

COMPARATIVE STUDY ON HEALTH RELATED PHYSICAL FITNESS BETWEEN CLASS- I AND CLASS- II OBESITY MEN

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ABSTRACT

The purpose of the study was to investigate the comparative study on health related physical fitness between class- I obesity and class- II obesity men. It was hypothesized that there would have been a critical significant influence of health related physical fitness of class- I obesity and class- II obesity men. For the present study 30 obese men from different area in Salem district, Tamilnadu, India were selected as subjects at random and their age ranged from above 25 to below 40 years men. The subjects had been randomly assigned to 2 equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent Class-I and Group 'B' underwent Class- II. The following health related physical fitness variables such as Cardiovascular Endurance, Balance and Muscular Strength. The collected data were statistically analysed with 't' test. The result show that there was significant difference in health related physical fitness between class- I obesity and class- II obesity men. Further the result of the study show that class- I obesity men were better in Cardiovascular Endurance, Balance and Muscular Strength than the Class- II obesity men. The result of study also shows that the Class- II obesity men higher in body fat than Class- I obesity men.

Key Words: Health related physical fitness, Cardiovascular Endurance, Balance and Muscular Strength.

1. INTRODUCTION

Health- related physical fitness consists of those components of physical fitness that have a relationship with good health. The components are commonly defined as flexibility and muscular strength. Prior to the last forty years the distinction between health related physical fitness and skill related physical fitness was not typically made. When tests of physical fitness are administered in school, medical and other settings should be arranged for measuring the health related physical fitness components. Lab and field tests of health related physical fitness involve some type of performance such as running, stretching, or doing a specific muscle exercise. Because body composition also referred to as relative in reduction in body weight is not only a good performance measure, some questions its inclusion as a component of health-related physical fitness. Possessing good health-related fitness is related to lower risk of illness and improved quality of life. Health Related Physical Fitness serves several purposes including educating students about various component of physical fitness. Tremendous changes in the field of health related fitness has been made in the present century, due to the modern techniques and technology it helps to provide students, parents and teachers with information concerning the fitness of children and youth, providing a basis for the development of personal exercise programme and motivating the students to improve their fitness levels and exercise habits.

Physical fitness has a general state of health and well-being or specifically the ability to perform aspects of sports or occupations. Physical fitness is generally achieved through correct nutrition, exercise, hygiene and rest. It is a set of attributes or characteristics that people have or achieve that relates to the ability to perform physical activity. Before the industrial revolution, fitness was the capacity to carry out the day's activities without undue fatigue. However with automation and changes in lifestyle physical fitness is now considered as a measure of the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypokinetic, and to meet emergency situations. In Physical exercise any bodily activity that enhances or maintains physical fitness and overall health and wellness.

2. Obesity

At their most basic, the words “overweight” and “obesity” are ways to describe having too much body fat. (James, WP, 2005)

According to the “Factors such as age, sex, ethnicity, and muscle mass can influence the relationship between BMI and body fat. Also, BMI doesn’t distinguish between excess fat, muscle, or bone mass, nor does it provide any indication of the distribution of fat among individuals.” (Dr. Alana Biggers)

The word "obesity" means too much body fat. It's usually based on your body mass index (BMI), which you can check using a BMI calculator. BMI compares your weight to your height. If your BMI is 25 to 29.9, you're overweight but not obese. A BMI of 30 or more is in the obese range.

Table- I

BMI CATEGORIES

BMI	CLASS
18.5 or under	underweight
18.5 to <25.0	“normal” weight
25.0 to <30.0	overweight
30.0 to <35.0	class 1 obesity
35.0 to <40.0	class 2 obesity
40.0 or over	class 3 obesity

According to World Health Organization, in 2010 there were over 1 billion overweight adults worldwide with 400 million adults who were obese. Obesity is a major risk factor for diabetes, cardiovascular disease, musculoskeletal disorders, obstructive sleep apnea, and cancers (prostate, colorectal, endometrial, and breast). Obese people may present to the gastroenterologists with gastroesophageal reflux, non-alcoholic fatty liver, and gallstones. It is important, therefore, to recognize and treat obesity. The main cause of obesity is an imbalance between calories consumed and calories expended, although in a small number of cases, genetics and diseases such as hypothyroidism, Cushing's disease, depression, and use of medications such as antidepressants and anticonvulsants are responsible for fat accumulation in the body. The main treatment for obesity is dieting, augmented by physical exercise and supported by cognitive behavioural therapy. Calorie-restriction strategies are one of the most common dietary plans. Low-calorie diet refers to a diet with a total dietary calorie intake of 800-1500, while very low-calorie diet has less than 800 calories daily. These dietary regimes need to be balanced in macronutrients, vitamins, and minerals. Fifty-five percent of the dietary calories should come from carbohydrates, 10% from proteins, and 30% from fats, of which 10% of total fat consist of saturated fats. After reaching the desired body weight, the amount of dietary calories consumed can be increased gradually to maintain a balance between calories consumed and calories expended. Regular physical exercise enhances the efficiency of diet through increase in the satiating efficiency of a fixed meal, and is useful for maintaining diet-induced weight loss. A meta-analysis by Franz found that by calorie restriction and exercise, weight loss of 5-8.5 kg was observed 6 months after intervention. After 48 months, a mean of 3-6 kg was maintained. In conclusion, there is evidence that obesity is preventable and treatable. Dieting and physical exercise can produce weight loss that can be maintained. (Kwong Ming Fock, Joan Khoo,)

3. Cardiovascular Endurance

Cardiovascular endurance is the ability of the heart, lungs and blood vessels to deliver oxygen to working muscles and tissues, as well as the ability of those muscles and tissues to utilize that oxygen.

Cardiovascular endurance is also frequently called cardio-respiratory endurance, cardiovascular fitness, aerobic capacity and aerobic fitness or is sometimes more broadly termed endurance although endurance may also refer to the ability of the muscle to do repeated work without fatigue. It is also one of the five components of physical fitness.

While all physical activities involve in some level of cardiovascular support, cardiovascular endurance typically refers to the ability of a person to perform activities that raise the heart to a training level and maintain that level for a sustained period of time, typically 10-15 minutes. A training level is typically expressed as percentage of a person’s maximum heart rate (RMR), usually between 60-80 percent of an individual’s RMR.

4. Balance

Balance as a component of physical fitness refers to the athlete's ability to stay in controls of their body's position. Balance is the ability to control your body's position, whether stationary complex yoga pose or while moving skiing. Balance is a key component of fitness, along with strength, endurance, and flexibility. There are various ways to perform balance exercise.

5. Muscular Strength

Muscular strength is defined as the maximum amount of force that a muscle can exert against some form of resistance in a single effort. In the gym, a single repetition at a given weight is an example of muscular strength.

Muscular strength and endurance are two important parts of your body's ability to move, lift things and to do day-to-day activities. Muscular strength is the amount of force you can put out or the amount of weight you can lift.

6. Methodology

The purpose of this study was designed to find out the comparative study on health related physical fitness between class- I obesity and class- II obesity men. To achieve the purpose of the study, thirty (30) obese men from different areas in Salem district, Tamilnadu were selected as subjects. The subjects were consists of Class- I obesity (15), Class- II obesity (15). Their age ranged between above 25 to below 40 years. The subjects were tested on health related physical fitness variables such as cardiovascular endurance, balance, muscular strength. The collected of data were statistically analysed 't' test. The level of confidence was fixed at 0.05 levels for all cases.

7. Analysis of Data

The level of significant to test "t" ratio obtained by comparison was fixed at 0.05 level of confidence which was considered adequate for the purpose of the study. To compare the level of health related physical fitness between the two groups analysis of 't' ratio was used.

7.1 Result on Cardiovascular Endurance

Table- II

Comparison of Cardiovascular Endurance between class- I obesity and class- II obesity men

Variable	Group	Mean	S D	Mean DE	SE	't'
Cardiovascular Endurance	Class- I	1886.66	154.02	96.4	32.62	2.97*
	Class- II	1802.26	135.32			

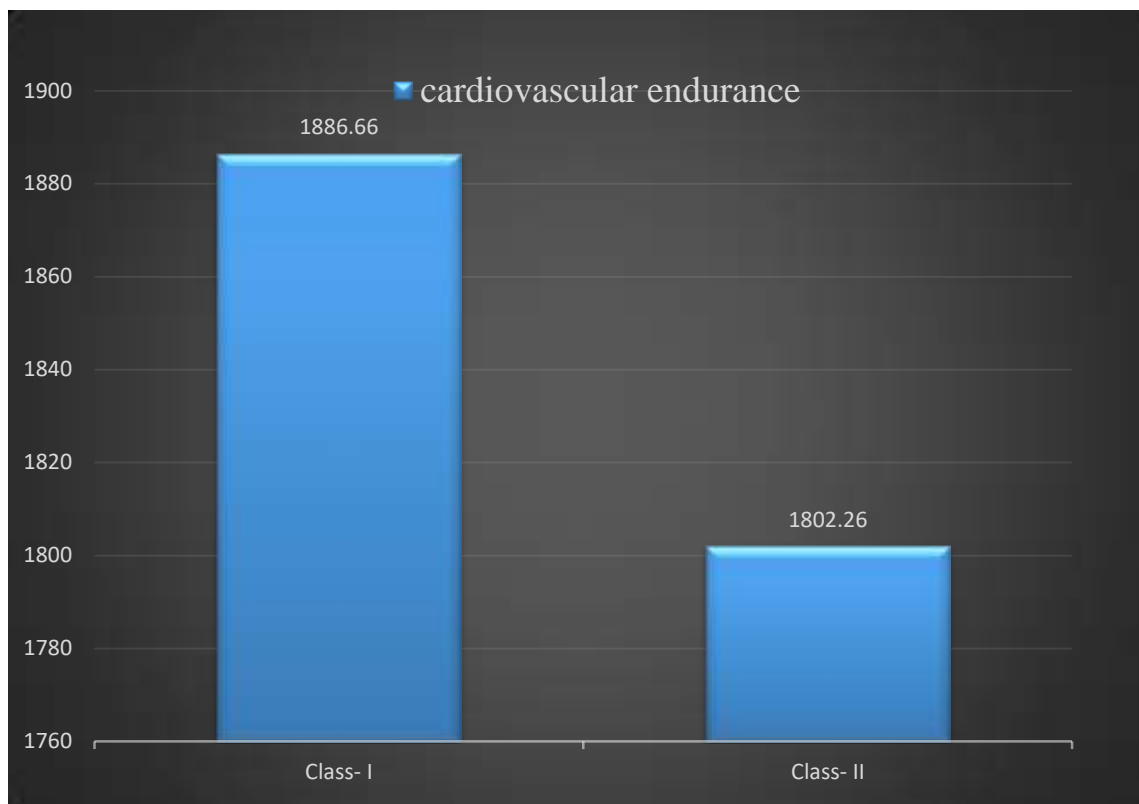
*Significance at 0.05 levels of confidence.

Shown the mean value of cardiovascular endurance between class- I obesity and class- II obesity men were 1886.66 and 1802.26 respectively. The obtained "t" ratio value of 2.97 was higher than the required table value of 2.14 for degrees of freedom, 1 and 14 significant at 0.05 level of confidence.

From the result it was inferred that Class- I obesity has better than the Class- II obesity on cardiovascular endurance.

Figure-I

Bar diagram showing the Mean Difference of the cardiovascular endurance between class- I obesity and class- II obesity men



7.2 Result on Balance

Table- III

Comparison of Balance between class- I obesity and class- II obesity men

Variable	Group	Mean	S D	Mean DE	SE	't'
Balance	Class- I	42.53	4.99	4.07	1.44	2.82*
	Class- II	38.46	5.12			

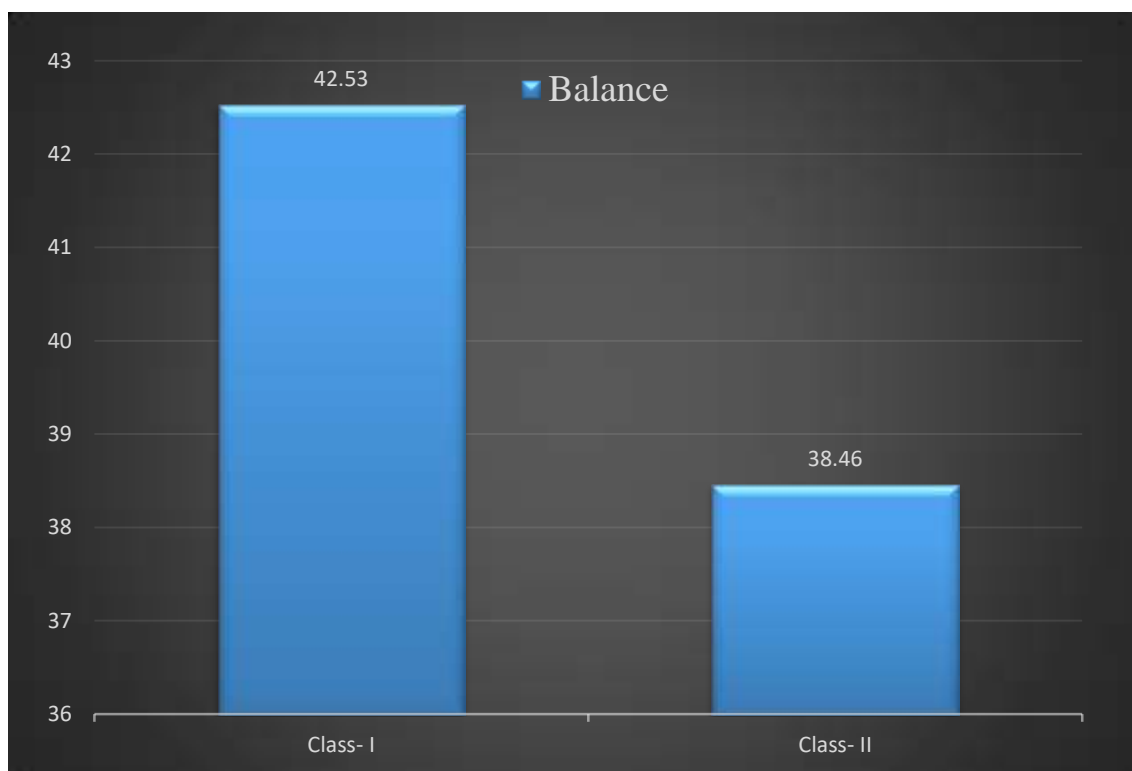
*Significance at 0.05 levels of confidence.

Shown the mean value of balance between class- I obesity and class- II obesity men were 42.53 and 38.46 respectively. The obtained "t" ratio value of 2.82 was higher than the required table value of 2.14 for degrees of freedom, 1 and 14 significant at 0.05 level of confidence.

From the result it was inferred that Class- I obesity has better than the Class- II obesity on balance.

Figure-II

Bar diagram showing the Mean Difference of the Balance between Class- I obesity and class- II obesity men



7.3 Result on Muscular Strength

Table-IV

Comparison of Muscular Strength between class- I obesity and class- II obesity men

Variable	Group	Mean	S D	Mean DE	SE	't'
Muscular Strength	Class- I	36.80	3.27	2.27	1.19	3.06*
	Class- II	34.53	2.86			

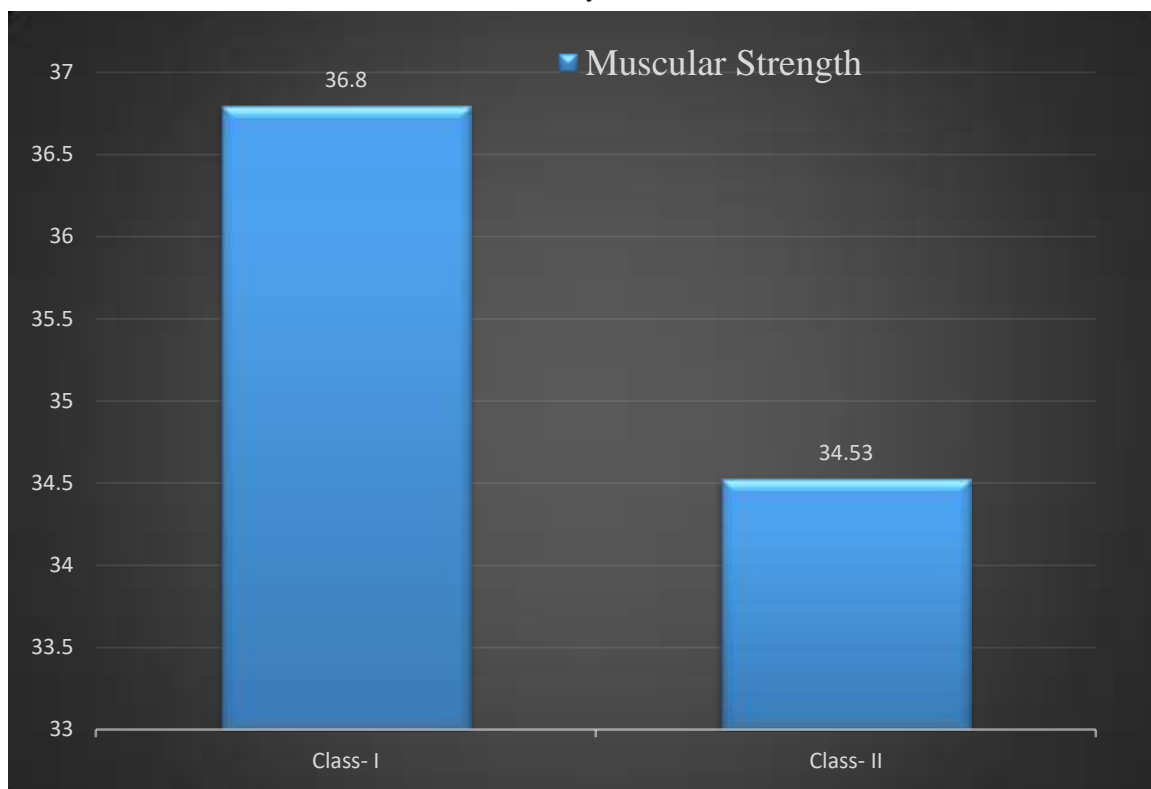
*Significance at 0.05 levels of confidence.

Shown the mean value of muscular strength between class- I obesity and class- II obesity men were 36.80 and 34.53 respectively. The obtained "t" ratio value of 3.06 was higher than the required table value of 2.14 for degrees of freedom, 1 and 14 significant at 0.05 level of confidence.

From the result it was inferred that class- I obesity has better than the class- II obesity on muscular strength.

Figure-III

Bar diagram showing the Mean Difference of the muscular strength between class- I obesity and class- II obesity men



8. Conclusions

1. It was concluded that there was a significant difference between class- I obesity and class- II obesity men in cardiovascular endurance, balance, muscular strength of health related physical fitness.
2. Further it was concluded that the class- I obesity men had better difference in Cardiovascular Endurance, Balance and Muscular Strength than the Class- II obesity men.
3. The Class- II obesity men were higher in body fat when compared with Class- I obesity men.

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