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INFLUENCE OF KETTLE BELL TRAINING ON ELASTIC POWER AND EXPLOSIVE POWER IN TERMS OF VERTICAL DISTANCE AMONG UNIVERSITY MEN STUDENTS

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Abstract:

The purpose of the study was designed to examine the effect of kettle bell training on elastic power and explosive power in terms of vertical distance of university men students. For the purpose of the study, thirty men students from various departments in Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu, India were selected as subjects. They were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent kettle bell training for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables namely elastic power and explosive power in terms of vertical distance were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables by using bunny hops and vertical jump respectively at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered appropriate. The results of the study showed that there was a significant difference between kettle bell training group and control group on elastic power and explosive power in terms of vertical distance. And also it was found that there was a significant improvement on elastic power and explosive power in terms of vertical distance due to twelve weeks of kettle bell training.

Key Words: Kettle Bell Training, Elastic Power, Explosive Power In Terms Of Vertical Distance, University Men Students.

Introduction:

Kettlebell training has long been recognized as a powerful tool for developing strength, endurance, and overall fitness. However, when combined with principles of elastic power and explosive power, it transforms into an elite training method for athletes, fitness enthusiasts, and anyone looking to enhance their speed, agility, and dynamic strength. Elastic power refers to the ability of muscles and tendons to store and release energy efficiently. This concept is closely related to plyometric training, where the body utilizes the stretch-shortening cycle (SSC) to generate rapid and forceful movements. When performing kettlebell swings, cleans, or snatches, the muscles act like loaded springs-storing potential energy during the downward phase and releasing it explosively during the upward phase.

By training with kettlebells in a way that emphasizes elasticity, individuals can improve their reactive strength, enhance tendon resilience, and increase movement efficiency. Exercises such as ballistic kettlebell swings, depth drops, and rebound snatches are excellent for developing this quality, as they force the body to absorb, store, and rapidly redirect force. Explosive power is the ability to generate maximal force in the shortest time possible. It is a crucial attribute for athletes in sports requiring sprinting, jumping, and quick directional changes. Kettlebell training is highly effective for explosive power development because of its emphasis on dynamic, full-body movements that recruit fast-twitch muscle fibers.

Exercises such as the kettlebell snatch, jerk, and clean & press are prime examples of explosive training, as they require a powerful hip extension, rapid force production, and coordination. The dynamic nature of these movements enhances the body's neuromuscular efficiency, allowing athletes to develop higher levels of power output. While elastic power and explosive power are distinct, they are highly complementary. Elastic power allows for better force absorption and redirection, while explosive power ensures rapid and forceful execution of movements. When integrated into kettlebell training, these two elements create a more efficient, powerful, and injury-resistant athlete.

For example, a well-executed kettlebell swing leverages elastic energy during the backswing and then transitions into explosive power during the hip drive, launching the kettlebell forward with speed and control. Similarly, the Turkish get-up combines stability, strength, and controlled explosive power, making it an exceptional exercise for athletic development. Kettlebell training for elastic and explosive power is a game-changer for anyone looking to improve their performance in dynamic activities. By incorporating ballistic and plyometric-style kettlebell exercises, individuals can develop faster reflexes, stronger connective tissues, and

greater power output**.** Whether you're an athlete, fitness enthusiast, or someone looking to enhance overall movement efficiency, kettlebell training is an essential tool for unlocking your peak physical potential.

Methodology:

The purpose of the study was designed to examine the effect of kettle bell training on elastic power and explosive power in terms of vertical distance of university men students. For the study, thirty men students from various departments in Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu, India were selected as subjects. They were divided into two equal groups. Each group consisted of fifteen subjects. Group I underwent kettle bell training for three days per week for twelve weeks. Group II acted as control who did not undergo any special training programme apart from their regular physical education programme. The following variables namely elastic power and explosive power in terms of vertical distance were selected as criterion variables. All the subjects of two groups were tested on selected dependent variables by using bunny hops and vertical jump respectively at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference if any among the groups. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance, which was considered appropriate.

Analysis of the Data:

Elastic Power:

The analysis of covariance on elastic power of the pre and post test scores of kettle bell training group and control group have been analyzed and presented in table 1.

Table 1: Analysis of Covariance of the Data on Elastic Power of Pre and Post Tests Scores of Kettle Bell Training and Control Groups

Test	Kettle Bell Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	4.74	4.69	Between	0.0163	1	0.0163	0.33
S.D.	0.22	0.31	Within	1.4053	28	0.0502	
Post Test							
Mean	5.03	4.72	Between	0.7053	1	0.7053	6.96*
S.D.	0.22	0.21	Within	2.8387	28	0.1014	
Adjusted Post Test							
Mean	5.00	4.74	Between	0.5049	1	0.5049	17.34*
			Within	0.7861	27	0.0291	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table 1 shows that the adjusted post-test means of kettle bell training group and control group are 5.00 and 4.74 respectively on elastic power. The obtained "F" ratio of 17.34 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on elastic power.

The results of the study indicated that there was a significant difference between the adjusted post-test means of kettle bell training group and control group on elastic power.

Explosive Power in Terms of Vertical Distance:

The analysis of covariance on explosive power in terms of vertical distance of the pre and post test scores of kettle bell training group and control group have been analyzed and presented in table 2.

Table 2: Analysis of Covariance of the Data on Explosive Power in Terms of Vertical Distance of Pre and Post Tests Scores of Kettle Bell Training and Control Groups

Test	Kettle Bell Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	47.73	48.07	Between	0.8333	1	0.8333	0.29
S.D.	1.61	1.44	Within	81.8667	28	2.9238	
Post Test							
Mean	52.93	48.33	Between	158.7000	1	158.7000	18.91*
S.D.	1.69	1.74	Within	234.9667	28	8.3917	
Adjusted Post Test							
Mean	53.03	48.24	Between	170.2703	1	170.2703	92.00*
			Within	49.9683	27	1.8507	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 2 and 28 and 2 and 27 are 3.34 and 3.35 respectively).

The table 2 shows that the adjusted post-test means of kettle bell training group and control group are 53.03 and 48.24 respectively on explosive power in terms of vertical distance. The obtained "F" ratio of 92.00 for adjusted post-test means is more than the table value of 3.35 for df 1 and 27 required for significance at .05 level of confidence on explosive power in terms of vertical distance.

The results of the study indicated that there was a significant difference between the adjusted post-test means of kettle bell training group and control group on explosive power in terms of vertical distance.

Conclusions:

- There was a significant difference between kettle bell training group and control group on elastic power and explosive power in terms of vertical distance.
- And also it was found that there was a significant improvement on selected criterion variables such as elastic power and explosive power in terms of vertical distance due to kettle bell training.

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