International Journal of Physical Education, Sports and Health 2020; 7(6): 170-173

P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2020; 7(6): 170-173

www.kheljournal.com
Received: 06-09-2020
Accepted: 17-10-2020

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The result of collective work out programme on body fat proportion and cardio vascular endurance in obese software package professionals

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DOI: https://doi.org/10.22271/kheljournal.2020.v7.i6c.1913

Abstract
Obesity comprises a foremost nutritional health issue in advanced and emerging countries, which has reached epidemic proportions. Obesity is defined as the state of excessive fat build-up to such an extent that distresses the individual's health. The purpose of the assessment was to programme on body fat proportion and cardio vascular endurance in obese software package professionals and find solutions to reduce the particular situation**.** This study was conducted in Kerala. For the purpose of the study 30 obese subjects (men) whose BMI > 30 and who have had no regular participation in physical exercise training for six months before the study were selected. Intervening combining aerobic dance and resistance exercise training for 12 weeks resulted significant improvement on body weight, body fat percentage, systolic and diastolic blood pressure, fasting blood glucose and total cholesterol, aerobic performance and muscular strength capacity in obese individuals. The results of the study were illustrating that obesity is a public health issue which is rapidly increasing and thus needs to be addressed seriously.

Keywords: Obesity, working people, health problems

Introduction
Obesity can be described as the "New World Syndrome". Its prevalence is on continuous rise in all age groups of many of the developed countries in the world. Statistical data reveals that the problem of obesity has increased from 12–20% in men and from 16–25% in women over the last ten years. Obese patients have been associated with increased risk of morbidity and mortality relative to those with ideal body weight [4]. Even modest weight reduction in the range of 5–10% of the initial body weight is associated with significant improvements in a wide range of co-morbid conditions [1].
Most previous studies on trends in the prevalence of obesity or abdominal obesity in Chinese adults were based on regional data and/or short time intervals, and recent trends are not available. We aimed to examine the secular trends in the prevalence of overweight, obesity, and abdominal obesity among Chinese adults at the national level from 1993 to 2015 [2]. Obesity is a serious public health problem in both developed and developing countries. According to world health organization, Overweight and obesity, had taken the fifth rank of leading risk factors cause of death in 2014. A healthy body requires a minimum amount of fat for the proper functioning of the hormonal, reproductive, and immune systems. Obesity can be described as the "New World Syndrome". Its prevalence is on continuous rise in all age groups of many of the developed countries in the world. Statistical data reveals that the problem of obesity has increased from 12–20% in men and from 16–25% in women over the last ten years [3]. Recent studies suggest that nearly 15–20% of the middle aged European population are obese [4] Obese patients have been associated with increased risk of morbidity and mortality relative to those with ideal body weight [5] Even modest weight reduction in the range of 5–10% of the initial body weight is associated with significant improvements in a wide range of co-morbid conditions [6, 7]. Obesity, which was once viewed as the result of lack of will power, or a lifestyle "choice" – the choice to overeat and under exercise, is now being considered more appropriately by the modern world as a chronic disease, which requires effective strategies for its management.

$$BMI = \frac{\text{Weight of an individual (in kg)}}{\text{Height}^2\ (m^2)}$$

Obesity, in simple terms, may be defined as a state imbalance between colories consumed versus colories expended which would lead to excessive or abnormal accumulation. Body mass index (BMI) is a measure of weight corrected for height and which reflects the total body fat and has been the most accepted parameter for defining overweight [8].

Conservational aspects

These factors play a critical role in the development of obesity by unmasking genetic or metabolic susceptibilities. Environmental influences act via an increase in energy intake or a decrease in energy expenditure with little physical activity and hence there is increased likelihood of becoming obese.

Sedentary behaviours, notably television watching, car ownership also contributes to the risk of obesity.

The role of passive over consumption [9], eating disorders, and preference for high carbohydrate diet also play an important role in increasing the risk of obesity.

Other food habits like smoking and alcohol consumption lowers body weight and results in higher BMI respectively. [10].

Psycho-social influence

A number of individual characteristics may place individuals at increased risk of obesity. Restrained eating also plays a role in aetiology of obesity. Restrained eaters report more food carvings and binge eating.

One of the characteristic features of dietary restraints is the tendency towards disinhibited eating in particular circumstances. Restrained eaters may be more susceptible to the availability of highly palatable foods, which act as a stimulus for excess food consumption [10].

Unfortunately, there is no consensus on how body fat is linked with morbidity and mortality because of the absence of appropriate prospective studies.

Specifically, no accepted published body fat ranges exist; those reported based on empirically set limits, population percentiles, and *z* scores have serious limitations. Additionally, methods of limited accuracy such as anthropometry are typically used to estimate fatness in population surveys [11].

Objectives of the study

This study aims to determine

To study the effect of combined aerobic dance and resistance exercise training on body weight, body fat percentage, systolic and diastolic blood pressure, fasting blood glucose and total cholesterol on inactive obesity male software package professionals.

Methodology

This study was conducted in Kerala. For the purpose of the study 30 obese software package professional (men) whose BMI > 30 and who have had no regular participation in physical exercise training for six months before the study were selected. Individuals who ever with heart disease, pulmonary disease, uncontrolled hypertension, kidney failure, musculoskeletal and/or neurological limitations to exercise and those who were participating in another research study were excluded the subjects were given 12 week combined aerobic dance and resistance training. All the subjects were performed four exercise sessions per week; three supervised by the investigators in the research Fitness center and one performed at home or in a gym, according to instructions. In every workout both aerobic and resistances exercises were combined. Sequentially, aerobic dance exercises were given first and resistance exercises followed. All workouts were preceded by a 10-minute warm which consisted of stretching of the major muscle groups and slow walking around the gym. All tests and measurements described below were performed before and after the training period. The test was done in the morning in similar time of a day. Tests were made according to the standard.

Collection of data

Data was collected through Anthropometric measurements which was done by using standardized technique and calibrated equipment. Body composition (Body fat percentage, skeletal muscle percentage, subcutaneous fat percentage, and visceral fat) and resting blood pressure (systolic and diastolic) were taken by using sensitive body composition analyzer and Mercury sphygmomanometer respectively. Fasting blood glucose and total cholesterol level were analyzed by using Life scan glucometer and AMS Vegasys Blood chemistry analyzer. The test was done in the morning after at least eight hours fasting

Table 1: Time line of intervention

DURATION	Workout time line(in minutes)					FREQUENCY	INTENSITY
	Warm up	Aerobic dance	Anaerobic dance	Cool down	Seated resting		
1ST&2ND WeekS	10	10-25	25-40	40-45	45-50	3	Aerobic -50-60% mHR Anaerobic 30-50% 1RM 1-2 set 5-8 repetition. 6 exersise
3 TO 12 weeks	10	10-30	30-50	50-55	55-60	4	Ae-60-85% m HR Anaerobic 50-60% 1RM 2-3 set 8-12 repetition. 7 exercise

Table 2: Baseline and after 12 weeks exercise training changes of all variables

VARIABLE	BASELINE	AFTER 12 WEEKS	MEAN DIFFRENCE	CHANGE%
Age in year	30.2+_4.4	nil	nil	nil
Subject , N(M)	30(27/3)	nil	nil	nil
Anthropometric and body composition				
Weight kg	81.46 ±2.96*	68 ±3.0	5.32 ±1.2	6. 1
Waist circumference	111 ±2.7	106.7 ±2.7*	4.2 ±1.1	3.8
Waist – hip ratio	1.05 ±0.04	1.01 ±0.04*	0.03 ±0.01	2.9
BMI	30.4 ±0.7	28.5 ±0.7 *	1.9 ±0.5	6.3
Body fat percentage	37.2 ±3.3	32.8 ±3.2 *	4.3 ±1.1	11.6
Skeletal muscle%	27.0 ±1.9	29.8 ±2.1 *	2.8 ±0.9	10.4
Visceral fat	15.7 ±1.9	14.0 ±1.7 *	1.7 ±0.6	10.8
Cardiovascular and metabolic variables				
Systolic BP(mmHg)	126.4 ±5.8	123.9 ±5.2 *	2.5 ±1.7	1.97
Diastolic BP(mmHg	81.3 ±3.8	79.8 ±3.9 *	1.5 ±0.9	1.8
Resting heart rate(bpm)	70.1 ±3.6	68.8 ±3.9 *	1.4 ±0.7	2.1
Fasting BG(mg/dl)	107.4 ±6.4	101.1 ±4.7 *	6.2 ±3.2	5.9
Total cholesterol(mg/dl)	194.9 ±16.2	186.7 ±12.8 *	8.3 ±4.8	4.3
cardio respiratory and strength capacity				
Running time(minutes)	8.9 ±0.74	14.0 ±0.8 *	5.3 ±0.9	59.5
VO2 max(ml/min/kg)	30.5 ±2.9	51.9 ±3.5 *	21.8 ±4.4	71.5
Total 1RM(kg)	55.3 ±6.0	69.8 ±7.1 *	14.5 ±3.5	26.3

Analysis of data and result of the study

The statistical computation of the data was analyzed by using SPSS statistical package software (version 17.0). Descriptive statistics (mean and standard deviation) was used to analyze continuous variables. Paired sample T test was used to compare the difference between baseline and after 12 weeks intervention. Differences were considered statistically significant at p-values < 0.05. Pearson correlation coefficient was used to assess the relationship between body composition and metabolic parameters at baseline.

Results and discussion

Results: A total of 30 (85.7%) adult obese subjects (age 30.2±4.4 y; weight 86.8 ± 3.0 kg; BMI 30.4 ± 0.7 kg/m2,) were completed the 12 weeks intervention study. The descriptive characteristics of the subjects at baseline and after 12 weeks are summarized in table 2. A paired sample T test between baseline and after training was done. After 12 weeks intervention statistically, significant changes were observed in all variables from baseline.

Conclusion

Intervening combining aerobic dance and resistance exercise training for 12 weeks resulted significant improvement on body weight, body fat percentage, systolic and diastolic blood pressure, fasting blood glucose and total cholesterol, aerobic performance and muscular strength capacity in obese individuals. Adhering only on one type training (aerobic or resistance) will not be guaranteed to address different health related fitness components concurrently. Based on our study result, it is therefore recommended that obese individuals should perform regular physical training by combining aerobic and resistance exercises so that the body improves both cardio-respiratory fitness and muscular strength capacity simultaneously. Further studies need to be done how the combination of combined exercise training and diet restriction affects body weight and body compositions on obese individuals.

This article concludes that future clinical research needs to look at the utility of taking a weight history. Evidence-based medicine needs to focus on those aspects of clinical history that impact quality care and therefore increase primary care efficiency. Obesity treatment can benefit from the documented success that the Patient Health Questionnaire-9 screening tool has provided for depression. Previously, mental health was a realm left to the psychiatrist; the advent of short assessment and screening tools, in addition to more effective pharmacotherapy, assisted primary care providers in creating well-rounded treatment plans. In-depth psychotherapy added on to the treatment plan may provide more comprehensive care; however, training primary care providers to evaluate and treat depression and anxiety significantly improved the delivery of mental health care [11].

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