Research Paper Physical Education

Correlational Study of Gross Efficiency and Morphologic Parameters of Mid Age Obese Men

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ABSTRACT

The present study assessed the status and relationship between gross efficiency and morphologic parameters of obese mid age men residing in West Bengal, India. A total of 44 mid age obese men of sedentary habits i.e. lifestyle habits without any structured physical activities, aged 35-55 years participated in this study. Height, weight, waist circumference, body surface area, and lean body mass were selected as morphologic parameters. All the morphologic parameters were measured by using standardized methods while gross efficiency was estimated from work output and exercising energy expenditure adopting standard equations of the American College of Sports Medicine (ACSM, 2002).The results indicated that gross efficiency was directly proportional to selected morphologic parameters of obese people (p<0.05).

KEYWORDS : Gross efficiency, Morphologic parameters, Obese mid age men

Background

In human movements, efficiency is the relationship between the amount of work done on a load and the energy expended in completing the work. A measure of gross efficiency is not only important to athletes but also to general population.Work efficiency and physiological fitness declines with age and improves with exercise training.

The increasing prevalence obesity is a major public health problem worldwide. Obesity is one of the basic clinical conditions of metabolic syndrome which is a cluster of risk factors for cardiovascular disease. Excess abdominal fat (also known as central or upper body fat) is associated with an increased risk of cardio-metabolic disease. So maintain obesity and the metabolic syndromes have important. Obesity has been recognised as a potential risk factor for cardiovascular disease (CVD), diabetes mellitus and cancer.

Materials and Methods

Forty four obese mid age sedentary male subjects participated in this study. The average age of the subjects was 45.14±5.83 years and the study area was Birbhum district in West Bengal. Criterion Measures: gross efficiency (GE) was estimated from work output and exercising energy expenditure in % using standard equations. Morphologic parameters namely height and waist circumference (WC) were measured in cm; body weight and lean body mass (LBM) in kg; body surface area (BSA) in m2, body fat (BF) in %. Analytical Techniques: To assess the relationship between % gross efficiency and selected morphologic parameters, descriptive statistics and Pearson product moment method of correlation were computed using Microsoft excel and SPSS Software version 20. The level of significance was set at 0.05.

Findings and Results

The finding pertaining to personal data and % gross efficiency of the subjects has been presented in table 1.

Table 1: % Gross Efficiency and Selected Morphologic Parameters of Obese Group

	Mean	± SD	SEM
% Gross Efficiency	17.55	0.21	0.05
Height (cm)	164.14	7.72	1.65
Weight (kg)	75.24	8.89	1.90
BMI (kg/sq. m)	28.01	3.59	0.77
Body Fat (%)	26.08	3.02	0.64
Lean Body Mass (kg)	55.54	6.34	1.35
Waist Circumference (cm)	92.41	6.07	1.29
Body Surface Areas (sq. mt)	1.85	0.13	0.03

The mean gross efficiency of obese group was 17.55%. The mean height of obese men was 164.14±7.72 cm. The mean weight of the group was 75.24±8.89 kg. The mean BMI of the group was 28.01±3.59 kg/sq. mt. The mean body fat, lean body mass, waist circumference and body surface area was 26.083.02%, 55.54±6.34 kg, 92.41±6.07 cm and 1.85±0.13 sq. mt. respectively.

Table 2: Correlational Table of Gross Efficiency and Selected Morphological Parameters

	% GE	Height	Body Weight	% BF	LBM	WC	BSA
% GE	1						
Height	0.876*	1					
Body Weight	0.506*	0.322	1				
% BF	-0.298	-0.197	0.309	1			
LBM	0.644*	0.414	0.937*	-0.041	1		
WC	0.423*	0.407	0.636*	0.364	0.539*	1	
BSA	0.719*	0.606*	0.948*	0.196	0.925*	0.675*	1

*. Significant at 0.05 levels

Table 2 shows that the % gross efficiency was directly proportional to height, weight, lean body mass, waist circumference and body surface area respectively. Height was positively related with body surface area. Body weight was directly proportional to lean body mass, waist circumference and body surface area. Lean body mass was positively correlated with waist circumference and body surface area. Waist circumference is positively related with body surface area.

Conclusion

On the basis of results of the study it may by concluded that morphologic parameters are directly proportional to % gross efficiency except % body fat of mid age men.

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