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Impact of Resistance Training on the Physical Fitness of the Weight Lifters: An Assessment

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ABSTRACT

The present study has been carried out to find out the impact of resistance training on the selected physical variables of the male and female weight lifters. For this purpose the researcher has followed the purposive sampling method. The researcher has selected a sample of 40 weight lifters including male and female age ranging 19-23 from various colleges in Andhra University as the subject for this study. Bent Knee Sit-Ups were used to gauge muscular endurance, while Standing Broad Jump was used to gauge muscular strength. The Sargent Jump was used to assess muscular power. Both before to and after training, data were gathered. The t test, mean, and standard deviation were used to analyse the collected data. Squats, bench presses, barbell lunges, lat pulldowns, and abdominal crunches were the five resistance exercises that the participants in the exercise training group practiced. The study's conclusions show that resistance exercise training significantly affects a few key physical characteristics of both male and female weight lifters.

KEYWORDS: *resistance training, player's ability, muscular Endurance, weight lifters.*

Introduction: In sports, a player's ability to use their muscles is crucial to their success. Explosive resistances with lower weights are often used to transmit power. Power training should be done at the start of an exercise session or on a different training day in order to get the most advantages. A mix of light and heavy weights used throughout the exercise yields the greatest results. workouts with high weights preceded by light power workouts increase activation and prime the body for increased effort in the lighter load. "In order to increase the number of type LIB fibres accessible for the explosive activity, the neurological system is activated by intense resistance training". (Singh and Pardhi,2020) Weight lifting exercise has been used to refer to the combination of heavier and lesser resistance exercises performed throughout a session. Exercises that employ contrasting loads, or sets of heavy and light exercises alternated with one another, are referred to as weight lifting exercises. The usual training strategy is to do lesser resistances prior to heavier resistances. Verkhoshansky and Tatyan investigated if altering the sequence in which exercises are performed within a single training session resulted in any discernible differences in power development. The impact of several sets of a heavy loaded exercise, as in a normal resistance session, on power performance has not been studied, despite the fact that intensive exercise causes a potentiation of power performance due to increased neuromuscular activation. "The effects of resistance training programme on physical fitness performance of college male weight lifters" was the stated goal of this study. There has been a documented decrease in college students' physical activity levels over the last ten years (Sacheck et al., 2010). One of the most crucial components of a healthy lifestyle is regular physical exercise. It is linked to improved psychological wellness with reduced stress levels and higher cognitive functioning, as well as a lower risk of obesity and heart disease (Shaw et al., 2004; Coyle 2009; Pertruzelo et al., 1991; Crews and Landers 1987; Etnier et al., 1997). According to recent research, "neither moderate nor intense physical exercise is practiced by college students. When comparing college students to high school students, there is a concerning drop in physical activity".(Bray and Born 2004)

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"Resistance to muscular contraction is used in resistance training, also known as strength training or weight training, to increase skeletal muscle growth, anaerobic endurance, and strength. The foundation of resistance training is the idea that the body's muscles will exert themselves to overcome a resistance force when necessary. Your muscles gain strength via regular, consistent resistance exercise. Strength training enhances bone density, muscular, tendon, and ligament strength; it also improves joint function; aerobic exercise improves heart and lung fitness; and balance and flexibility exercises are all part of a well-rounded fitness programme". (Kaukab,2014)

Significance of the Study: This study aims to explore the potential effect of exercise training on these performance-related physical variables among weightlifters, which may help optimize training strategies and enhance competitive outcomes. Understanding the physical effects of exercise training on male and female weightlifters is crucial for developing comprehensive training programs and improving overall well-being. By analyzing selected physical variables, this study will contribute to the existing literature, providing valuable insights for athletes, coaches, and researchers in the field of exercise science and sport psychology.

Objectives: The present study has been undertaken with the following objectives-

- To find out the impact of Resistance training on the physical variables of the male weight lifters.
- To find out the impact of Resistance training on the physical variables of the female weight lifters

Hypothesis:

- ✓ "There is no significant impact of resistance training on the muscular strength of the male weight lifters".
- ✓ "There is no significant impact of resistance training on the muscular Endurance of the male weight lifters".
- ✓ "There is no significant impact of resistance training on the muscular power of the male weight lifters".
- ✓ "There is no significant impact of resistance training on the muscular strength of the female weight lifters".
- ✓ "There is no significant impact of resistance training on the muscular Endurance of the female weight lifters".
- ✓ "There is no significant impact of resistance training on the muscular power of the female weight lifters".

Methodology: The present study will follow the cross sectional study design.

Variables to be tested:

- ✓ Muscle Strength
- ✓ Muscular Endurance
- ✓ Muscular Power

Samples: By following the purposive sampling method the researcher has selected a sample of 40 weight lifters including male and female age ranging 19-23 from various colleges in Andhra University as the subject for this study. Every topic met clinical standards, and the food and facilities were all the same.

Data Collection: Bent Knee Sit-Ups were used to gauge muscular endurance, while Standing Broad Jump was used to gauge muscular strength. The Sargent Jump was used to assess muscular power.

Both before to and after training, data were gathered. Collected data were analyzed with the help of Mean, SD and t test.

Training/Treatment: Following the baseline assessments, the training group using the conventional technique engaged in resistance exercise training for a duration of 12 weeks, six days a week. Three sets of resistance exercises made up the exercise regimen. For instance, squats. Before becoming weary, all individuals completed a maximum of twelve repetitions of the activity. Squats, bench presses, barbell lunges, lat pulldowns, and abdominal crunches were the five resistance exercises that the participants in the exercise training group practiced.

DATA ANALYSIS AND INTERPRETATION:

Table 1- Mean and SD of the of the Selected Physical variables for male weight Lifters

Selected Variables	N	Pre Test		Post Test		t value
		Mean	SD	Mean	SD	
Muscular strength	26	35.33	5.24	51.96	12.95	6.06
Muscular endurance	26	20.10	3.53	24.56	3.12	4.82
Muscular Power	26	19.06	7.38	25.46	7.26	3.15

To find out the impact of resistance exercise on the selected physical variables of the male weight lifters Mean, SD and t test have been applied. From the above table it is clear that the mean score of the Muscular strength before training is 35.33 and the SD is 5.24 but after the 12 weeks training the mean score is 51.96 and the SD is 12.95. The calculated t value is 6.06 which is much greater than the table value. Therefore the formulated null hypothesis "There is no significant impact of resistance training on the muscular strength of the male weight lifters" is rejected. Similarly the mean score of the Muscular endurance before training is 20.10 and SD is 3.53. But after training the mean score for the same is 24.56 and SD is 3.12. The calculated t value is 4.82 which is much higher than the table value. Therefore the formulated null hypothesis "There is no significant impact of resistance training on the muscular Endurance of the male weight lifters" is rejected. Like these two variables the mean score for the Muscular Power before training is 19.06 and SD is 7.38. But after training the mean score is 25.46 and SD is 7.26. The calculated t value is 3.15 which is much higher than the table value. Therefore the formulated null hypothesis "There is no significant impact of resistance training on the muscular power of the male weight lifters" is rejected. Hence it can be concluded that the resistance training has brought about significant changes in the physical variables of the male weight lifters.

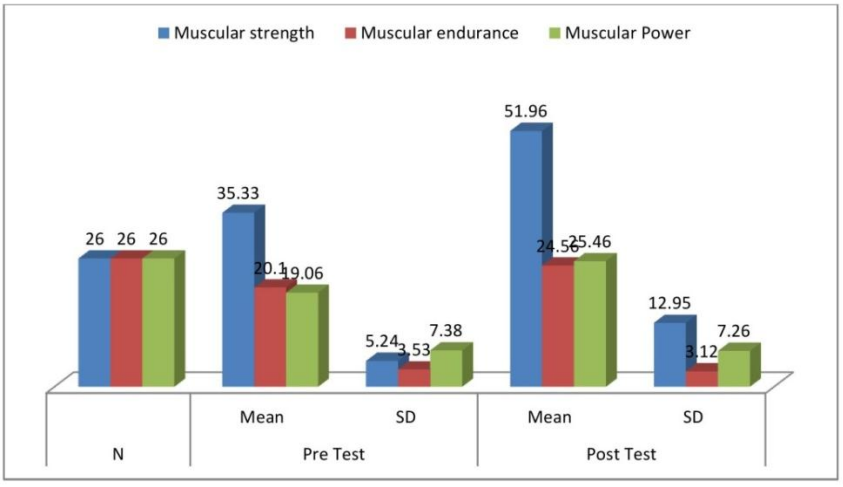

Fig.1: showing Mean and SD of the of the Selected Physical variables for male weight Lifters

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Table 2- Mean and SD of the of the Selected Physical variables for female weight Lifters

Selected Variables	N	Pre Test		Post Test		t value
		Mean	SD	Mean	SD	
Muscular strength	14	3.24	4.25	42.64	8.42	4.52
Muscular endurance	14	18.38	3.26	20.84	3.64	1.88
Muscular Power	14	17.62	6.14	22.65	6.84	2.04

To find out the impact of resistance exercise on the selected physical variables of the female weight lifters Mean, SD and t test have been applied. From the above table it is clear that the mean score of the Muscular strength before training is 31.24 and the SD is 4.25 but after the 12 weeks training the mean score is 42.64 and the SD is 8.42. The calculated t value is 4.52 which is much greater than the table value. Therefore the formulated null hypothesis "There is no significant impact of resistance training on the muscular strength of the female weight lifters" is rejected. Similarly the mean score of the Muscular endurance before training is 18.38 and SD is 3.26. But after training the mean score for the same is 20.84 and SD is 3.64. The calculated t value is 1.88 which is lower than the table value. Therefore the formulated null hypothesis "There is no significant impact of resistance training on the muscular Endurance of the female weight lifters" is retained. Like these two variables the mean score for the Muscular Power before training is 17.62 and SD is 6.14. But after training the mean score is 22.65 and SD is 6.84. The calculated t value is 2.04 which is higher than the table value. Therefore the formulated null hypothesis "There is no significant impact of resistance training on the muscular power of the female weight lifters" is rejected. Hence it can be concluded that the resistance training has brought about significant changes in the physical variables of the female weight lifters.

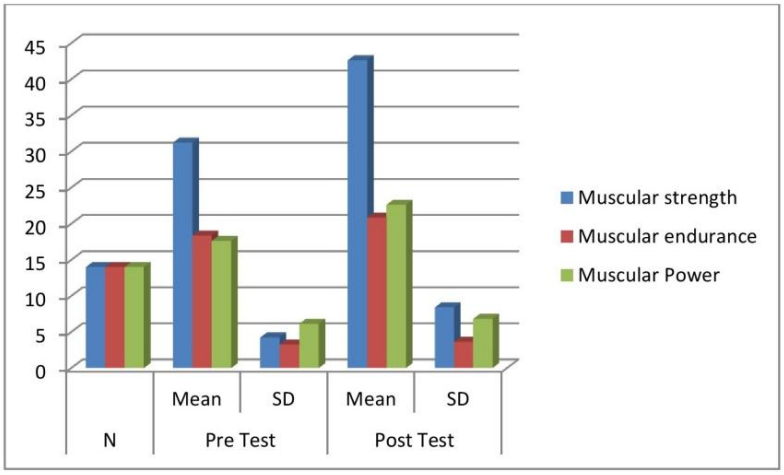

***Fig.2: Showing** Mean and SD of the of the Selected Physical variables for female weight Lifters*

Findings:

- The physical characteristics of male weight lifters, such as muscular strength, muscular endurance, and muscular power, have changed significantly as a result of resistance training.
- Female weightlifters' muscular strength and muscular power are significantly impacted by resistance training.

CONCLUSION: One kind of exercise that increases muscular strength and endurance is resistance training. This is sometimes referred to as weightlifting or strength training. In a resistance training session, the athlete works their limbs against resistance via dumbbells, bands, weighted bars, and/or their own body weight. Resistance training activities may also be performed on some workout equipment. Adolescents who get resistance training under careful supervision and with appropriate

design have been shown to benefit from it safely. "Resistance training is advised for youth by reputable scientific organizations in order to build muscle strength, reduce the risk of sports-related injuries, boost athletic and leisure performance, and positively impact lifestyle and health".(Garber, et al,.2011)

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