/1471-2458-9-168

Kesanıemı, Y. A., Danforth E. Jr., Jensen M. D., Kopelman P.D., Lefebvre,P., and Reeder B. A. (2001). Dose-response issues concerning physical activity and health: an evidence-based symposium. *Medicine Science and Sport Exercise. 33*(6 Suppl): S531–S538, 2001. 10.1097/00005768-200106001-00003

Lee, I. M., Shiroma, E. J., Lobelo, F., Puska, P., Blair, S. N., Katzmarzyk, P. T., Wells, J. C. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: An analysis of burden of disease and life expectancy. *The Lancet*, *380*(9838), 219–229. https://doi.org/10.1016/S0140-6736(12)61031-9

Longmuir, P., & Oded, B.-O. (2000). Factors infuencing the physical activity levels of youths with physical and sensory disabilities. *Adapted Physical Activity Quarterly*, (17), 40–53. https://doi.org/10.1123/apaq.17.1.40

Malone, L. A., Barfield, J. P., & Brasher, J. D. (2012). Perceived benefits and barriers to exercise among persons with physical disabilities or chronic health conditions within action or maintenance stages of exercise. *Disability and Health Journal*, *5*(4), 254–260. https://doi.org/10.1016/j.dhjo.2012.05.004

Martin, J. J., & Martin, J. J. (2006). *Psychosocial Aspects of Youth Disability Sport of Youth Disability Sport, 23*, pg. 65–77.

Martin, J. J., Ph, D., & Whalen, L. (2012). Self-concept and physical activity in athletes with physical disabilities. *Disability and Health Journal*, *5*(3), 197–200. https://doi.org/10.1016/j.dhjo.2012.03.006

Nery, M. B., Driver, S., & Vanderbom, K. A. (2013). Systematic framework to 11 classify the status of research on spinal cord injury and physical activity. *Physical Medicine and Rehabilitation*, 94, 2027-2031. 13, doi:10.1016/j.apmr.2013.04.016

Rauzon, T. A. (2003). Barriers to participation in physical activity/exercise for women with physical disabilities. *Retrieved from* https://elibrary.ru/item.asp?id=5274936

Richards, J., Hillsdon, M., Thorogood, M., Foster, C. (2013). Face-to-face interventions for promoting physical activity. *Cochrane Database* Syst. Rev. 9. 10.1002/14651858.CD010392.pub2

Rimmer, JH, Rubin, SS, Braddock, D. (2000). Barriers to exercise in African American women with physical disabilities. *Archives Physical Medicine Rehabilitation*,81, 182–188. https://doi.org/10.1016/S0003-9993(00)90138-2

Savucu, Y. (2009). *Zihinsel Engellilerde Fiziksel Aktivitelerin Önemi*, *1*(2), 117-122

Schuit, A. J. (2006). Physical activity, body composition and healthy ageing. *Science & Sports*, *21*(4), 209–213. https://doi.org/10.1016/j.scispo.2006.06.004

Soares, L. L., Drummond, F. R., Lavorato, V. N., Carneiro-Junior, M. A., & Natali, A. J. (2018). Exercise training and pulmonary arterial hypertension: A review of the cardiac benefits. *Science & Sports*, *33*(4), 197–206. https://doi.org/10.1016/j.scispo.2018.02.012

Tasiemski, T., Kennedy, P., Gardner, B. P., & Blaikley, R. A. (2004). Athletic Identity and Sports Participation in People with Spinal Cord Injury. *Adapted Physical Activity Quarterly*,*21*(4),364–378. https://doi.org/10.1123/apaq.21.4.364

Taylor, H. L. (1983). Physical activity: Is it still a risk factor? *Preventive Medicine*, *12*(1), 20-24. https://doi.org/10.1016/0091-7435(83)90164-0

Te Velde, S. J., Lankhorst, K., Zwinkels, M., Verschuren, O., Takken, T., de Groot, J., & HAYS study group. (2018). Associations of sport participation with self-perception, exercise self-efficacy and quality of life among children and adolescents with a physical disability or chronic disease-a cross-sectional study. *Sports Medicine - Open*, *4*(1), 38. https://doi.org/10.1186/s40798-018-0152-1

U.S. Department of Health and Human Services. (1996). Physical activity and health: A report of the Surgeon General. Atlanta, GA: USDHHS, Centers for Disease Control and Prevention, National *Center for Chronic Disease Prevention and Health Promotion*.

Valis, J., & Gonzalez, M. (2017). Physical activity differences for college students with disabilities. *Disability and Health Journal*, *10*(1), 87–92. https://doi.org/10.1016/j.dhjo.2016.09.003

Van der Ploeg, H. P., van der Beek, A. J., van der Woude, L. H. V, & van Mechelen, W. (2004). Physical activity for people with a disability: a conceptual model. *Sports Medicine (Auckland, N.Z.)*, *34*(10), 639–649. https://doi.org/10.2165/00007256-20043410000002

Vuori,I.(1998). Does Physical Activity Enhance Health? *Patient Education and Counseling*. 33:95-103 https://doi.org/10.1016/S0738-3991(98)00014-7

Wilmore, JH., Costill, DL. (1994). *Physiology of sports and exercise.* Human Kinetics. Champaign, 309-316,423-440.