TIME FOR PHYSICAL ACTIVITY CLASSES ACCORDINGLY WITH BOLOGNA CRITERIA IN SAKARYA UNIVERSITY

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Abstract

In this study we analyzed the physical activity level of the students from different faculties in University of Sakarya to illuminate the necessity of physical activity classes especially in the faculties where the students were found to be physically inactive.

The study was performed in 970 students of different faculties in Sakarya University selected randomly in 2009. An administered questionnaire with closed questions based on other questionnaires was prepared by the authors which included demographic data as age, sex, height, weight, faculty, class level and history including medical problems, drug consumption, smoking and use of alcohol.

The normal distribution of the data was analyzed by both histograms and one sample kolmogorow - smirnow test and was found appropriate that is why for the analysis parametric significance test was used for the analysis and evaluations frequency tables, central tendency dispersion and kisquare for independent groups independence samples test and oneway anova variance analysis was used.

The results from this study raise the question about the risk factor profiles among different faculties in a University. Our study will also be one of the first comparing one major risk factor in different faculties in a University showing that major differences exist between the faculties.

Key Words: bologna criteria, Sakarya University, physical activity classes

Introduction

The physical inactivity has been one of the most important public health problems in the last several decades. The physical activities have changed and decreased as the technological improvements increased especially in the University students. Due to the early origins of cardiac diseases and the increasing prevalence of pediatric obesity, there is considerable interest in the metabolic health of youth especially focusing on obesity and physical activity (Carslon, 2008).

As cardiac disease is the no. 1 killer in the adult population of western societies and in Turkey and since the disease starts at a very early age many attempts have been made to reduce the risk factors leading to this disaster such as implementing public antismoking laws and programs for the avoidance of obesity.

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As known; risk factor means the factor leading to a specific disease such as cardiac. Among them are modifiable risk factors including cigarette smoking, hypertension, hypercholesterolemia, diabetes, obesity, unhealthy dietary habits and stress. In contrast, fruit and vegetables consumption and physical activity are protective factors(Poreba vd., 2008. So decreasing the modifiable risk factors and increasing the awareness of the protective factors especially physical activity is of utmost importance to fight with this global disaster of our century

Schools have long played an important role in providing students with healthful physical activity. However, the decline in population-level physical activity suggests that schools should play an even greater role in providing and promoting physical activity (Pate vd. 2008). Recently, the American Heart Association issued a set of recommendations that, if implemented, would position schools as leaders in helping children and youth become more physically active (Craig vd, 2003).

The role of physical activity in the primary prevention of diseases and keeping physical and mental health, the current levels and prevalence of physical activity and the other risk factors in University students; the association between physical activity and other risk factors in adolescents and the influence of physical activity on subsequent adult health and the role of physical activity for academic success have to be emphasized and addressed. First awareness should be created especially in Universities. This can be done by many strategies one of which is implementing new classes according to Bologna criteria in Universities.

In this study we analyzed the physical activity level of the students from different faculties in University of Sakarya to illuminate the necessity of physical activity classes especially in the faculties where the students were found to be physically inactive. Our aim was to improve the students' knowledge, attitudes and confidence about physical activity and health; underline the necessity to create national adolescent guidelines and a social policy to be followed up by the schools.

Material and Methods

The study was performed in 970 students of different faculties in Sakarya University selected randomly in 2009. An administered questionnaire with closed questions based on other questionnaires was prepared by the authors which included demographic data as age, sex, height, weight, faculty, class level (Table 1) and history including medical problems, drug consumption, smoking and use of alcohol.

Physical activity was evaluated by using ‘International Physical Activity Questionnaire (İPAQ)’’ which was developed between 1997 and 1998 by an International Consensus Group and showed perfect validity by a study of Craig C et L. (Ainsworth BE et al. 2000; Chen W, Lin CC, Peng CT et al 2002)

The IPAQ short last 7 days self-administered format for use with young and middle-aged adults was used evaluating the time spent being physically active in the last 7 days and the levels were categorized as follows: -Vigorous activity (days/week): amount of days per week spent for vigorous activity **vigorous** physical activities referred to activities taking hard physical effort and making one breathe much harder than normal.

-Moderate activity (days/week): amount of days per week spent for moderate activity

moderate activities referred to activities taking moderate physical effort and making one breathe somewhat harder than normal.

-Mild activity (10 min walking): Amount of days per week spent for mild activity.

-Time spent sitting.

After evaluating the amount of days per week for a special activity the time spent for each physical activity was calculated as hour and changed to minute.

Computation of the total score for the short form was made by summation of the duration (in minutes) and frequency (days) of walking, moderate-intensity and vigorous-intensity activities.

One measure of the volume of activity is to compute by weighting each type of activity by its energy requirements defined in METs to yield a score in MET–minutes. METs are multiples of the resting metabolic rates and a MET-minute is computed by multiplying the MET score of an activity by the minutes performed and a MET-minutes/week is calculated. As explained MET-minute scores are equivalent to kilocalories for a 60 kilogram person and clear definitions of Met has been made by Ainsworth BE et al (Stojanovic, et al. (2009); Craig., et al. (2003).

In our study an average MET score was derived for each type of activity as described. The following values were used for the analysis of İPAQ data: Walking = 3.3 METs, Moderate physical activity = 4.0 METs and Vigorous physical activity = 8.0 METs. Using these values, four continuous scores are defined:

Walking MET-minutes/week leisure = 3.3 x walking minutes x walking days in leisure.
Moderate MET-minutes/week leisure = 4.0 x moderate-intensity activity minutes x moderate-intensity days in leisure.
Vigorous MET-minutes/week leisure = 8.0 vigorous-intensity activity minutes x vigorous-intensity days in leisure.
Total Leisure-Time MET-minutes/week = sum of Walking + Moderate + Vigorous MET-minutes/week scores in leisure.
The IPAQ sitting question is an additional indicator variable of time spent in sedentary activity.

After evaluating each activity level as days per week, as time spent in minutes per week and as MET level, the comparison between the faculties was done by Oneway Anova and post Hoc analysis. Then each activity has been pointed and given a score and total point was calculated.

BMI was calculated with the formula from weight and height (kg/m2) (Tabel 6) and classified as <18.5 lean, 18.5-24.9 normal, 25-29.9 mild obese, 30-34.9 obez,>35 morbid obez (Ainsworth BE et al. (2000), note: the 85^{TH} and 95^{TH} BMİ percentile values of the fitter 18-year-old-students (23.7 and 25.5 kg/ m^2 for boys; 22.6 and 24.6 kg/ m^2 for girls) was found to link well with the adult cut-off points of 23 and 25 kg/ m^2, which have been recommended as the Asian criteria for adult overweight and obesity (Chen W, Lin CC, Peng CT et al (2002).

Smoking status: The subjects were classified into two categories: non-smokers (ex-smokers who had ceased smoking at least one year previously and those who had never smoked) and regular or current smokers (daily and occasional smokers).

Statistical Analysis

The data were analyzed in electronic format and SPSS 11.5 statistical analysis programme was used. The normal distribution of the data was analyzed by both histograms and one sample kolmogorow-smirnow test and was found appropriate that is why for the analysis parametric significance test was used for the analysis and evaluations frequency tables, central tendency dispersion and kisquare for independent groups independence samples test and oneway anova variance analysis was used. Because there was numeric difference and activity level difference between the faculties stratified sampling was used. After evaluating each activity level as days per week, as time spent in minutes per week and as MET level, the comparison between the faculties was done by Oneway Anova and post Hoc analysis. Then each activity has been pointed and given a score and total point was calculated.
Values >5% were considered to be significant.

Results

Of the total number of students studied, 564 (%58.1) were men, 406 (%41.9) were women with an average age of 21.67 year. Among the students % 8.7 had a medical history,%11.5 students were found to consume drugs (anti allergens mostly) %31.6 smoke and %18.7 use alcohol. Average BMİ was % 22.36.

Percentage of students according to different faculties is seen in (Table 1).

Table 1: Gender & Faculty

Specialty	Category	n	%
Gender	**Women**	406	41,9
	Men	564	58,1
Faculty	**The State Conservatory**	22	2,3
	School of Health	48	4,9
	Faculty of Science and letters	272	28,0
	Faculty of Technical education	102	10,5

	School of Physical education and sports	59	6,1
	Faculty of economics and administrative sciences	327	33,7
	Faculty of engineering	140	14,4
Class year	**Prep**	5	,5
	1st year	240	24,7
	2nd year	254	26,2
	3rd year	187	19,3
	4th year	284	29,3
Total		970	100,0

When the days per week for each level of physical activity was evaluated %16,2 of students were found to perform vigorous activity once in a week, %11.9 twice in a week, %6.7 3 times a week , %3.3 4 times a week, %1.8 5 times a week, %.6 6 times a week and %2.8 7 times a week. %56.8 however don't perform any vigorous activity in a week. %19,7 of students perform moderate activity once in a week, %10.5 twice a week, %8.4 3 times a week, %1.8 4 times a week, %2.5 5 times a week, %0.3 6 times a week, %2.1 7 times a week and %54.8 don't perform any moderate activity in a week. %53,5 of students walk 7 times in a week, %4.6 6 times/week, %14.9 5 times/week, %5.4 4 times/week, %8.1 3 times/week, %3.7 2 times/week, %2.1 once in a week and %7.6 were found not to walk for 10 min in a week.

The time spent for each level of activity per week and the METS calculated as described previously is seen in (Table 2).

Table 2: Activity level parameters (per week and as MET)

Time spent for each level of activity per week. Then the time for each activity was converted to METS as described previously

	Vigorous activity / week	Moderate activity/ week	Walking/week	Inactivity/week	Vigorous activity MET	Moderate activity MET	Walking MET	TOTAL
Mean	93,78	81,68	406,91	979,69	750,23	326,71	1342,80	2419,74
Median	,00	,00	210,00	,00	,00	,00	693,00	1386,00
Std. Deviation	258,00	217,93	808,19	1410,91	2064,01	871,73	2667,03	3901,40
Minimum	,00	,00	,00	,00	,00	,00	,00	,00
Maximum	4200,00	2940,00	18000,00	7560,00	33600,00	11760,00	59400,00	62280,00

When BMI between the students from different faculties was compared There was a statistically significant difference ($p<0.05$). However this difference disappeared when post hoc turkey test was performed (Table 3). The comparison of activity levels in different faculties is seen in (Table 4).

Table 3: BMI difference between the faculties

Faculty	n	Mean	Std. Deviation	F	P
The State Conservatory	22	21,05	3,58	3,076	,005
School of Health	48	21,81	3,39		
Faculty of Science and letters	271	22,44	3,16		
Faculty of Technical education	101	22,96	3,24		

School of Physical education and sports	59	21,53	2,88		
Faculty of economics and administrative sciences	327	22,21	3,07		
Faculty of engineering	140	22,90	3,01		

Table 4: Comparison of activity levels in different faculties

	Faculty	**n**	**Mean**	**Std. Deviation**	**F**	**P**
Vigorous activity /week	**The State Conservatory**	22	275,00	725,99	**5,753**	**,000**
	School of Health	48	59,38	129,00		
	Faculty of Science and letters	272	67,17	298,94		
	Faculty of Technical education	102	94,71	245,31		
	School of Physical education and sports	59	132,88	240,12		
	Faculty of economics and administrative sciences	327	66,57	151,29		
	Faculty of engineering	140	175,18	258,91		
Average activity/week	**The State Conservatory**	22	475,68	680,96	**15,584**	**,000**
	School of	48	85,63	135,07		

	Health					
	Faculty of Science and letters	272	52,18	142,58		
	Faculty of Technical education	102	105,93	326,40		
	School of Physical education and sports	59	143,56	253,97		
	Faculty of economics and administrative sciences	327	61,47	158,05		
	Faculty of engineering	140	79,18	151,73		
Walking/week	**The State Conservatory**	22	665,68	563,79	1,034	,402
	School of Health	48	457,25	515,79		
	Faculty of Science and letters	272	361,58	597,10		
	Faculty of Technical education	102	429,94	632,54		
	School of Physical education and sports	59	441,02	619,43		
	faculty of economics and administrative sciences	327	366,27	614,37		
	Faculty of engineering	140	500,81	1534,64		
Inactivity/week	**The State Conservatory**	22	1126,36	1102,77	**2,911**	**,008**

	School of Health	48	883,75	1323,17		
	Faculty of Science and letters	271	700,26	1185,79		
	Faculty of Technical education	102	1179,16	1459,77		
	School of Physical education and sports	59	1234,61	1471,12		
	Faculty of economics and administrative sciences	327	1093,67	1549,81		
	Faculty of engineering	140	1011,45	1422,73		

There are significant differences between the faculties regarding vigorous, moderate activity and inactivity. ($p<0,05$). No difference was observed regarding walking. The students in state conservatory were found to be more active in each activity level when compared to others. Each comparison was done by also comparing MET values with similar results. Posthoc Turkey analysis of (Table 4) was done as seen in (Table 5).

Table 5: Activity levels/week in different faculties (posthoc Turkey)

Activity level	**Compared groups**		**Difference in averages**	**P**
Vigorous activity/week	**The State Conservatory**	**School of Health**	215,63	,018
		Faculty of Science and letters	207,83	,004
		Faculty of Technical education	180,29	,042
		faculty of economics and administrative sciences	208,43	,004
	Faculty of Science and	**Faculty of engineering**	-108,01	,001

	letters			
	Faculty of economics and administrative sciences	**Faculty of engineering**	-108,60	,001
Moderate activity/week	**The State Conservatory**	**School of Health**	390,06	,000
		Faculty of Science and letters	423,51	,000
		Faculty of Technical education	369,75	,000
		School of Physical education and sports	332,12	,000
		Faculty of economics and administrative sciences	414,21	,000
		faculty of engineering	396,50	,000
	Faculty of Science and letters	**School of Physical education and sports**	-91,38	,038
Inactivity/week	**Faculty of Science and letters**	**Faculty of economics and administrative sciences**	-393,41	,012

For VIGOUS ACTIVITY/WEEK:

There was a difference between The State Conservatory and school of health, Faculty of Science and letters, Faculty of Technical education, faculty of economics and administrative sciences; between the faculty of engineering and Faculty of Science and letters and faculty of economics and administrative sciences;
For Moderate Activity/ Week;

There was a difference between The State Conservatory and school of health, Faculty of Science and letters, Faculty of Technical education, faculty of economics and administrative sciences School of Physical education and sports; between the engineering and Faculty of Science and letters and School of Physical education and sports

For INACTIVITY/WEEK:

There was a difference between Faculty of Science and letters and faculty of economics and administrative sciences each physical activity has been pointed and given a score and total point was calculated (Table 6). There is a statistically great difference in the

level of physical activity between the faculties when compared by the total point. When the vigorous activity is compared the state conservatory was more active (%54.5) followed by School of Physical education and sports (%42.4), Faculty of engineering (%40.7), Faculty of technical education (%29.4), School of health (%25), Faculty of economics and administrative sciences (%20.8), Faculty of Science and letters (%20.2).

Table 6: Total point score comparison between the faculties

	Faculties														**Total**	
	The state conserva tu-ary		**School of health**		**Faculty of Science and letters.**		**Faculty of technical education**		**School of Physical education and sports**		**Faculty of economics and administra tive sciences.**		**Faculty of enginee ring**			
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Inactivity	2	9,1	8	16,7	116	42,6	30	29,4	15	25,4	121	37,0	23	16,4	315	32,5
Moderate activity	8	36,4	28	58,3	101	37,1	42	41,2	19	32,2	138	42,2	60	42,9	396	40,8
Vigorous activity	12	54,5	12	25,0	55	20,2	30	29,4	25	42,4	68	20,8	57	40,7	259	26,7
Total	22	100,0	48	100,0	272	100,0	102	100,0	59	100,0	327	100,0	140	100,0	970	100,0

No statistically significant difference was observed between the health status and BMI, activity levels, MET and total point score ($p>0,05$).

When the total point reflecting the activity level was compared between the smoker and nonsmokers a great statistically significant difference was found. %35.5 of smokers perform vigorous activity vs %22.6 of nonsmokers; %33.9 of smokers perform average activity vs %44 of nonsmokers and %30.6 of smokers are inactive vs %33.3 of nonsmokers. However no difference was observed when comparing the students in terms of alcohol consumption and physical activity levels.

When gender comparison was made BMI was found to differ as in (Table 7). Men were found to have a higher BMI than women.

Table 7: BMI difference between the genders

Gender	n	Mean	Std. Deviation	t	p
Women	**405**	20,67	2,59	16,288	,000
Men	**563**	23,58	2,93		

When the genders were compared in terms of activity men were also found to be more active than women as demonstrated in (Table 8).

Table 8: Total point score between the genders

	Gender				Total	
	women		men			
	n	%	n	%	n	%
Inactivity	166	40,9	149	26,4	315	32,5
Moderate activity	165	40,6	231	41,0	396	40,8
Vigorous activity	75	18,5	184	32,6	259	26,7
Total	406	100,0	564	100,0	970	100,0

Discussion

The continuing modernization and technological advancement of the developing World has brought about rapid lifestyle changes which are known to have a major impact on the development of especially cardiovascular disease which is the leading cause of death in many countries and other chronic diseases. The unhealthy dietary habits (fast-food), as well as the sedentary lifestyle of the children and adolescents, are major threats to the present and future health of this vulnerable age group and are likely to make the community prone to an epidemic of chronic disease. However, prevention seems to be the most effective way to fight with the disease and since the roots are located in childhood, early detection and management of the related risk factors should begin very early (Stojanovic vd., (2009); Kocaoglu vd, (2005); Steinberger vd, (2003).

Most University students can be considered "healthy". However, some students may have many risk factors though with no symptoms. It is necessary to determine their prevalence and, if the results warrant, to carry out prevention programs aimed at reducing their frequency (Eisenmann vd, 2005).

In a study by Palomo et al (Palomo vd. 2006), cardiovascular risk factors were found in %97.2 of the students, more frequently in women (%59.7) than in men (%40.3). Most had one or two, with the following combinations being more common: smoking and a sedentary lifestyle (%16.3), hypercholesterolemia and a sedentary lifestyle (%5.8), increased BMİ and a sedentary lifestyle (%4.9), and hypertension and a sedentary lifestyle (%3.2). As seen physical inactivity accompanied most.

The second important risk factor was smoking. The 2003 NHS found that % 54.5 of young persons aged 17 to 24 years smoked. Not only should the habit of not smoking be motivated, but also the habit of not letting other people smoke in closed spaces. In our study smoking incidence was % 31.6 and in those students who smoked physical inactivity incidence was % 30.6.

In a study by Stojanovic D et al (Stojanovic, 2009) attention was drawn to alcohol consumption which was a significantly higher problem in the male population (% 18.18) than in the female one (% 2.65). In our study the incidence was % 18.7 very similar to their result.

Possibly due to physical inactivity the prevalence of overweight and the emergence of type 2 diabetes in children and adolescents have increased over the past few decades (Eisenmann JC. 2004). There is an increasing amount of data showing that being overweight during childhood and adolescence is significantly associated with insulin resistance, dyslipidemia, and elevated blood pressure in young adulthood (Steinberger vd, 2003). In a study by (Dimkpa vd, 2009) in both genders, BMI was found to show significant correlations with blood pressure.

In different studies there are different results regarding obesity in girls and boys. In a study by Bovet P. Et al. the prevalence of overweight (including obesity) was %11.2 in boys and % 17.5 in girls (Bovet vd, 2007). (14). In another study (Mota vd. 2006), the prevalence of overweight (% 30.5 vs. %29.1) and obesity (% 13.2 vs. % 12.6) was at the same magnitude for boys and girls. In the study by Stojanovic D et al (Stojanovic, 2009). The prevalence of obesity (body mass index - bmi > 30 kg/m2) was significantly higher in the male (% 7.27) than in the female population (%1.32). Abdominal obesity was also more frequently encountered in the male (%9.09) than in female population (%1.32). In our study also men were found to have a higher BMI than women.

In one interesting study by Brandao MP et al hypercholesterolemia was found in %17.7 of the students and hypertension in %13.7 of males and %3.5 of females. And also the prevalence of hypercholesterolemia among health sciences students was found higher than in technical and natural sciences (%20.2 vs. %13.7). It is not surprising that a high prevalence of physical inactivity was also found. Regarding physical activity, it is well established that higher levels of physical activity are associated with better cholesterol profiles in both children and adolescents (Brandao, 2008).

The results from this study (Brandao, 2008) raise the question about the risk factor profiles among different faculties in a University. Our study will also be one of the first

comparing one major risk factor (as physical inactivity) in different faculties in a University showing that major differences exist between the faculties.

The possible tracking of cardiovascular disease risk factors from childhood to adulthood makes it important to increase our understanding of the complex relationships between physical activity, cardiorespiratory fitness and cardiovascular risk factors early in life (Hurtig, 2007). Physical activity becomes more important in the 15-year-old adolescents, indicating that these modifiable lifestyle factors increase in importance with age.

In a study by Ekelund U et al (Ekelund, 2006) physical activity was independently and inversely associated with systolic and diastolic blood pressure, fasting glucose, insulin and triglycerides. Physical activity was also significantly and inversely associated with the clustered risk score, independently of obesity and other confounding factors.

In a study by Stojanovic D et al (Stojanovic, 2009). Physical inactivity was more often found in the female students (%65.56), than in male ones (%36.36). İn our study Inactive women were found as %40.9 and inactive men as %26.4 (Table 8). The 2003 NHS found that %82.2 of the young persons aged17 to 24 years had a sedentary lifestyle (Palomo, 2006).

In one study a comment was made regarding that this gender differentiation in physical activity levels should not be attributed to physiological differences between the two sexes but to social and cultural beliefs of parents and teachers as to the types of activities appropriate for boys and girls (Kocaoglu, 2005). The parents should be aware of the adequate physical activity which is activity done regularly at least 3 times in a week lasting for 30-45 minutes and letting the heart rate to reach %50-75 of proposed maximum heart rate for that person (Hillsdon, 2002).

In a study by Kelishadi R. Et al (Kelishadi, 2007), (20) an association between physical activity and the metabolic syndrome, which was independent of body mass index and age was found which indicates that inactivity may lead to diabetes necessitating encouragement of not only teenagers but also children to have greater physical activity.

Promoting fitness by increasing opportunities for physical activity during physical exercise, recess, and out of school time may also support academic achievement which is an extra bonus of physical activity (Chomitz vd. 2009; Kwak vd. 2009).

As mentioned before our study is one the first comparing a risk factor in different faculties in a University. In another study by Brandao Mp. Et al (Brandao vd, 2008), it was found that human and social sciences was the area with the highest prevalence of risk factors for non-communicable diseases (%38.1). İn another study performed among medical students (Fiala vd, 1996), the most prevalent risk factors were low physical activity (%79 females and %75 males), imperfect nutrition (approx %45 females and %65 males), increased level of blood cholesterol (%33 females and %47 males), overweight and obesity (%30 females and %45 males), excessive alcohol intake (%3 females and %30 males), increased blood pressure (%19 females and %31 males) and smoking (%22 females and % 27 males).

The high prevalence of risk factors for cardiovascular disease in higher education highlights the need for nutritional and health promotion programs, emphasizing the harmful effects of sedentary behavior.

Due to Bologna criteria which are strictly applied in Sakarya University we propose new classes in Universities. The course objective of such a class will be to cover the basic theoretical knowledge related to health, the effect of exercise programs for health and the development and application of basic exercise types for individual student. The course content may include basic health care and information transfer and practical description of exercise benefits. The course learning outcomes will include 1) recognition of human body organs and systems 2) follow up the proceedings about the benefits of exercise 3) preparation and implementation of different exercise types 4) explanation of the importance of sport in academic achievement and explanation of the importance of exercise in physical and mental wellbeing. It should be kept in mind that the situation regarding to be healthy physically and mentally in today's university students are especially poignant, as it is they who will be taking the future decisions in this country.

Conclusion

More attention should be paid to increasing physical activity and as a result increasing physical and mental health in youth and improve the public school students' knowledge, attitudes and self-efficacy about healthy nutrition and physical activity behaviors.

In order to improve the present epidemiological situation-for obesity and diabetes-which is alarming in our country it is necessary to include problems of preventive medicine in teaching programs in Turkish Universities.

It is necessary to motivate preparing a web-based goal setting and tracking protocol throughout the school year which can be done by classes prepared according to Bologna criteria and motivate preparing.

National guidelines and physical fitness data specific for Turkish youth. All these will help the public health authorities to develop effective strategies, which will efficiently tackle these health issues early in life. It seems necessary that in the governmental sphere, with the participation of Ministries such as those of Health and Education, political decisions are taken that, together with the anti-smoking law, lead to advances in a healthy lifestyle.

In this aspect the instructors in Universities should be aware of the burden of this responsibility.

REFERENCES

Ainsworth BE et al. (2000). Compendium of physical activities: an update of activity codes and MET intensities. *Medicine,* 32(9):498-504.

Bovet P, Auguste R, Burdette H. **(**2007). Strong inverse association between physical fitness and overweight in adolescents: a large school based survey İnt J Behav Nutr Phys Act jun 5; 4:24

Brandao Mp, Pimentel Fl, Silva Cc et al **(**2008). Risk factors for cardiovascular disease in a Portuguese University Population. Rev port cardiol jan; 27(1):7-25.

Carlson JJ., Eisenmann JC., Pfeiffer KA et al. (2008). Partners for heart health: a school based program Enhancing physical activity and nutrition to promote cardiovascular health in 5th grade students, *BMC Public Health*, 22 (8):420.

Chen W, Lin CC, Peng CT et al (2002). Approaching healthy body mass index norms for children and adolescents from health related physical fitness Obes Rev 3(3):225-32.

Chomitz Vr, Slining Mm, Mcgowan Rj Et Al. (2009). İs there a relationship between physical fitness and academic achievement? Positive results from public school children in the Northeastern United States J Sch Health jan; 79(1): 30-7.

Craig C., Marshall, A; Sjöström Michael et al. (2003). Basic Sciences: Epidemiology İnternational Physical Activity Questionnaire: 12-Country Reliability and Validity Medicine & Science in Sports & Exercise: August; 35(8) pp. 1381-1395.

Dimkpa U,Oji JO. **(**2009) Relationship of body mass index with haemodynamic variables and abnormalities in young Adults. Hum hypertens sep 10

Eisenmann JC. **(**2004) Physical activity and cardiovascular disease risk factors in children and adolescents: an Overview. Can J Cardiol 1;20(3):295-301.

Eisenmann JC, Wickel EE, Welk GJ et al **(**2005). Relationship between adolescent fitness and fatness and cardiovascular disease risk factors in adulthood: the aerobics center longitudinal study(ACLS) American Heart Journal;149(1): 46-5.

Ekelund U, Brage S, Froberg K Et Al. **(**2006). TV viewing and physical activity are independently associated with metabolic risk in children: The European youth heart study. Plos med 2006 dec; 3(12):e488.

Fiala J, Brazdova Z. (1996). Know and improve your health: Symbiosis of preventive project and preventive medicine education at the medical faculty in brno. Cent Eur J Public Health 4(4):257-6

Hillsdon M, Thorogood M, White İ et al. (2002). Advising people to take more exercise is ineffective: A randomized controlled trial of physical activity promotion in primary care. İnt J of Epidemiol.31:808-15.

Hurtig Wennlöf A, Ruiz Jr, Harro M Et Al. **(**2007). Cardiorespiratory fitness relates more strongly than physical activity to cardiovascular disease risk factors in healthy children and adolescents: the European youth heart study Eur J Cardiovasc Prev Rehabil aug; 14(4):575-81.

Kelishadi R, Razaghi Em, Gouya Mm et al (2007). Association of physical activity and the metabolic syndrome in children and adolescents: Caspian study Horm; 67(1):46-52.

Kocaoglu B, Moschonis G, Dimitriou M et al. (2005). Parental educational level and cardiovascular disease risk factors in school children in large urban areas of Turkey: directions for public health policy, *BMC Public Health*, 5:13.

Kwak L, P J Kremers S, Bergman P Et Al. (2009). Associations between physical activity, fitness and academic Achievement J Pediatr jul 28.

Mota J, Flores L, Ribeiro Jc Et Al. **(**2006). Relationship of single measures of cardiorespiratory fitness and obesity in young schoolchildren Am J Hum Biol may-jun; 18(3):335-41.

Pate RR, O'Neill JR. (2008). Summary of the American heart association scientific statement: promoting physical activity in children and youth: a leadership role for schools. J Cardiovascular Nurse, jan-feb; 23(1):44-9.

Poreba R, Gac P, Zawadski M et al. (2008). Life style and cardiovascular risk factors among students of Wroclaw Postgraduate schools. *Pol Arch Med* Wevn mar; 118(3):102-10.

Steinberger J, Daniels SR. (2003). Obesity, insulin resistance, diabetes, and cardiovascular risk in children. *Circulation*,107:1448.

Stojanovic D, Visnjic A, Mitrovic V et al. (2009). Risk factors for the occurrence of cardiovascular system disease in students. Vojnosanit Pregl jun; 66(6):453-8.

Palomo I, Torres G,Alarcon M et al. **(**2006) High prevalence of classic cardiovascular risk factors in a population of university students from south central Chile. Epidemiology and prevention volume 59 issue 11 November.