

# The Effect of Physical Activities in Applied Lessons on Weight and Some Physical Variables for Obese Students

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## ABSTRACT

The study was conducted on a sample of (20) male obese students with ages ranging between 18 and 20 years old. The study started on 13/8/2013 and continued till 6/1/2014. The aim of the study is to determine the effects of physical activities in applied lessons on weight and some physical variables for obese students. After conducting appropriate statistical analysis of the study data, presenting, analyzing and discussing results, the researcher concluded that physical activities used in the applied lessons (physical preparation – physical training – football – basketball) have a significant effect on physical tests (body weight - fitness - long jump - arm pressure - sitting from the back). The physical activities used in the applied lessons did not have a significant effect on both physical tests (flexibility – speed). The researcher recommended that first year obese students should be cared for and attempting to reduce their weights by paying attention to physical activities provided in the applied lessons because of their role in raising their physical efficiency and prevent them from catching many diseases in the future.

**Keywords:** Applied lessons, physical activities, weight, obesity

## INTRODUCTION

Obesity is defined as the increase in the ratio of fats over the normal rate of 30% for females and 20% for males. We should distinguish between obesity and weight gain. Weight gain is defined as the increase in the individual's weight by 10 kg from the normal rate. Weight gain may be due to the increase in size of the muscle mass or the increase in the anthropometrics of limbs. Being overweight does not always mean obesity, but the opposite is true (Edward, 1990). There are many risks of obesity that even Hippocrates, the philosopher

and the famous Greek doctor, pointed out that a fat or obese man dies before the thin man, (Melhem, 1999). Some studies also indicated that obesity shortens the age by about (4) years.

Some reports refer that obesity has many health problems and is associated with about 26 known diseases in scientific research such as heart diseases, hypertension, gallstones, cirrhosis, diabetes, high cholesterol, low HDL, renal diseases, rheumatism, joint diseases and colon cancer in addition to some psychological and social diseases. They also cause (20 – 15%) of deaths per year (Williams, 1995).

In recent decades, the concept of sport, physical activity and the need for sport by different ages for both sexes have been significantly evolved so that they become a needed and even as a necessary need for various benefits of health, especially that the subject of sports activity has become important for healthy people and those

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suffering from some chronic diseases where physical activities play an important role in prevention and treatment, especially in this age, which is designed to increase weight and obesity, and everyone is aware of any damage caused by it (Hazza, 2005).

Significance of the study lies in the fact that lives of many individuals in our modern world become dependent on what civilization provides to us including amenities and physical well-being, so movement became less and physical activity exists only in a limited scope in addition to psychological and life pressures, leading to a life full of health risks for individuals. It can be said that heart diseases increase with the increased reliance on amenities, physical well-being and inactivity accompanied by a diet in which there are excessive amounts of energy needed by the body, so they increase weight with associated health problems, poor fitness and lack of the ability to exercise the required life skills correctly. In addition, the possibility of achieving physical benefits for the average person can be done through physical activity with average intensity and does not cause fatigue, stress and gradually increases to a certain extent that can be done without harms or injury to the person.

### Problem of the Study

Obesity is a major obstacle in the student's required physical fitness, which enables him to perform the required technical skills correctly. In addition, it is a major cause of injury in many physical, motor and psychological diseases. The researcher noticed through teaching for first year students who are enrolled for study in Department of Physical Education that a number of students have a fever which may weaken their fitness and ability to perform the required technical skills correctly. Therefore, the researcher wanted to contribute to solving this problem and know the extent of impact of physical activities on applied lessons given to students during the first semester of the first year on weight and some elements of fitness in obese students.

### Objectives of the Study

- Identifying the effect of physical activities in applied lessons on weight and some physical variables for obese students.

### Hypotheses of the Study

- There are statistically significant differences in the effect of physical activities in applied lessons

on weight and some physical variables for obese students.

### Fields of Study

- Human Field: a sample of new students of (20) male students.
- Temporal Field: from 13/8/2013 to 6/1/2014.
- Spatial Field: Palestine Technical University – Physical Education Department.

### Methodology and Procedures of the Study

The researcher used the experimental method to solve the study problem.

### The Study Sample

The sample of the study was selected purposively from the new students enrolled in Physical Education Department – Khaduri University, with (20) male obese students, and this was known using the body mass index (BMI) method.

### Sample Homogeneity

Sample homogeneity was achieved by selecting the sample from one age group (18-19 years) and from one gender, which is males, and it was homogeneous in terms of weight and height. This was verified by extracting the skewness coefficient as they were all within normal distribution (+3, -3) as shown in Table 1.

Skewness coefficient for measurements of age, height and weight of the study sample:

Field Trial:

- Prior to implementation of the trial, the researcher carried out the administrative procedures required to carry out the experiment in cooperation with the Department's management.
- The researcher selected sample members of the first year students enrolled in the discipline of physical education and obese students. BMI method was adopted through dividing weight on square length.
- It was ensured that sample members are free of diseases.
- On 13/8/2013, the researcher conducted the

**Table 1:** Skewness coefficient for measurements of age, height and weight of the study sample

Test type	Age	Height	Weight
Skewness coefficient	0.85	0.76	0.88

pre-tests for all members of the sample in collaboration with a team of professors specialized in physical education and holders of higher degrees. Measurements included (length, weight, age, speed, agility, flexibility, long jump of stationary, sitting from supine, arm pressure).

- On 22/9/2013, practical lessons given to students of the first year of the first semester began (physical preparation – training – basketball – football).
- The applied lesson lasted three months, three times a week and 50 minutes each.
- On 6/1/2014, the researcher carried out the post-tests, which are the same pre-tests conducted in the same manner and under the same circumstances.

#### The Practical Lesson

The practical lesson is divided into (3) main sections as follows:

**Introductory Section:** It is the beginning of the lesson and it lasts for ten minutes. It contains some physical aerobic activities such as running, a small game or quick jogging and its purpose is to prepare body organs for the main duty and they serve the nature of the skill that will be given to the student during the main section in addition to creation of the element of suspense.

**The Main Section:** It is the main section of the lesson. It contains the largest period of time of (35) minutes where the student exercises physical activities in the form of technical skills, which are the skills required to be learned by the student in that course, which vary according to that game and give the student information on technical steps of the skill in addition to different exercises given according to formations through which he uses various tools and devices to facilitate their learning and to make it more exciting and fun when applying that skill.

**The Final Section:** It lasts for five minutes in which the individual exercises aerobic physical activities, such as running, jogging, or a small game, or quick walking, which allows the introduction of the largest amount of oxygen to the body for the purpose of returning functional organs to their normal condition after the effort.

- The program continued for 4 months with 3 lessons per week and each lesson lasts for (50) minutes.
- After the researcher collected the data and filling them in their respective forms, the researcher began with the other stage of the research, which is the stage of statistical analysis of the data. The

researcher used the computer to perform such analyzes. For the sake of accuracy, the researcher used the appropriate statistical means to achieve the research objectives and hypotheses.

### Statistical Methods

In order to process data, the researcher used the following statistical methods:

(Arithmetic mean - standard deviation - Pearson correlation coefficient - and T-Test for corresponding samples - skewness coefficient):

### Presenting and Discussing the Findings

The researcher presents and discusses the findings in light of results significant differences between the pre and post tests as shown in (Table 2).

Arithmetic means, standard deviations, calculated and tabulated T values for both the pre and post tests for the study sample (n = 20).

## DISCUSSING THE RESULTS

(Table 2) shows the results of body weight measurement for the study sample, where the findings showed a significant difference between pre and post tests for the benefit of the post-test, as indicated by the grades obtained from (T) test and (6,6) which is bigger than the tabulated (T) value (2.039). The researcher attributed this to the effect of physical activities on the applied lessons given to the student during the first semester. In reference to description and plan of courses, as well as to teachers of the courses, it was found that the applied lesson includes 60% of them on a range of physical activities and oxygen mobility skills such as jogging, quick jogging, walking, jumping, oxygenation small purposeful games and exercises using the devices and tools to suit the skill provided to students. Motor and skill activities provided to student during the lesson led to imbalance in energy by increasing the exchange of calories through the exercise of these activities and this is known as balance of negative energy, which often leads to weight reduction, as the body in this case depends on stored body fat in energy production, as scientific studies indicated that physical activity that involves introduction of the largest amount of oxygen leads to consumption of the largest amount of body fat (Condi WL, Lu B, et al., 2004).

**Table 2:** Arithmetic means, standard deviations, calculated and tabulated T values for both the pre and post tests for the study sample (n=20)

Test type	Arithmetic mean		Standard deviation		Calculated T value	Tabulated T value	Freedom degree	Significance level	Result
	Pre-test	Post-test	Pre-test	Post-test					
Body weight kg	88,5	77,5	4,5	5,3	6,6	2,093	19	0,05	Significant difference
Sitting from supine once/30 sec	21,9	27,8	3,4	3,2	8,4	2,093	19	0,05	Significant difference
Flexibility test/cm	9,1	10,5	5,3	5,7	0,004	2,093	19	0,05	Insignificant difference
Agility test m/sec	7,3	6,5	0,5	0,8	5,7	2,093	19	0,05	Significant difference
Long jump test/m	179,8	208,4	27,3	21,1	4,5	2,093	19	0,05	Significant difference
Arm push up test once/30 sec	24,5	29,5	5,8	5,1	5,5	2,093	19	0,05	Significant difference
Speed test m/sec	4,7	4,2	0,5	1,5	1,6	2,093	19	0,05	Insignificant difference

(Table 2) also shows that there are significant differences between the pre and post tests in both measurements (sitting from supine, agility, long jump, arm push up) in favor of the post-test, where the calculated T value was (5,5 – 4,5 – 5,7 – 8,4), which are respectively higher than the tabulated T value (2,093).

The researcher attributes this to the effect of physical activities in the applied lessons that were given to students in class (physical preparation, training, football and basketball). With reference to description, plan of courses and teachers of these courses and through the researcher's follow-up of the conduct of these subjects, it was found that these activities considered gradual loads and increasing loads from time to time as well as principle of continuity and not being absent from applied lessons, where the student is prohibited from attending courses unless with an official excuse and with a specific percentage. On the other hand, the student is exposed to punishment of dismissal from the material and failure. The researcher attributed remarkable development of these elements to weight lost in class, which was shown in results of (Table 2), which reduced the burden placed on body organs, so the student's ability to perform physical duty became more efficient as excess weight is an enemy of fitness and physical ability. This is consistent with results of several scientific studies, which confirm that muscular strength of long jump in arms with long jump from stationary as directly associated with increasing physical activity and low weight reduction (Nordstrom p et al., 1996). This is in line with (Margaret A. Etal, 2008) that weight gain is related to the lack of physical activities

and the return to inert life which, in turn, will negatively affect functional adaptations of various organs of the body including the nervous and muscular system. In addition, skill and motor compatibility will not develop and will be unable to increase the activation of motor units due to very specific neurological adaptations, but the opposite will happen in case of weight loss.

The researcher attributed the non-significant differences that emerged between pre and post tests in both variables (speed and flexibility) to parts of the applied lesson that lack stretching exercises as most focus was on physical and skill activities such as jogging, quick jogging, jumping and motor purposeful games. There was not enough concentration during the warm-up to create the body's joints, lengthen ligaments and surrounding muscles. The researcher noted this through the course plan and follow-up field, as these types of exercises need sufficient time to achieve the required development, especially if we know that flexibility at that stage is less than previous stages which decline continuously as the individual progress in age. In order to develop them, they should have special exercises and more time and this was not observed. On the other hand, the accumulation of grease around the joints leads to impede movement of the joint to reach its natural range, which limits the flexibility of this joint, if we know that sample of the study includes students with obesity.

Obesity is the enemy of flexibility and leads to the inability of the joint to perform the required movements efficiently. This is consistent with results

of several studies, which confirmed that the increase in the proportion of grease will lead to obstruction of movement of pelvic joint, weakness of abdominal muscles and back thigh. This does not lead to a bigger motor range for the joint. The study also confirmed that the development of motor flexibility in children is strongly related to the development of strength and reduced proportion of fats because one of the most important causes of low flexibility is accumulation of fat between muscles, tendons, joints and the moving of anti-movement joints in the direction required to maximize the range of movement, as well as weakness of the abdominal muscles, their endurance and muscles around and behind the thighs. (Al-Lala, Shafiq, 1999). This is in line with what Al-Hazza (1992) who said that low flexibility in joints is significantly affected by the high proportion of fat in the body because it negatively affects the movement of the joint and prevents it from reaching its natural range. The researcher attributed the absence of a significant difference in the speed test to the lack of applied lessons of exercises and activities that work for achieving this characteristic and it was found in some courses such as physical preparation, basketball and football because of the need for some of those skills in the courses to speed which is not concentrated and did not have sufficient time to make the desired change.

## CONCLUSIONS

After presenting the results, analyzing them and discussing them, the researcher reached the following conclusions:

- The physical activities used in applied lessons (physical preparation, physical exercise, football, basketball) had a significant effect on the following physical tests: (body weight, flexibility, agility, long

jump, arm push-ups and sitting from supine).

- The physical activities used in the applied lessons did not have a significant effect on the following physical tests: (Flexibility - Speed).

## RECOMMENDATIONS

The researcher recommends the following:

1. The need of obese first-year students to work on reducing their weight to raise their physical and skill efficiency.
2. The need to pay attention to the physical activities provided in the applied lessons because they play a great role in raising their physical and skill efficiency and prevent them from getting many diseases in the future.

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