



## EFFECT OF REPETITIVE SET OF MULTIPLE EXERCISE RESISTANCE TRAINING ON SELECTED BODY COMPOSITION VARIABLES

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### **Abstract:**

The purpose of the study was to find out the effect of repetitive set of multiple exercise resistance training on selected body composition variables. To achieve the purpose of the present study, thirty college male students were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into two equal groups of fifteen male students each. The study was formulated as a true random group design, consisting of a pre-test and post-test. The groups were assigned as repetitive set of multiple exercise resistance training and control group in an equivalent manner. The experimental group participated the training for a period of twelve weeks to find out the outcome of the training packages and the control group did not participated in any training programme. Paired ‘t’ test was applied. In all cases 0.05 level of confidence was fixed to test hypotheses. Results reveals that the repetitive set of multiple exercise resistance training group had shown significant improvement in all the selected body composition variables after undergoing training for a period of twelve weeks.

**Key Words:** Repetitive Set of Multiple Exercise Resistance Training & Body Composition Variables

### **Introduction:**

Resistance training is a type of quality preparing in which every exertion is performed against a particular contradicting power created by resistance. Resistance exercise practice is utilized to build up the quality and size of skeletal muscles. Appropriately performed resistance training can give huge utilitarian advantages and change in general wellbeing and prosperity. According to the American Sports Medicine Institute (ASMI) is to gradually and progressively overload the musculature system so it gets stronger. Resistance training is a methodology of activity that has developed in prominence in the course of recent decades, especially for its part in enhancing athletic execution by expanding muscular strength, power and body mass index, hypertrophy, local muscular endurance, motor performance, balance, and coordination. Traditionally, resistance training was performed by few individuals (e.g., strength athletes and those who strived to gain muscle hypertrophy such as body builders). However, we now have a better understanding of the health-related benefits of resistance training; resistance training is now a popular form of exercise that is recommended by national health organizations such as the American College of Sports Medicine and the American Heart Association (ACSM, 2002) for most populations including adolescents, healthy adults, the elderly, and clinical populations (e.g., those individuals with cardiovascular disease, neuromuscular disease). According to the several benefits of resistance training; the data about the design of resistance training is no unequivocal vote. Numerous researchers compared different resistance training systems and found different results for the body composition variables. One of the important keys for the design of resistance training is number of sets. Repetitive set system are common systems for improving muscular performance in trained and healthy subjects (Fleck & Kraemer, 2004). The single set system, the performance of each exercise for one set, is one of the oldest resistance training systems, whereas a multiple set system can involve performing multiple sets (e.g., 3 sets) with the same resistance. Therefore, the purpose of this study was to examine the effects of 12 weeks condensed repetitive set of multiple exercise resistance training on body composition in healthy males.

### **Statement of the Problem:**

The purpose of the study was to find out the effect of repetitive set of multiple exercise resistance training on selected body composition variables.

### **Significance of the Study:**

- The study was significant in the following ways.
- ✓ The findings of this study would be helpful to male students to resort to repetitive set of multiple exercise resistance training not only for its benefits but also for economy in cost and time.
  - ✓ The study would indicate the training impact of repetitive set of multiple exercise resistance training.
  - ✓ Further it may give additional information to the physical education professionals and the society.

### **Hypothesis:**

- ✓ The repetitive set of multiple exercise resistance training group would significantly develop the selected body composition variables than the control group.

**Delimitations:**

- The study was confined to the following aspects.
- ✓ Only thirty college male students were selected as subjects at random were chosen as the subjects.
- ✓ The age of the subjects ranges from 18 to 25 years.
- ✓ The training period was limited to 12 weeks.
- ✓ One experimental group was employed in the study.

**Limitations:**

- The study was limited to the following aspects:
- ✓ The change in climatic conditions such as temperature, atmospheric pressure, humidity, etc., during the training as well as testing period could not be controlled. So, their influence on the results of the study was recognised as one of the limitations.
- ✓ Apart from the training programme, the involvement of the subjects in daily routines was not taken into consideration.
- ✓ No specific motivational techniques were used to encourage the subjects to attain their maximum performance.
- ✓ The effect of unidentified and uncontrollable factors like food habits, life style and health conditions of the subjects during the training as well as testing periods that might have influenced the test items were accepted as a limitation.
- ✓ Since the selected subjects were from different locality the socio-economic status was not taken into consideration.

**Selection of Subjects:**

To achieve the purpose of the present study, thirty college male students were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into two equal groups of fifteen male students each.

**Experimental Design:**

The study was formulated as a true random group design, consisting of a pre-test and post-test. The groups were assigned as repetitive set of multiple exercise resistance training and control group in an equivalent manner. The experimental group participated the training for a period of twelve weeks to find out the outcome of the training packages and the control group did not participated in any training programme.

Table 1: Variables and Test Items

S.No	Variables	Tests
1	Body Mass Index	$BMI = \text{weight in kg} / \text{height in meter}^2$
2	Percent Body Fat	Bioelectrical Impedance Analyzer (Omron Body Fat Monitor HBF-306)
3	Lean Body Mass	Lean body mass (kg) = Body weight (kg) – Fat mass(kg)

**Statistics Used:**

Paired ‘t’ test was applied. In all cases 0.05 level of confidence was fixed to test hypotheses.

**Results:**

Table 2: Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Repetitive Set of Multiple Exercise Resistance Training Group

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	‘t’ Ratio
1	Body Mass Index	24.80	22.26	2.54	1.35	0.35	7.27*
2	Percent Body Fat	18.21	15.71	2.50	1.90	0.49	5.09*
3	Lean Body Mass	50.83	55.72	4.89	2.35	0.60	8.06*

\* Significant at 0.05 level

Table 2 shows the obtained ‘t’ ratios for pre and post test mean difference in the selected variable of body mass index (7.27), percent body fat (5.09) and lean body mass (8.06). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the means gain and losses made from pre to post test were significantly improved in body composition variables of body mass index (2.50, p<0.05), percent body fat (2.50, p<0.05) and lean body mass (4.89, p<0.05).

Figure 1: Shows the Pre And Post Mean Values of Experimental Group on Selected Variables

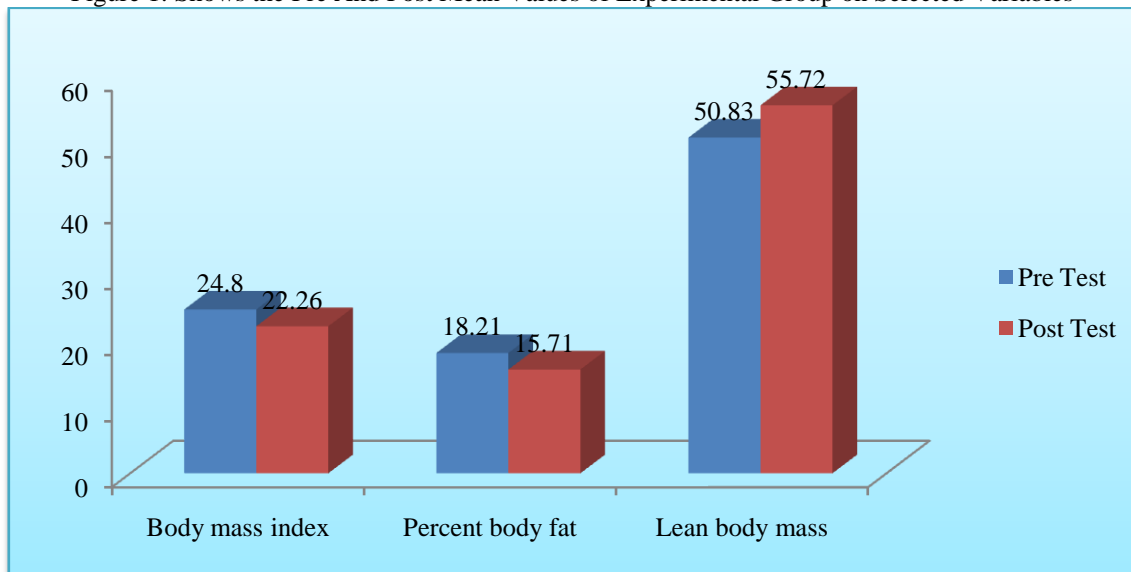


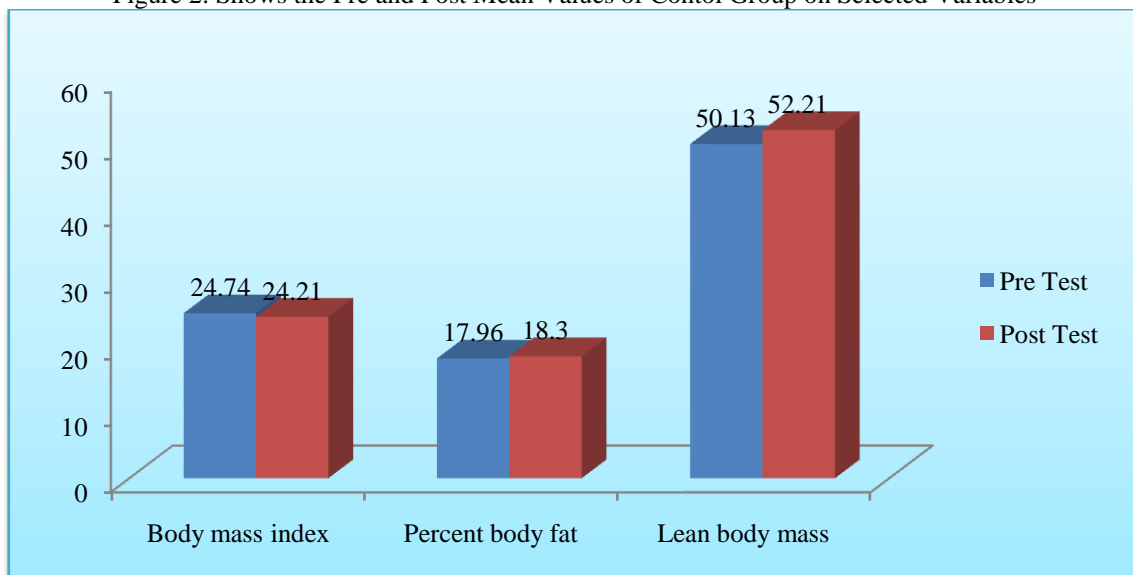
Table 3: Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Control Group

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean Difference	Std. Dev ( $\pm$ )	$\sigma$ DM	't' Ratio
1	Body Mass Index	24.74	24.21	0.52	2.16	0.55	0.94
2	Percent Body Fat	17.96	18.30	0.33	1.68	0.43	0.77
3	Lean Body Mass	50.13	52.21	2.08	3.97	1.02	2.03

\* Significant at 0.05 level

Table 3 shows the obtained 't' ratios for pre and post test mean difference in the selected variable of body mass index (0.94), percent body fat (0.77) and lean body mass (2.03). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically insignificant at 0.05 level of confidence. It was observed that the means gain and losses made from pre to post test were not significantly improved in body composition variables.

Figure 2: Shows the Pre and Post Mean Values of Control Group on Selected Variables



**Conclusion:**

The repetitive set of multiple exercise resistance training group had shown significant improvement in all the selected body composition variables after undergoing training for a period of twelve weeks.

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