

EFFECT OF RESISTANCE TRAINING WITH MOBILITY TRAINING ON PERFORMANCE RELATED FITNESS VARIABLES AMONG UNTRAINED MEN

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ABSTRACT

The purpose of the study was to find out the effect of resistance training with mobility training on selected performance related fitness variables among untrained men. To achieve this purpose, 40 male students studying in various classes were randomly selected as subjects from Mailam Engineering and Technology, villupuram, Tamilnadu. The age of the subjects were ranged from 18 to 25 years. The subjects were further classified at random into two equal groups of 20 subjects each. Group - I underwent resistance training with mobility training for three days per week for twelve weeks and group - II acted as control. The selected criterion variables namely speed and shoulder strength was assessed before and after the training period. The collected data were statistically analyzed by using Analysis of Covariance (ANCOVA). From the results of the study it was found that there was a significant improvement on speed and shoulder strength among the resistance training group when compared with the control group.

Keywords: Resistance Training, Performance, Fitness, Mobility.

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INTRODUCTION

Muscle strength and power are important determinants of a successful performance in many individual and team sports. Consequently, during the past decades much attention both from coaches and researchers has been focused on determining the optimal training methods for the development of strength, power and competitive performance (1).

Resistance training has two different meanings. A broader meaning that refers to any training that uses a resistance to the force of muscular contraction (better termed strength training), and elastic or hydraulic resistance, which refers to a specific type of strength training that uses elastic or hydraulic tension to provide this resistance. Resistance training is a form of strength training in which each effort is performed against a specific opposing force generated by resistance (i.e. resistance to being pushed, squeezed, stretched or bent). Exercises are isotonic if a body part is moving against the force. Exercises are isometric if a body part is holding still against the force.

Resistance exercise is used to develop the strength and size of skeletal muscles. Properly performed, resistance training can provide significant functional benefits and improvement in overall health and well-being. The goal of resistance training, according to the American Sports Medicine Institute (ASMI), is to "gradually and progressively overload the musculoskeletal system so it gets stronger."

Research shows that regular resistance training will strengthen and tone muscles and increase bone mass. Resistance training should not be confused with weightlifting, power lifting or bodybuilding, which are competitive sports involving different types of strength training with non-elastic forces such as gravity (weight training or Plyometrics) rather an immovable resistance (isometrics, usually the body's own muscles or a structural feature such as a doorframe). Full range of motion is important in resistance training because muscle overload occurs only at the specific joint angles where the muscle is worked. Athletic performance in many sports demands the development of muscle strength, which is required for other performance related characteristics, notably speed and power.

Muscle strength is routinely developed through prolonged participation in a structured resistance exercise programmes. Yet despite extensive research in the area, the adaptive mechanisms contributing to maximal strength adaptation are not yet fully understood.

A number of key principles are applied during resistance exercise programmes. Legend suggests Greek athlete Milo of Croton lifted and carried a calf on his shoulders each day from birth until it became fully grown; as the animal grew in size so did his strength. This legend clearly demonstrates the importance of applying a progressively increasing external load. The mechanical loading of muscle as a consequence of the external load is perhaps the most important consideration of any resistance-training

programme. Research has consistently indicated that moderate to heavy loads are required in order to gain an increase in muscle size, muscle activity and muscle strength. Correspondingly, an extensive review of the literature and current guidelines published by the American College of Sports Medicine (ACSM) suggest relatively heavy loads that equal, or are in advance of 80% of a one-repetition maximum (1RM) are required in order to achieve optimal strength gains (2).

A number of studies that used the term strengthening in fact used resistance training. Because strengthening is a generic term and has received criticism for being a vague term that most often fails to define the type of strengthening used (3).

Resistance exercise programmes can be modified not only by the external load, but also by the speed of contraction, and level of induced fatigue. Altering resistance exercise programmes in just one of these ways will induce a distinct skeletal muscle response. However, the combined effects of adjusting training in two or more of these areas simultaneously will result in more complex physiological interactions that may either hinder or improve training related strength gains. Unfortunately, we still have insufficient evidence to fully understand the complex interactions between load, movement speed and the extent of muscular exhaustion induced by the level of work (e.g. completed number of sets and repetitions). Resistance training appears to be a safe and effective form of intervention for patients with muscle strength deficit, but further evidence is needed to determine whether this type of exercise can improve function and quality of life (4).

High resistance training improves muscle strength and physical capacity in elderly individuals, but benefits with regard to disability and quality of life remain unclear (5). Marked evidence indicates that regular participation in a resistance training program can improve measures of strength and power in adults (6). Interest in resistance training received a considerable boost during World War II, when DeLorme demonstrated the importance of progressive resistance training for improving muscle strength and hypertrophy during rehabilitation programs for injuries (7).

Mobility refers to free joint movements throughout its full range of motion. Mobility comprises muscle length, muscle tension, tissue quality and how the nervous system controls the joint. Mobility needs corrective exercises to address nervous system, stretching the muscle length and dynamic mobility, foam rolling and massage to the muscle tension.

METHODOLOGY

Selection of Subjects:

40 male students were randomly selected as subjects from Mailam Engineering and Technology, villupuram, Tamilnadu studying in various classes. The age of the subjects were ranged from 18 to 25 years. The subjects were further classified at random into two equal groups of 20 subjects each. Group - I underwent resistance training with mobility

training for three days per week for twelve weeks. The duration of the sessions was 60 minutes which includes 10 minutes each for warm up and warm down. The active duration of 40 minutes Group - I underwent resistance training with mobility training and group - II acted as control.

Selection of Variables:

The subjects were assessed on selected criterion variables namely speed and shoulder strength before and after the training period. The selected variables were measured by using standard testing procedures (Speed: 50 mts dash, shoulder strength: cricket ball throw).

Statistical Analysis:

The data collected from high resistance training with mobility training and control groups before and after completion of the training period on selected variables were statistically examined by using Means, SDs, and Analysis of Covariance (ANCOVA). All the data were analyzed using SPSS statistical package. The level of confidence was fixed at 0.05 level of significance.

RESULTS AND DISCUSSION

The Analysis of covariance on speed and shoulder strength of the pre test and post test scores of resistance training with mobility training and control group have been analyzed and data pertaining to this, has been presented in the table 1.

TABLE 1
ANALYSIS OF CO VARIANCE ON SELECTED VARIABLES AMONG
RESISTANCE AND CONTROL GROUPS

Variables	Tests	Control Group Mean $\pm$ S.D	Experimental Group Mean $\pm$ S.D.	F- Ratio
Speed	Pre-test	7.97 $\pm$ 0.32	8.03 $\pm$ 0.31	0.28
	Post-test	7.99 $\pm$ 0.32	7.88 $\pm$ 0.32	1.14
	Adj. Post-test Mean	8.01	7.85	105.49*
Shoulder strength	Pre-test	63.07 $\pm$ 3.82	62.91 $\pm$ 3.52	0.02
	Post-test	62.75 $\pm$ 3.77	67.00 $\pm$ 3.37	14.13*
	Adj. Post-test Mean	62.68	67.08	136.16*

* significance at .05 level

The findings of table 1 shows that significant difference existing between resistance training with mobility training and control group on speed and shoulder strength, as the obtained 'F' ratio of 105.49, and 136.16 respectively for adjusted post test means were greater than the required value of 4.1 for significance at 0.5 level of confidence.

From this study the resistance training with mobility training has its influence in the performance related variables among untrained men.

CONCLUSION

Based on the results of the study, it is concluded that there was a significant difference between resistance training with mobility training group and control group on speed and shoulder strength.

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