

## Physical Activity Profile of Adolescence in the State of Qatar

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### Abstract:

**Objectives:** To assess the physical activity and inactivity behaviors among secondary school adolescents in the state of Qatar.

**Methods:** Self administered questionnaires were filled out by 1232 randomly selected students aged 15 – 18 years, during March and April 2012.

**Results:** The prevalence of inactivity (< 1 times/wk) was ranged from 9.3 to 42 % among different type of activities, while the prevalence of active adolescents ranged from 1% to 12% among different type of activities. The sedentary behaviors which measured by total screen time was 65 % which indicates high prevalence rate of inactivity according to (AAP) recommendations. Mean of Body Mass Index (BMI) was 25.5 kg/m<sup>2</sup> and 23.9 Kg/m<sup>2</sup> for males & females respectively. Walking and / or running was the most participated by adolescents (76 %) while self defense exercise was the lowest participated activity (16%). The highest proportional of adolescents were took part activities either alone 28.8 % or with friends 27.8 %, the most reason for being physically inactive was lack of time 62.5%. All type of activities participated were lower among females than males except home works (gardening, floor cleaning and car washing).

**Conclusion:** Qatari adolescents are more likely to be inactive due to lack of time , suitable place & / or facilities as well as lack of awareness about health benefits of exercise, so, Health Care Provider hand by hand with schools teacher have a vital role in promoting physical activity among adolescents in the state of Qatar.

**Keywords:** Physical activity, sedentary behaviors, Dietary habits, Lifestyle factors, Adolescents.

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Physical activity is defined as any bodily movement produced by skeletal muscles that result in energy expenditure above basal level (1, 2). Regular physical activity has long been associated with a wide range of physical activity and mental health benefits (2 - 10). On the other hand, physical inactivity has been considered (3, 5, 6, 11 -13) one of the coronary artery disease (CAD) risk factors.

It appears that physical activity & fitness are considered important components of public health measures (14). Many scientific, medical and public health organizations around the world have issued position statements on physical activity & human health & well being (2, 6, 8, 10, 11, 15).

According to the World Health Organization (WHO) Report 2002, the most important risks of Non Communicable Diseases (NCDs) included high blood pressure, high concentrations of cholesterol in the blood, inadequate intake of fruit and vegetables, being overweight or obese. Physical inactivity and tobacco use (16). Five of these risk factors are closely related to diet and physical activity. Thus, it is well recognized that diet and

Several researches have suggested that School Physical education (PE) programs and community recreation facilities are needed (33). Globally, non communicable diseases (NCDs) are the leading causes of death, killing more people each year than all other causes combined (34). Indeed, recent research findings have shown that television (TV) viewing (Sedentary activity) and physical activity appear to be separate entities and are independently associated with obesity and metabolic risk (35).

Qatar as other Eastern Mediterranean countries has tremendous life style are becoming particularly prevalent among Qatari children and youth. Data from a limited number of studies indicate that 60 % of Saudi children and 71 % of young people do not engage in physical activity of sufficient duration and frequency (36, 37). Due to lacking of such researches among Qatari adolescents, this paper presents finding on the physical activity profile of Qatari adolescence.

## 1. METHODS

Questionnaire method was used in collecting information regarding physical activity pattern of adolescence in the state of Qatar. This method is considered most appropriate in large scale population studies, (38, 39). Extensive details on physical activity habits including type, frequency, duration and intensity were including in the questionnaire.

A multistage statistical random-sampling technique was used to select the sample. At the first stage, a systematic random sampling procedure was used to select the schools. The schools were stratified into boys and girls secondary schools, with further stratification in to public and private schools.

At the second stage, classes were selected at each grade (level) using simple random-sampling design. In this way, one third of sections were randomly selected in each of the three grades (grades 10, 11, 12) from each secondary school. Thus, we had a total selection of at least 57 classes (29 boys and 28 girls). All students in the selected classes, who were free of any physical health problems, were invited to participate in the study. The data were collected during March and April 2012. The study protocol was approved by the Research Committee at Hamad Medical Corporation as well as the Higher Supreme of Education in the State of Qatar.

In addition, all the schools and students consented to involvement in this study. The total sample size consisted of 1232 adolescents.

## 2. ANTHROPOMETRIC MEASUREMENTS

Body weight and height were measured in the morning by a trained researcher according to written standardized procedures. Body weight was measured to the nearest 100 gm using electronic portable scales. Measurements were done with school uniform and without shoes. Height was measured to the nearest active is to maintain health (35 %) table 3. While the most reasons for being physically inactive was lack of time (62.5 %), no suitable place (9.9 %), hesitate from others (6.3 %) and not satisfied with exercise benefits (5.9 %) table 4. Further analysis of the data indicated that physical activity of all types was lower among females than males except homework's (gardening, floor cleaning and car washing).

The results indicate that, there is a significant difference between the intensity of all types of activity. The intensity of each activity was categorized as inactive for those who are didn't do any activity, moderately active (1-4 times / week) and active ( $\geq 5$  times / week). Table 2. 41% and 40% of participants watched TV and used computer for more than 2 hours per day respectively, as a combination, the time of viewing TV and using computer more than 2 hours per day were found in 65 % of the subjects, that means only 35% of Qatari adolescents met the recommended screen time guidelines of 2 hours or less per day.

**Table1.** Descriptive Charecteristics of Subjects (n = 1230)

Variable	Male N Mean $\pm$ 5 D	Female N Mean $\pm$ 5 D	P - value
Age (Yrs)	625 16.45 $\pm$ 0.95	602 16.18 $\pm$ 1.00	< 0.001
Weight (Kg)	627 73.3 $\pm$ 22.07	603 59.7 $\pm$ 15.17	< 0.001
Height (Cm)	627 169.09 $\pm$ 7.08	603 157.97 $\pm$ 6.31	< 0.001
BMI (Kg/m <sup>2</sup> )	627 25.56 $\pm$ 7.30	603 23.89 $\pm$ 5.65	< 0.001
W C (Cm)	625 78.14 $\pm$ 15.33	603 73.82 $\pm$ 11.56	< 0.001
WHR	627 0.46 $\pm$ 0.09	603 0.46 $\pm$ 0.02	0.432

Physical activities play important roles in maintaining health and preventing diseases (17). Adolescent over weight is a major U S public health problem, with prevalence rates increasing for children and adolescents, (18). Inactivity and activity are important biological determinants of obesity & represent major avenues for treating and preventing obesity (19, 20, 21). Physical activity has been associated with a wide range of beneficial health outcomes in adults, including bone and cardiovascular health & reduction of selected cancers (22). Inactivity, in particular, TV viewing, has been associated with obesity in cross – sectional studies of children, adolescents and adults (23). Physical activity habits, and specially, inactivity, track significantly from adolescence to young adult hood (24).

The physical activity literature has examined environmental determinants such as school and community sports and home access to fitness equipment (25,26) perceived physical environments (27), outdoor play spaces (28) , time spent outdoors (29,30) , exercise opportunity(31), and "an environment that promotes excessive food intake and discourages physical activity (32).

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Centimeter using a calibrated measuring role while the subject was in a full standing position without shoes. Body Mass Index (BMI) was calculated as the ratio of weight in kilograms divided by the height squared in meters and waist circumference was measured at level midway between the lowest lateral border of the ribs and the uppermost lateral iliac crest using a tape measure, to the nearest 0.5 cm with the subject standing and following normal expiration.

The research instruments used for the collection of lifestyle information, including the first five items that researcher had to measure and record. These items included age, weight, height, waist circumference and the students' level of study. Items 6 to 34 dealt with physical activity. Items 35 to 37 were questions on sedentary activity.

The participants completed the questionnaire in their class rooms under the supervision of their teachers and in front of at least one of the research members. The questionnaire was designed to collect information on frequency, duration and intensity of a variety of light, moderate and vigorous-intensity physical activities during a typical week. The physical activity questionnaire covered such as domains as transport and household, fitness and sports activities.

Sedentary activities, including time spent watching TV, playing video games, and computer use. Participants were asked to provide the average number of daily hours without differentiating between weekdays and weekends.

For the total screen time cut off points, we used the American Academy of Pediatrics guidelines of a maximum of 2 hours per day (40).

### 3. STATISTICAL ANALYSIS

Data was analyzed using the SPSS statistical program, Chi-square ( $\chi^2$ ) tests were performed, and follow up tests were conducted as needed using the cross tabs procedures. Significance level at 0.05 was used.

### 4. RESULTS

1230 Subjects were included in this study 51 % of them were males & 49 % were females with a mean age of 16 years of both gender, while the mean weight 73.3 and 59.7 kg for males & females respectively. While BMI mean was 25.5 kg/m<sup>2</sup> for males & 23.9 kg/m<sup>2</sup> for females and it was 78.1 cm & 73.8 cm for WC among male & female respectively. Overall, males were taller, heavier and had significantly heavier mean BMI value than females.

**Table2.** Type of Physical Activity among Qatari Adolescence:

Type of Exercise	Sex	Activity Level			P - Value
		Inactivity < 1 time /week	Moderately Active 1 – 4 times /week	Active ≥ 5 times /week	
Walking & or Running n = 1230	M	114 (9.3)	365 (29.7)	147 (12.0)	< 0.001
	F	176 (14.3)	356 (28.9)	72 (5.8)	
Bicycle n = 1230	M	380 (30.9)	191 (15.5)	56 (4.5)	< 0.001
	F	416 (33.8)	169 (13.7)	18 (1.5)	
Swimming n = 1230	M	356 (28.9)	236 (19.2)	35 (2.8)	< 0.001
	F	456 (37.1)	135 (11.0)	12 (1.0)	
Volley ball & bowling n = 1229	M	157 (12.8)	380 (30.9)	89 (9.7)	< 0.001
	F	274 (22.3)	298 (24.2)	31 (3.7)	
Foot ball, basket ball and hand ball n = 1227	M	193 (15.7)	336 (27.4)	96 (7.8)	< 0.001
	F	379 (30.9)	207 (16.9)	16 (1.2)	
Self defense: Judo, Karate, Taekwondo n = 1224	M	499 (40.6)	90 (7.7)	33 (2.7)	< 0.001
	F	526 (42.8)	64 (5.2)	12 (1.0)	
Body building n = 502	M	162 (32.3)	112 (22.3)	26 (8.8)	< 0.001
	F	161 (32.1)	18 (3.6)	5 (1.00)	
Home work: Gardening, Cleaning, Car washing n = 721	M	277 (22.5)	281 (22.9)	68 (5.5)	< 0.003
	F	231 (18.8)	283 (23.0)	89 (7.3)	

Physical characteristics of the subjects are shown in Table1. The type of physical activity most participated by adolescents was walking and / or running (76%), volleyball and bowling (64%), gardening and home work (58 %), Soccer (53 %), Bicycle and body building (35 %), Swimming (34 %) and self defense (16 %), table 2. Furthermore, most of the adolescents took part in activities either alone (28.8 %) or with friends (27.8 %), while the lowest activity was took with parents (2.8 %). The most important reason for being physically.

**Table3.** Most important reasons for being physically active among Qatari Adolescence (n = 1221)

Reason	n	Percentage
Maintaining Health	369	30.2
Losing Weight	284	23.3
To meet friends	61	05.0
For competition	95	7.8
Other reason	158	12.9
Multiple reasons	254	20.8

**Table4.** Most important reasons for being physically inactive among adolescence in Qatar (n = 1224).

Reason	n	Percentage
Lack of time	765	62.5
Not satisfied with exercise benefits	72	5.9
No suitable place	121	9.9
Hesitate from others	77	6.3
Other reasons & Multiple reasons	133	15.4
<b>Total</b>	<b>1224</b>	<b>100%</b>

## 5. DISCUSSION

Current recommendations from different document (6, 8, 15) have all recommend for at least 30 min or more of moderate intensity physical activity, on most, preferably all, days of the week. However, the finding of this study shows a high prevalence of inactivity among randomly selected Qatari adolescents. The prevalence of inactivity (do not exercise) ranged from 23.6 % to 83.7% for different types of activities falls below the current recommendation. While the prevalence of active adolescence (5 or more times / week) was ranged between 4.4 to 17.8 among different types of exercise. According to American Academy of pediatrics (AAP) recommendations of screen viewing 2 hrs or less only 35 % of Subjects were met these recommendations per day as definition for inactivity. This finding indicates that there is a need to reduce the time spent by adolescence on TV watching and computer use. This finding is better than the finding among Saudi adolescents which shows 16 % of males & less than 11 % of females were met the AAP recommendations on daily screen time (41). The prevalence of sedentary behaviors found in the present study among Qatari adolescents was remarkably high. The American Academy of Pediatrics (AAP) has expressed concern about the amount of time that children and adolescents spend viewing TV and has issued guidelines recommending that screen time not exceed 2 hours per day (42). The study shows that prevalence of 2 - hrs or more TV watching and computer use among Qatari adolescents was 49 % and 39.9% respectively, this result nearly the same with what was reported among Chinese boys & girls aged 13 – 18 years 44.3 % and 34.7 % respectively (43). While it is less than the prevalence of total screen time 2 hrs or more among Canadian youth 82 % of girls & 86 % of boys (44). The prevalence of watching TV more than 2 hours (49%) was the same of which reported by Finns (48%) and (44%) among adolescents boys and girls respectively (45). The finding of this study have also indicated that around half of the samples were inactive due to lack of time and suitable space. Thus public policies and governmental efforts are needed to initiate and restructure physical and social environment to encourage active living and discourage sedentary habits among Qatari adolescents.

Researches on physical activity revealed that inactivity is a strong risk factor for coronary heart disease (CHD) as the 3 commonly accepted CHD risk factors, namely hypertension, hypercholesterolemia and cigarette smoking. Finally, new policies and legislative efforts are needed to encourage active lifestyle and discourage the sedentary habits. Higher supreme of education as well as health care provider has an important role to play in promoting physical activity among Secondary School Children in the state of Qatar.

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