

Measuring the level of physical activity among students of Technical Institute of Mosul 2018

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Abstract :

Background: Because of the importance of physical activity, countries , organizations and even researchers try to construct standards to compare results with and study physical activity continuously.

Aim: To establish whether or not Iraqi students participate in enough physical activity to gain health benefit.

Materials and methods: The study was conducted on a sample of 2000 subjects from the second-year students at the Technical Institute/Mosul for the study of physical activity. The information gathered using a predesigned questionnaire.

Results: The age group (21-23) year was the most frequent in the study cohort forming 58.8% of the total sample size. Male and female percent was close, giving 50.3% and 49.7% respectively. Of the total, 77.3% were from urban area, while 22.7% were from rural areas and majority (86.5%) of the sample were single. Non-smokers form 78.3% of the studied sample, which gives the good indicator. It was found that approximately 26% of the effort is high for 1 and 2 days and the time of the high activity / minute concentrated at 30 and 60 minutes and 22.5%. In the same context, the frequency of a moderate effort (1 and 2 days) was the highest and form approximately 31% as well as for the time of moderate activity/min. More than 75% were walking during (5 and 7 days) per week. Walking time/min was about 60, 30, 20, 120 and 36.1, 19.1, 9.5 and 7.2%, respectively.

Conclusion: The prevalence of physical activity among students was high and more among female students .

Key words: Students , Physical activity , Harm reduction .

Introduction :

Because of the importance of physical activity, countries , organizations and even researchers try to construct standards to compare results with and study physical activity continuously. Most intervention studies used supervised programs of moderate to vigorous physical activity of 30 to 45 minutes durations 3 to 5 days per week [1]. The panel believed that a greater amount of physical activity would be necessary to achieve similar beneficial effects on health and behavioral outcomes in ordinary daily

circumstances (typically intermittent and unsupervised activity). WHO considered normal sex and social-manufactured sexual introduction team up to convey differential threats and shortcoming to wiped out prosperity, and differences in prosperity searching for direct and prosperity results for women and men.[2] Despite no matter how you look at it affirmation of these qualifications, prosperity examine has as of recently, when in doubt, fail to address both sex and sexual introduction sufficiently. Then WHO, focused essential aversion of non-communicable diseases (NCDs) through physical action at populace level, and the essential target group of onlookers for these recommendations are strategy creators at the national dimension. It audits and accumulates logical proof for the accompanying results: malignant growth, cardio-respiratory, metabolic, musculoskeletal and practical wellbeing.[3]. The proposals set out in this archive address three age gatherings: 5-17 years of age; 18-64 years of age; and 65 years of age or more). Tries composed toward the basic expectation of cardiovascular disease in youth masses have regularly based on the difference in prosperity rehearses, for instance, physical development, dietary affirmation, and cigarette smoking. After five years ,Who [4], showed the intensity of physical activity categories as[10]:

- a. High-intensity activity: defined as the activity which causes large increases in breathing or heart rate, and sweating for at least 10 minutes continuously.
- b. Moderate-intensity activity: defined as the activity which causes small increase in breathing for at least 10 minutes continuously.
- c. Low-intensity physical activity: the remaining respondents who were not included in the previous categories were considered belonging to this category. The critical doubts for the strategy for thinking behind youth prosperity headway have been that (i) an explicit degree of children and youngsters are at wealth physiological and social peril; (ii) physiological risk factors track from immaturity into adulthood; (iii) the enhancement of physiological danger factors depends, all things considered, on the beginning of prosperity exchanging off practices, (for instance, poor eating and physical activity penchants, and cigarette smoking); and (iv) basic evasion can be cultivated through the difference in practices known to be related to physiological peril factors before benchmarks of lead are more. While U.S. grown-ups revealed 324.5 ± 18.6 minutes/week (MSE) of moderate physical movement and 73.6 ± 3.9 minutes/seven day stretch of vivacious physical action, in spite of the fact that accelerometer gauges were 45.1 ± 4.6 minutes/seven day stretch of moderate physical action and 18.6 ± 6.6 minutes/seven day stretch of incredible physical action. The extent of grown-ups meeting the PAGA (Physical Activity Guidelines for Americans) as per M2VPA (moderate plus two instances of vigorous physical activity) was 62.0% for self-report and 9.6% for accelerometer.[5]. Pate et al [6], attempted to support expanded investment in physical movement among Americans of any age by issuing a general wellbeing suggestion on the sorts and measures of physical action required for wellbeing advancement and sickness counteractive action. An examination is presented of how regular physical activity can maintain functional abilities, well-being, and independence in the older person [7]. Canadian Physical Activity Guidelines for Children (matured 5– 11 years), Youth (matured 12– 17 years), Adults (matured 18– 64 years), and Older Adults (matured ≥ 65 years). The new rules incorporate an introduction to give setting and explicit rules to each age gathering [8]. Warburton et al [9], affirm that there is undeniable proof of the adequacy of ordinary physical

movement in the essential and optional counteractive action of a few endless infections (e.g., cardiovascular illness, diabetes, malignant growth, hypertension, weight, sorrow and osteoporosis) and sudden passing . This study was conducted to establish whether or not Iraqi students participate in enough physical activity to gain health benefit.

Materials and methods

The study population included 2000 students from the Technical Institute in Mosul. Questionnaires were conveyed to the understudies of the second stage at the which incorporated all portions of society and diverse strata and the different populace dissemination. The questionnaire designed to gather the following variables: age, gender, place of residence, marital status, smoking, high daily activity, high / minute exercise time, days of moderate activity, moderate activity / min time, days of daily walking during week, daily walking time / min, and seating time / min. All the forms were returned, arranged, tabulated and entered into the Excel program and the data was then entered into the Statistical Package for Scientific Search. The statistical analysis of the data was done to find out the frequencies and percentages of the studied cases. Then, the Crosstab analysis was conducted to measure the composition of each variable by the presence of the other variable under study with a focus on variables (age and gender) and measuring the other variables accordingly. Finally, correlation analysis was used to determine the effect of each variable on the other variable. The results are presented in tables for the purpose of studying and discussing the cases under study. The study protocol was approved by the Ethical Committee of the Technical Institute and Nineva Health Directorate and informed consent taken from each subject before their enrolment in the study.

Results

Age

From Table (1), the most frequent age group was 21-23 years forming nearly 59% of study population, followed by the age group of 18-20 years which form 28.5%. This is a normal distribution because of age-matched to Institute requirements.

Table 1. Frequency Distribution of Students According to Age Groups

Age group	Number	Valid Percent	Cumulative Percent
18-20	569	28.5	28.5
21-23	1176	58.8	87.3
24-26	230	11.5	98.8
27-29	22	1.1	99.9
30 +	3	0.2	100.0
Total	2000	100.0	

Gender

There was a similarity in percentages for the male and female as shown in Table (2). This is an excellent indicator to obtain results for more accuracy. Male percent was a little more than female forming 50.3% and 49.8% respectively.

Table 2. Frequency Distribution of Students According to Gender

Gender	Number	Valid Percent	Cumulative Percent
Male	1005	50.3	50.3
Female	995	49.8	100.0
Total	2000	100.0	

Residence

More than 77% of students were from urban areas, while about 23% were from rural areas, Table 3.

Table 3. Frequency Distribution of Students According to Residence

Residence	Number	Valid Percent	Cumulative Percent
Urban	1546	77.3	77.3
Rural	454	22.8	100.0
Total	2000	100.0	

Marital status

From Table (4), single students were with high frequency (86.5%), and 13.2% were married. This Leads to expecting good ability to be more active through the day .Other cases were very small and can be neglected.

Table 4. Frequency Distribution of Students According to Marital Status.

Marital status	Number	Valid Percent	Cumulative Percent
Married	263	13.2	13.2
Single	1729	86.5	99.6
Widowed	4	0.2	99.8
Divorced	4	0.2	100.0
Total	2000	100.0	

Smoking status

As shown in Table (5), nonsmokers were nearly four times higher than smokers whereas the percent of each was 78.3 and 21.7% respectively. This result is encouraging as compared with other societies especially youth and students.

Table 5. Frequency Distribution of Students According to Smoking Status

Smoking status	Number	Valid Percent	Cumulative Percent
Smoker	434	21.7	21.7
Nonsmoker	1566	78.3	100.0
Total	2000	100.0	

Physical activity variables**Days of a person's high effort:**

The results showed that approximately 65% of the sample do not exert high activity throughout the week, while 25.75% was with the effort within one day or two days, Table 6. As for males and females, the percentage of males and females who did not exert high effort was 58.0% and 72.56%, respectively. When comparison performed according to age of the respondents, the age group 21-23 years remained the highest among the other groups to perform a high effort during the week, whether the data analysed in relation to gender or total sample.

Table 6. Frequency Distribution of Activity Number in Students

Activity number	Number	Valid Percent	Cumulative Percent
0	1308	65.4	65.4
1	362	18.1	83.5
2	153	7.7	91.2
3	79	4.0	95.1
4	23	1.2	96.3
5	33	1.7	97.9
6	12	0.6	98.5
7	30	1.5	100.0
Total	2000	100.0	

High activity time/minute

Continuing the results, the time of the high activity/minute effort was the same as in "Days of a person's high effort". The proportion of those who did not exert a high effort was 67.2% . The time (60 min.) was more repeated followed by (30 min.) with 16.1% and 6.4% respectively, Table7. This indicates that there is a weak physical activity (inactive) in this sample.

Days do moderate activity

High proportion of the study sample not answered this question, Table 8. In the analysis of the remaining data, the path was as in the high activity variable, i.e, the activity was concentrated in the field (one day and two days), the percent was 17% and 13.9% respectively. This does not mean that there is no moderate effort in the rest of the week but less frequently.

Table 7. Frequency Distribution of Students According to High Activity Time/Min.

Activity time/min	Number	Valid Percent	Cumulative Percent
0	1343	67.2	67.2
5	2	0.1	67.3
10	13	0.7	67.9
15	15	0.8	68.7
20	55	2.8	71.4
25	1	0.1	71.5
30	127	6.4	77.8
40	3	0.2	78.0
45	4	0.2	78.2
60	322	16.1	94.3
90	7	0.4	94.6
120	76	3.8	98.4
150	1	0.1	98.5
180	10	0.5	99.0
240	8	0.4	99.4
300	6	0.3	99.7
360	1	0.1	99.7
420	2	0.1	99.8
480	3	0.2	100.0
720	1	0.1	100.0
Total	2000	100.0	

Time to do moderate activity time/minute

Table (9) shows that the time (60 minutes) is the most frequent and therefore the percentage is higher than the rest of the time giving 19.9% followed by the time (30 minutes) with 11.4%. Other times were differ but with low levels as compared to 60 and 30 min.

Walking/days

As expected, and in line with the location of the Technical Institute in Mosul and the need for students to walk to reach their study sites, the number of walking days for the whole sample was high, especially in the category (5 days) followed by repetitions (7 days), noting that those who did not specify their answers were very few compared to total number of sample, Table 10.

Seating time/minute

Seating time, 300 , 360 and 480 minutes were the more frequent, Table(12) giving a percentage of 19.5%, 18.2% and 10.2% respectively. Furthermore, the seating time was very little especially those less than 10 min. Other seating times were with more differences and sporadically, Table12.

Table 8. Frequency Distribution of Students According to Moderate Activity/Days

Activity number /day	Number	Valid Percent	Cumulative Percent
0	956	47.8	47.8
1	277	13.9	61.7
2	339	17.0	78.6
3	133	6.7	85.3
4	54	2.7	88.0
5	110	5.5	93.5
6	28	1.4	94.9
7	103	5.3	100.0
Total	2000	100.0	

Walking time/minute

It is noted from Table (11) that the most frequent walking time is walking for 60 minutes, walking for 30 min, and walking 120 minutes forming 36.1%, 19.2% and 7.2% respectively. This indicates that there is a little activity throughout the day especially walking whereas the distance to classes in the institute forces students to walk at least 20 minutes to reach .

High activity/day according to sex and age

There was a high proportion of the sample that who did not have an answer to the question of this variable. In the analysis of the remaining data, the path was as in the high activity variable, i.e, the activity was concentrated in the field (one day and two days). The ratio of males and females and the total of this field was 58.8%, 59.2% and 59% respectively. This does not mean that there is no moderate effort in the rest of the day but less frequently, Table 13.

Days Moderate activity/day according to sex and age

There was a high proportion of the sample who did not answer the question of this variable. In the analysis of the remaining data, the path was as in the high voltage variable, i.e, the activity was concentrated in the field (one day and two days) and the length of the study. The ratio of males and females and the total of this field was 58.8%, 59.4% and 64.4% . This does not mean that there is no moderate effort in the rest of the day but less frequently, Table 14.

High activity time/min. according to sex and age :

Table (15) shows that the time (60 minutes) is the most frequent and therefore the percentage is higher than the rest of the time, followed by the time (30 minutes) and this is also repeated with males and females and the total number with a percentages of 42.11%, 34.68% and 40.5%, respectively for a period of 60 minutes. While the percentages for 30 minutes were 19.66%, 24.74% and 28.2% respectively. The age of 21-23 years is the most influential in the data and may be due to the dominance of this age group in the study population.

Table 9. Frequency Distribution of Students According to Moderate Time/Minute

Number /min	Number	Valid Percent	Cumulative Percent
0	1018	50.9	50.9
5	1	0.1	51.0
9	1	0.1	51.0
10	11	0.6	51.6
15	43	2.2	53.7
20	107	5.4	59.1
25	1	0.1	59.1
30	228	11.4	70.5
40	5	0.3	70.8
45	2	0.1	70.9
50	1	0.1	70.9
60	398	19.9	90.8
90	2	0.1	90.9
120	94	4.7	95.6
180	39	2.0	97.6
240	24	1.2	98.8
300	12	0.6	99.4
360	6	0.3	99.7
420	4	0.2	99.9
540	1	0.1	99.9
560	1	0.1	100.0
720	1	0.1	100.0
Total	2000	100.0	

Table 10. Frequency Distribution of Students According to Walking/ Day.

Number of walking /day	Number	Valid Percent	Cumulative Percent
0	58	2.9	2.9
1	59	3.0	5.9
2	135	6.8	12.6
3	98	4.9	17.5
4	40	2.0	19.5
5	763	38.2	57.7
6	96	4.8	62.5
7	751	37.6	100.0
Total	2000	100.0	

Moderate activity time/minute according to sex and age

Table (16) shows that the time (60 minutes) is the most frequent and therefore the percentage is higher than the rest of the time followed by the time (30 minutes) and this is also repeated with males and females and the total number and the percentage of each was 42.11%, 34.68% and 40.5%, respectively for a period of 60 minutes. While the percentages for 30 minutes were 19.66%, 24.74% and 28.2%. The age of 21-23 years is the most influential in the data and may be due to the dominance of this age group in the study population.

Walking days according to sex and age

As expected, and in line with the location of the Technical Institute in Mosul and the need for students to walk to reach their study sites, the number of walking days for the whole sample was high, especially in the category (5 days) followed by repetitions (7 days), noting that those who did not specify their answers were very few compared to total number of sample. Table (17) shows the rate of walking (7 days) for males was 54.92% while the category (5 days) forms 23.18%. In case of female students, the percentage of walking five days was with higher rate than that of seven days and form 53.26% and 19.89%, respectively. On the whole study, the largest percentage of walking during the (5 days) was the highest and may be due to the fact that the proportion of females for this category is more than male (763 and 750 respectively), increasing the overall rate, which was 38.15% and the increase did not exceed 0.65 than it is with the category (7 days).

Walking time/minute according to sex and age

It is noted from Table (18) that the most frequent walking time is walking for 60 minutes, walking for 30 min and walking for 120 minutes for males, forming 41.19%, 16.11% and 10.34%, respectively. For females, it was 30.85%, 22.21% and 11.35 for walking 60, 30 and 20 minutes respectively. walking time (60 minutes) at the whole study level remained the highest at 36.05% then walking for 30 minutes as 19.15% .

Seating time/minutes according to sex and age

Seating time (300 minutes) was 28.3% in male students and 15.6% of the female. The percent was in the opposite direction while calculating seating time (360 minutes) for female students as it was 20.5% and 20.75% for male. This may be due to the tendency of females to sit and stay more comfortable than it is in males. We also note the concentration of frequencies for seating time between (300-480 minutes) and we rarely found the frequencies of value after (480 minutes) relatively, Table 19.

Correlation between variables under study

As shown in table (20) , there were different relations between variables. Some of them are positive but others were inverse correlation. Some relations were non-significant , but others were significant at 0.05 and significant at 0.01 . The highest relation was between (High time and High activity) giving +0.568 . As well known, (**) means that the significance is at 0.01 , but (*) means that the significance is at 0.05 .

Table 11. Frequency Distribution of Students According to Walking Time/ Minute.

Walking time /min	Number	Valid Percent	Cumulative Percent
0	116	5.8	5.8
5	1	0.1	5.9
6	1	0.1	5.9
7	1	0.1	6.0
10	107	5.4	11.3
15	82	4.1	15.4
20	189	9.5	24.9
25	5	0.3	25.1
30	383	19.2	44.3
35	1	0.1	44.3
40	18	0.9	45.2
45	73	3.7	48.9
50	2	0.1	49.0
60	721	36.1	85.0
75	2	0.1	85.1
90	17	0.9	86.0
120	144	7.2	93.2
150	2	0.1	93.3
180	73	3.7	96.9
240	35	1.8	98.7
300	14	0.7	99.4
360	1	0.1	99.4
420	8	0.4	99.8
480	1	0.1	99.9
540	1	0.1	99.9
560	2	0.1	100.0
Total	2000	100.0	

Table 12. Frequency Distribution of Students According to Seating Time/Minute

Seating time /min	Number	Valid Percent	Cumulative Percent
0	236	11.8	11.8
60	71	3.6	15.4
120	135	6.8	22.1
180	140	7.0	29.1
240	174	8.7	37.8
300	390	19.5	57.3
360	364	18.2	75.5
420	172	8.6	84.1
480	204	10.2	94.3
540	52	2.6	96.9
600	35	1.8	98.7
660	2	0.1	98.8
720	23	1.2	99.9
900	1	0.1	100.0
1020	1	0.1	100.0
Total	2000	100.0	

Table 13. Frequency Distribution of Students According to High Activity/Day in Relation to Age and Gender

Gender	Age group year	High activity/day								Total
		0	1	2	3	4	5	6	7	
Male	18-20	176	31	29	10	2	2	2	4	256
	21-23	324	126	47	33	13	11	7	9	570
	24-26	75	41	18	11	4	7	0	5	161
	27-29	10	4	0	1	0	0	0	0	15
	30 +	1	0	2	0	0	0	0	0	3
	Total male	586	202	96	55	19	20	9	18	1005
Female	18-20	223	64	10	8	1	2	0	5	313
	21-23	444	89	41	11	1	11	3	6	606
	24-26	49	6	6	5	2	0	0	1	69
	27-29	6	1	0	0	0	0	0	0	7
	Total female	722	160	57	24	4	13	3	12	995
Total	18-20	399	95	39	18	3	4	2	9	569
	21-23	768	215	88	44	14	22	10	15	1176
	24-26	124	47	24	16	6	7	0	6	230
	27-29	16	5	0	1	0	0	0	0	22
	30 +	1	0	2	0	0	0	0	0	3
	Total	1308	362	153	79	23	33	12	30	2000

Table 14. Frequency Distribution of Students According to Moderate Activity/Day in Relation to Age and Gender

Sex	Age group	Moderate Activity/Day								Total
		0	1	2	3	4	5	6	7	
Male	18-20	143	42	37	12	4	4	3	10	256
	21-23	277	75	91	52	20	29	9	17	570
	24-26	64	22	31	11	6	12	7	8	9
	27-29	2	4	2	0	1	4	2	0	15
	30+	2	0	0	1	0	0	0	0	3
	Total	488	143	161	76	31	49	21	35	1005
Female	18-20	141	48	58	24	5	14	1	21	313
	21-23	287	83	110	27	17	38	5	39	606
	24-26	37	2	9	5	1	8	1	6	69
	27-29	3	1	1	1	0	1	0	0	7
	Total	468	134	178	57	23	61	7	66	995
Total	18-20	284	90	95	36	9	18	4	31	569
	21-23	564	158	201	79	37	67	14	56	1176
	24-26	101	24	40	16	7	20	8	14	230
	27-29	5	5	3	1	1	5	2	0	22
	30+	2	0	0	1	0	0	0	0	3
	Total	956	277	339	133	54	110	28	101	2000

Discussion

According to World Health Organization recommendations to promote and maintain health. All healthy adults aged 18 to 65 years need moderate-intensity physical activity for 30 minutes on at least five days each week or vigorous intensity over 20 minutes on at least 3 days each week [14]. Where physical inactivity was defined as not meeting any of these criteria. this study estimated physical activity by using a global physical activity questionnaire. The age group 21 to 23 years was the most frequency with 58.8% male and female percent was close to 50.3% and 49.7 % respectively, city center living was 71.3% and 22.7% were from outside.

Single subjects were 86.5% so we expect good ability to be more active through the day, non- smokers were nearly four times higher than smokers, the percent 78.3% and 21.7% respectively. These results are a good indicator as compared with Palestine 55.7% current smoking prevalence [13], Jordan 29% smoked cigarettes in past 30 days [12] and Syria 27% smoking prevalence [11], The results showed that 65.4% of the sample do not exert high activity through the week, while 26% of the efforts is high for one day and two days and the time of the high activity per minute was 25.8 % concentrated at 30 Minute and 60 Minute was 22.5%. This indicates that there was physically inactive in this sample as 65.4%. It is higher than prevalence of physical inactivity in adults in Eastern Mediterranean region which was 43.2% [19]. and lower as compared to the prevalence of physical inactivity among Saudi adults 96.1% based

on 30 minutes or more of moderate intensity physical activity for at least three times per week [15]. World Health Organization recent estimates showed that 60-80% of adults around the world are not active [16].

The present study shows that 47.8% did not have answer to the question of the moderate activity per day for one reason or another. The frequency of moderate efforts one day and two days was the highest and it was 31%, and the time of moderate efforts concentrated at 30 minutes and 60 minutes was 31.3%, while in the rest of the week moderate efforts is less frequent. The number of walking days for the whole sample was high especially in category five days and seven days with 38.2% and 37.6% respectively, because the geographical location of technical Institute in Mosul and the need for the students to walk to reach their study sites, walking time per minute is most frequent for 60 minutes followed by 30 minutes representing 36.1% and 19.2% respectively. walking time per minute according to age and sex the most frequent walking was 60 minutes 30 minute and 120 minutes for males the percent was 43.12%, 13.75% and 10.8% respectively, for females it was 33.2%, 23.9% for walking 60 Minute and 30 minutes. Walking distance for 60 minutes at the study level remain the highest at 38.27% then walking for 30 minutes at 20.3%.

For seating time per minute 300, 360 and 480 minutes shown as more frequented, the percent will be 22.1%, 20.63% and 11.56% respectively. 300 minutes for males was 28.3% and 360 minutes for females was 15.6%, the ratio increased with females compared to males, such findings are consistent with the results from many previous reports, showing that males were more active than females. In the United States the prevalence of leisure-time physical inactivity was 68% [17]. Sedentarism in Portuguese was reported to be 83.7% In men and 84.4% in women [18]. The study showed that majority of subjects did not reach the world Health Organization physical activity recommendations to promote and maintain health.

In conclusion, the prevalence of physical activity among students was high and more among female students .

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Table 15. Frequency Distribution of Students According to High Activity Time/Minute in Relation to Age and Gender

Gender	Age group In year	High activity time/min.																				Total
		0	5	10	15	20	25	30	40	45	60	90	120	150	180	240	300	360	420	480	720	
Male	18-20	180		1	0	4		20	0	0	36	2	12	0	1	0	0		0	0	0	256
	21-23	330		2	3	15		35	2	1	129	5	39	0	3	1	1		2	1	1	570
	24-26	80		2	2	3		13	0	0	42	0	15	1	1	0	1		0	1	0	161
	27-29	10		0	0	0		3	0	0	0	0	1	0	0	0	0		0	1	0	15
	30 +	1		0	0	0		2	0	0	0	0	0	0	0	0	0		0	0	0	3
	Total male	601		5	5	22		73	2	1	207	7	67	1	5	1	2		2	3	1	1005
Female	18-20	230	0	0	2	14	0	12	0	2	44		4		0	2	2	1				313
	21-23	456	1	8	8	17	1	40	1	1	60		5		3	5	0	0				606
	24-26	50	1	0	0	2	0	2	0	0	10		0		2	0	2	0				69
	27-29	6	0	0	0	0	0	0	0	0	1		0		0	0	0	0				7
	Total female	742	2	8	10	33	1	54	1	3	115		9		5	7	4	1				995
Total	18-20	410	0	1	2	18	0	32	0	2	80	2	16	0	1	2	2	1	0	0	0	569
	21-23	786	1	10	11	32	1	75	3	2	189	5	44	0	6	6	1	0	2	1	1	1176
	24-26	130	1	2	2	5	0	15	0	0	52	0	15	1	3	0	3	0	0	1	0	230
	27-29	16	0	0	0	0	0	3	0	0	1	0	1	0	0	0	0	0	0	1	0	22
	30 +	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	Total	1343	2	13	15	55	1	127	3	4	322	7	76	1	10	8	6	1	2	3	1	2000

Table 16. Frequency Distribution of Students According to Moderate Activity Time/ Minute in Relation to Age and Gender

Gender	Age group	Moderate time																					Total	
		0	5	9	10	15	20	25	30	40	45	50	60	90	120	180	240	300	360	420	540	560		720
Male	18-	153		1	0	0	9		26	1	1	0	46	0	15	1	2	0	0	1	0	0	0	256
	21-23	289		0	2	6	26		50	4	0	1	141	2	31	10	2	2	1	0	1	1	1	570
	24-26	70		0	0	4	5		25	0	0	0	33	0	15	2	3	3	1	0	0	0	0	161
	27-29	2		0	0	1	0		5	0	0	0	6	0	0	0	1	0	0	0	0	0	0	15
	30+	2		0	0	0	0		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	Total male	516		1	2	11	40		106	5	1	1	227	2	61	13	8	5	2	1	1	1	1	1005
Female	18-20	150	0		3	13	22	0	46		0		64		4	5	4	1	1	0				313
	21-23	311	0		6	17	42	1	70		1		90		28	20	10	5	3	2				606
	24-26	37	1		0	1	3	0	6		0		16		0	1	2	1	0	1				69
	27-29	4	0		0	1	0	0	0		0		1		1	0	0	0	0	0				7
	Total female	502	1		9	32	67	1	122		1		171		33	26	16	7	4	3				995
Total	18-20	303	0	1	3	13	31	0	72	1	1	0	110	0	19	6	6	1	1	1	0	0	0	569
	21-23	600	0	0	8	23	68	1	120	4	1	1	231	2	59	30	12	7	4	2	1	1	1	1176
	24-26	107	1	0	0	5	8	0	31	0	0	0	49	0	15	3	5	4	1	1	0	0	0	230
	27-29	6	0	0	0	2	0	0	5	0	0	0	7	0	1	0	1	0	0	0	0	0	0	22
	30 +	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	Total	1018	1	1	11	43	107	1	228	5	2	1	398	2	94	39	24	12	6	4	1	1	1	2000

Table 17. Frequency Distribution of Students According to Walking/Day in Regard to Age and Gender

Gender	Age group	Walking/day									Total
		0	1	2	3	4	5	6	7	8	
Male	18-20	5	9	14	10	5	47	11	155	0	256
	21-23	12	9	24	21	11	152	40	300	1	570
	24-26	7	6	10	8	1	33	10	86	0	161
	27-29	0	1	1	2	0	1	0	10	0	15
	30 +	0	0	2	0	0	0	0	1	0	3
	Total male	24	25	51	41	17	233	61	552	1	1005
Female	18-20	5	12	33	17	11	161	12	62		313
	21-23	26	21	43	37	10	332	17	120		606
	24-26	3	1	8	3	2	31	6	15		69
	27-29	0	0	0	0	0	6	0	1		7
	Total female	34	34	84	57	23	530	35	198		995
Total	18-20	10	21	47	27	16	208	23	217	0	569
	21-23	38	30	67	58	21	484	57	420	1	1176
	24-26	10	7	18	11	3	64	16	101	0	230
	27-29	0	1	1	2	0	7	0	11	0	22
	30+	0	0	2	0	0	0	0	1	0	3
	Total	58	59	135	98	40	763	96	750	1	2000

Table18. Frequency Distribution of Students According to Walking Time/Minute in Relation to Age and Gender

		Walking time/min.																										Total
		0	5	6	7	10	15	20	25	30	35	40	45	50	60	75	90	120	150	180	240	300	360	420	480	540	560	
Gender	Age group																											
male	18-20	12		0	0	1	1	19	0	36		3	14	1	134	2	5	13	1	6	7	0		0	0	0	1	256
	21-23	21		0	1	9	2	41	3	98		7	37	0	209	0	12	76	0	34	15	1		1	1	1	1	570
	24-26	12		1	0	2	6	14	0	24		1	3	0	63	0	0	13	1	14	2	4		1	0	0	0	161
	27-29	0		0	0	0	0	2	0	4		0	0	0	5	0	0	2	0	2	0	0		0	0	0	0	15
	30+	0		0	0	0	0	0	0	0		0	0	0	3	0	0	0	0	0	0	0		0	0	0	0	3
Total		45		1	1	12	9	76	3	162		11	54	1	414	2	17	104	2	56	24	5		2	1	1	2	1005
Fem.	18-20	15	1			41	21	37	1	65	1	1	3	0	106			11		5	3	2	0	0				313
	21-23	48	0			51	44	73	1	138	0	6	16	1	173			25		11	8	5	0	6				606
	24-26	8	0			3	7	3	0	14	0	0	0	0	26			4		1	0	2	1	0				69
	27-29	0	0			0	1	0	0	4	0	0	0	0	2			0		0	0	0	0	0				7
	Total	71	1			95	73	113	2	221	1	7	19	1	307			40		17	11	9	1	6				995
Total	18-20	27	1	0	0	42	22	56	1	101	1	4	17	1	240	2	5	24	1	11	10	2	0	0	0	0	1	569
	21-23	69	0	0	1	60	46	114	4	236	0	13	53	1	382	0	12	101	0	45	23	6	0	7	1	1	1	1176
	24-26	20	0	1	0	5	13	17	0	38	0	1	3	0	89	0	0	17	1	15	2	6	1	1	0	0	0	230
	27-29	0	0	0	0	0	1	2	0	8	0	0	0	0	7	0	0	2	0	2	0	0	0	0	0	0	0	22
	30+	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total		116	1	1	1	107	82	189	5	383	1	18	73	2	721	2	17	144	2	73	35	14	1	8	1	1	2	2000

Table19. Frequency Distribution of Students According to Seating Time/Minute in Relation to Age and Gender

			Seating time/min.														Total	
			0	60	120	180	240	300	360	420	480	540	600	660	720	900		1020
Male	Age	18-20	30	5	12	15	29	104	26	7	18	4	4	0	1	1		256
		21-23	57	17	36	39	56	131	117	43	47	13	7	1	6	0		570
		24-26	16	5	13	15	10	17	39	20	20	3	1	0	2	0		161
		27-29	1	0	0	3	1	1	5	1	3	0	0	0	0	0		15
		+ 30	0	0	0	0	1	2	0	0	0	0	0	0	0	0		3
		Total	104	27	61	72	97	255	187	71	88	20	12	1	9	1		1005
female	Age	18-20	29	9	22	21	23	43	59	45	44	8	5	0	5		0	313
		21-23	87	32	46	44	48	79	105	50	65	24	16	1	8		1	606
		24-26	15	3	6	3	6	10	13	6	4	0	2	0	1		0	69
		27-29	1	0	0	0	0	3	0	0	3	0	0	0	0		0	7
		Total	132	44	74	68	77	135	177	101	116	32	23	1	14		1	995
Total	Age	18-20	59	14	34	36	52	147	85	52	62	12	9	0	6	1	0	569
		21-23	144	49	82	83	104	210	222	93	112	37	23	2	14	0	1	1176
		24-26	31	8	19	18	16	27	52	26	24	3	3	0	3	0	0	230
		27-29	2	0	0	3	1	4	5	1	6	0	0	0	0	0	0	22
		+ 30	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3
Total			236	71	135	140	174	390	364	172	204	52	35	2	23	1	1	2000

Table 20. Correlation Matrix for all Variables Under Study

Variables	Age	Sex	Residence	Marital	Smok.	High act.	High time.	Moderate Day	Moderate time	Walking day	Walking Time	Seating time
Age	1	-.132**	-.027-	-.121**	-.086**	.080**	.088**	.077**	.074**	.008	.069**	-.017-
Gender	-.132**	1	-.072**	-.045*	.482**	-.138**	-.144**	.036	-.006-	-.254**	-.184**	.010
Residence	-.027-	-.072**	1	.029	.020	.043	.079**	.019	.052*	-.034-	.057*	.006
Marital	-.121**	-.045*	.029	1	-.008-	-.006-	-.010-	-.066**	-.052*	-.007-	-.002-	-.003-
Smoking	-.086**	.482**	.020	-.008-	1	-.095**	-.072**	.005	.019	-.114**	-.072**	-.021-
High activity	.080**	-.138**	.043	-.006-	-.095**	1	.568**	.394**	.275**	.064**	.091**	-.075**
High time.	.088**	-.144**	.079**	-.010-	-.072**	.568**	1	.247**	.359**	.032	.134**	-.056*
Moderate day	.077**	.036	.019	-.066**	.005	.394**	.247**	1	.535**	.150**	.116**	-.013-
Moderate time	.074**	-.006-	.052*	-.052*	.019	.275**	.359**	.535**	1	.088**	.232**	-.048*
Walking day	.008	-.254**	-.034-	-.007-	-.114**	.064**	.032	.150**	.088**	1	.254**	.067**
Walking time	.069**	-.184**	.057*	-.002-	-.072**	.091**	.134**	.116**	.232**	.254**	1	.009
Seating time	-.017-	.010	.006	-.003-	-.021-	-.075**	-.056*	-.013-	-.048*	.067**	.009	1

** . Correlation is significant at the 0.01 level (2-tailed). ,

* . Correlation is significant at the 0.05 level (2-tailed).