Effect of Twelve Weeks Brisk Walking on Blood Pressure, Body Mass Index, and Anthropometric Circumference of Obese Males

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Abstract—Introduction: Obesity is a major health risk issue in the present day of life for one and all globally. Obesity is one of the major concerns for public health according to recent increasing trends in obesity-related diseases such as Type 2 diabetes. (Kazuya, 1994).and hyperlipidemia, (Sakata,1990) .which are more prevalent in Japanese adults with body mass index (BMI) values Z25 kg/m2.(Japanese Ministry of Health and Welfare,1997). The purpose of the study was to assess the effect of twelve weeks of brisk walking on blood pressure and body mass index, anthropometric measurements of obese males. Method: Thirty obese (BMI= above 30) males, aged 18 to 22 years, were selected from King Fahd University of Petroleum & Minerals, Saudi Arabia. The subject's height (cm) was measured using a stadiometer and body mass (kg) was measured with a electronic weighing machine. BMI was subsequently calculated (kg/m2). The blood pressure was measured with standardized sphygmomanometer in mm of Hg. All the measurements were taken twice before and twice after the experimental period. The pre and post anthropometric measurements of waist and hip circumference were measured with the steel tape in cm. The subjects underwent walking schedule two times in a week for 12 weeks. The 45 minute sessions of brisk walking were undertaken at an average intensity of 65% to 85% of maximum HR (HRmax; calculated as 220-age). Results & Discussion: Statistical findings revealed significant changes from pre test to post test in case of both systolic blood pressure and diastolic blood pressure in the walking group. Results also showed significant decrease in their body mass index and anthropometric measurements i.e. (waist & hip circumference). Conclusion: It was concluded that twelve weeks brisk walking is beneficial for lowering of blood pressure, body mass index, and anthropometric circumference of obese males.

Keywords—Anthropometric, Blood pressure, Body mass index

I. INTRODUCTION

OBESITY is a major health risk issue in the present day of life for one and all globally. According to a study conducted by the Physical Education Department, King Fahd University of Petroleum & Minerals, Saudi Arabia, there has been a 60 to 70 % of male students are overweight and obese. The percentages of overweight and obese were in the age group of 18 to 22 years. Although the study is specific to the students of KFUPM, Saudi Arabia this is a significant enough wake up call for the rest of the students. [1] [2] Obesity is one of the major concerns for public health according to recent increasing trends in obesity-related diseases such as Type 2 diabetes.(Kazuya,1994).and hyperlipidemia, [3].which are more prevalent in Japanese adults with body mass index (BMI) values Z25 kg/m2[4] [5]. In the adult population of

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industrialized countries, it has been reported that obesity and higher body weight are strongly associated with a sedentary lifestyle and lack of physical activity (PA) at leisure time as well as at work. [6]. Obesity is a major risk factor for insulin resistance and type 2 diabetes. Body mass index (BMI, kg/m2) is the most commonly used measure of obesity. (Shetty, 1994). Over one third of children between the ages of 2 and 19 years are Obese or overweight (Ogden et al., 2006). These rates appear to be increasing most rapidly in 12e19-year old African Americans (Ogden et al., 2006) and are concerning because pediatric obesity is associated with increased risk of Type 2 diabetes, liver disease, and heart disease (Goran, Ball, & Cruz, 2003; Weiss et al., 2004). According to the report of International Obesity Task Force (IOTF), in the year 2000 about 10% of the young people aged 5-17 years globally were overweight; among whom 2-3% was obese. According to the Australia's health 2010 reports that obesity rates are still among the highest in the world, with 1 in 4 Australian adults being obese. The purpose of this study was to find out the effect of brisk walking on blood pressure body mass index, and Anthropometric circumference among 18- 22 years of obese males.

II. METHOD

Thirty obese (BMI= above 30) males, aged 18 to 22 years, were selected from King Fahd University of Petroleum & Minerals, Saudi Arabia. The subject's height (cm) was measured using a stadiometer and body mass (kg) was measured with a electronic weighing machine. BMI was subsequently calculated (kg/m2). The blood pressure was measured with standardized sphygmomanometer in mm of Hg. All the measurements were taken twice before and twice after the experimental period. The pre and post anthropometric measurements of waist and hip circumference were measured with the steel tape in cm. The subjects underwent walking schedule two times in a week for 12 weeks. The 45 minute sessions of brisk walking were undertaken at an average intensity of 65% to 85% of maximum HR (HRmax; calculated as 220-age). The subjects were explained the significance of this study and also given oral instructions before the pre and post test. The training programme commenced with a training intensity of 40% to 50% HRmax in the first 2 weeks of the programme to ensure that participants should increase the fitness level and meet the required level of HRmax. The intensity and duration of the exercise programme were gradually and progressively increased, as individually the participants meet the higher demand of fitness level for the period of 12 weeks. Every session starts with 5 to 10 minutes

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of warm up/ stretching and ends with cool down. The Diet of the subjects were not controlled and taken into the consideration for this study. All the data were analyzed using the Statistical Package Statistica. Means, standard deviations, and t-test were calculated for each variable.

III. RESULTS

The analysis of data shows in the Table I to Table IV that there is a significant change from pre to post test in the subjects

TABLE I
BLOOD PRESSURE RESULTS

SI. No.	Blood pressure	No. of Subjects	Mean	SD	't' Value
1	pre test- sys/dia	30	137.17 / 75.60	11.81 / 8.66	8.83 / 17.26
2	post test- sys/dia	30	122.0/ 69	4.07/ 7.11	

P-value=0.00, 't'-test for dependent samples marked difference are significant at p< 0.05

The mean, S.D and 't'-test of the blood pressure which is the common disease nowadays among individuals due to lack of physical activity , poor life style, stress, and food habits. Mostly obese personals suffer from high blood pressure and heart problems. The mean and S.D of systolic and diastolic pressure in the pre and post test were (137.17/75.60, 11.81/8.66) and (122.0/69, 4.07/7.11) respectively. The data clearly speaks of an improved health of obese participants by reduction in blood pressure from pre to post scores, which is significant at (p<0.05).

TABLE II
(BMI) BODY MASS INDEX RESULTS

SI. No.	Body mass index	No. of Subjects	Mean	SD	't' Value
1	BMI –pre test	30	38.49	5.11	6.36
2	BMI- post test	30	36.18	4.99	

P-value=0.00, 't'-test for dependent samples marked difference are significant at p< 0.05

The mean, S.D and 't'-test of the (BMI) Body mass index which is the most common method and one of the tool of body composition to find out the fat percentage of the body. The mean and S.D in the pre and post test are (38.49,5.11) and (36.18,4.99) respectively. The data clearly speaks of an improved performance from pre to post scores of the obese participants, which is significant at (p<0.05).

TABLE III
WAIST CIRCUMFERENCE (CM) RESULTS

SI. No.	Waist circumference (CM)	No. of Subjects	Mean	SD	't' Value
1	pre test	30	124.80	9.49	11.50
2	post test	30	118.97	9.94	

P-value=0.00, 't'-test for dependent samples marked difference are significant at p< 0.05

The mean, S.D and 't'-test of the waist circumference (cm) which is the most common method and one of the tool to measure the waist line to know the fitness of an individual.

According to the International diabetic federation an individual with more than 39 inches of waist line is prone to diabetes. The mean and S.D in the pre and post test are (124.8, 9.49) and (118.07,9.94) respectively. The data clearly speaks of an improved performance from pre to post scores of the obese participants, which is significant at (p<0.05).

TABLE IV
HIP CIRCUMFERENCE (CM) RESULTS

SI. No.	Hip circumference (CM)	No. of Subjects	Mean	SD	't' Value
1	pre test	30	125.5	11.72	9.94
2	post test	30	120.5	11.82	

P-value=0.00, 't'-test for dependent samples marked difference are significant at p< 0.05

The mean, S.D and 't'-test of the hip circumference (cm) which is the most common method and one of the tool to measure the hip line to know the figure of an individual, because mostly the fat is accumulated in waist and hip line. The mean and S.D in the pre and post test are (125.5, 11.72) and (120.5, 11.82) respectively. The data clearly shows a reduction in the hipline from pre to post scores of the obese participants, which is significant at (p<0.05).

IV. DISCUSSION

This study had showed an interesting and significant result at the end with regard to the effect of brisk walking on the obese males. The subjects demonstrated a reduction in blood pressure (SBP and DBP), Body mass index and waist & hip circumference. Obese individuals have more body mass which causes the heart and cardiovascular system to endure greater work-load than a normal-weighted person. Brisk walking is a great way for the obese personals to start a walking program as it can be done with proper guidance and wearing sports shoe and dress. High blood pressure also puts one at a risk for stroke and heart disease. One longitudinal study determined that in adults with Metabolic Syndrome (a collection of risk factors for cardiovascular disease) compared to those without, differences began to be evident in BMI at ages 8 and 13, and ages 6 and 13 for waist circumference. Excess body fat has also been documented as an independent predictor of triglyceride levels and diastolic blood pressure (DSB) in both sexes, and of systolic blood pressure (SBP) in girls. The positive effect of brisk walking on blood pressure has been demonstrated in postmenopausal women. Despite the recognized importance of finding ways to effectively manage blood pressure and body mass index in Indian adults, there is a paucity of studies on the effect of walking in this population. Exercise programme counteract the aberrant metabolic profile associated with obesity directly and through body fat loss. Exercise increases the insulin sensitivity and stimulates fat metabolism, causes reduction in an extra fatty weight. Walking is a low-impact aerobic exercise that suits to one and all with out any side effects. This study also showed significant reduction in body mass index (BMI) as a result of the programme. Body mass index is independently associated with blood pressure. An increase in BMI and a decrease in BMI were significantly associated with increased and decreased SBP and DBP, respectively. This may be also one

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of the genuine reasons for lowering of blood pressure in the present study.

V. CONCLUSION

It is concluded that twelve weeks brisk walking is beneficial for lowering of blood pressure from pre to post test. With regard to body mass index an effect of aerobic exercise had also shown improvement from pre to post test. Lastly the effect of aerobic exercise had also shows improvement by reduction in anthropometric Circumference (i.e. waist & hip circumference) of obese males.

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