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Impact of Battle Rope Training on Selected Strength Parameters Among Kabaddi Players

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Abstract
The aim of the study was to investigate the impact of battle rope training on selected strength parameters among kabaddi players. In order to fulfill the study's objectives, forty male kabaddi players have been chosen at random from a Mother Terasa institutions of Mettusalai Illuppur, Pudukkottai , Tamil Nadu, and India. The individuals were between the ages of 18 and 25. Two equal groups of twenty individuals each, one for battle rope training and the other for control, were randomly assigned to the subjects. The battle rope training group engaged in one session per day, three days a week, for eight weeks, with duration of sixty-five minutes every session. No additional instruction was provided, and the control group continued with their regular everyday routines. The obtained data were examined using the dependent "t" test to determine if there had been a significant improvement and the analysis of covariance (ANCOVA) to determine whether there had been a significant difference between the groups. The degree of significant difference, if any, between groups was tested at the fixed.05 level of confidence. The outcomes of the results shows that battle rope training had significant improve upper body muscular strength and leg strength among kabaddi players.

Keywords: Battle Rope Training, Upper Body Muscular Strength, Leg Strength

Introduction

Battling ropes (sometimes referred to as battle ropes or heavy ropes) are used in fitness training to improve overall strength and conditioning. They were created by John Brookfield in 2006, who built the system around his property. The fighting rope can also be utilized for resistance training purposes. After developing the system, he taught it to Special Forces, the Cincinnati Bengals, and the Olympic wrestling team.Since then, the training technique has grown in popularity and has reached mainstream gyms (Panday, 2013). Battling ropes provide various advantages, including safety, convenience of usage, and increased power output. They use one combat rope per upper extremity to work out each arm individually, addressing strength imbalances. It also minimizes the orthopedic stress on the joints.Battling ropes are thick, heavy, and powerful to provide great resistance, and there are several different types of ropes utilized. The ropes are commonly 25 mm and 44 mm in diameter, with conventional lengths of 5 m, 10 m, and 25 m. Some combat ropes now contain a flexible metal core, which makes them heavier and shorter while still allowing the user to move freely while training.The wave smashes, and pulls are the three most typical workouts performed with combat ropes. The wave, as

the name indicates, requires the user to create continuous waves with the ropes. Slams are identical to waves, except that the rope is smacked every time. Pulls entail the user tugging the rope towards themselves, either concurrently or alternately. There are several different workouts that target specific muscles in the body. For example, moving the ropes side to side will strengthen the hips and core, improving overall body stability, and moving the ropes in circles will develop shoulder range of motion. A tire can be attached to the end to enhance resistance while pulling (Panday, 2013). Battle rope workouts are effective for boosting muscular strength, cardio respiratory fitness, and athletic performance. They're low-impact and can be done sitting down, making them an excellent alternative to traditional aerobic workouts.

Methodology

Selection of subjects

Forty male Kabaddi players were randomly selected from a variety of Mother Terasa institutions in Mettusalai Illuppur, Pudukkottai , Tamil Nadu state, India, to serve as the study's sample. The participants' ages ranged from 18 to 25 years old. Participants were randomly assigned to one of two groups: the experimental group or the control group, each with twenty members. For eight weeks, the experimental group did more severe battle rope training, with one 60-minute session three days a week. The control group went about their daily routines without receiving any additional training.

Selection of Variables

Independent Variables:

• Battle Rope Training

Dependent Variables:

1. Upper body muscular strength
2. Leg strength

Table – I Criterion Variables

S.No	Criterion Variables	Test Items	Unit of Measures
1.	Upper Body Muscle Strength	Lat Pull down 1RM Test	In kg
2.	Leg strength	Leg lift with dynometer	In kg

Table – II Battle Rope Training Programme

1	Alternating Waves	70-80 %	8-10	3	30 Sec	1-2 min	60 minutes
2	Double Arm Waves						
3	Double Arm Slam						
4	Double Arm Slam Jump						
5	Snakes						
6	Outside Circles						
7	Alternating Waves + Squat						
8	Double Arm Waves + Burpee						
9	Double Arm Side-to-Side Shuffle						

10	Jumping Jacks						

Statistical analysis

The obtained data were examined using the dependent "t" test to determine if there had been a significant improvement and the analysis of covariance (ANCOVA) to determine whether there had been a significant difference between the groups. To determine the degree of significant difference, if any, across groups, the.05 level of confidence was used.

RESULTS

Table – III

Battle rope training Group Pre-Test, Post-Test Means and "T" Ratio Results on Upper Body Muscular Strength and Leg Strength

Variables	Pre Test		Post-test		Mean Differences	Standard Error	't' ratio
	Mean	±SD	Mean	±SD			
Upper body muscular strength	90.74	0.55	94.98	0.56	4.24	0.18	22.52*
Leg strength	72.37	0.27	75.49	0.28	3.11	0.09	33.16*

Required T (.05), (df 19) =2.09 * Significant at .05 level of confidence

Table-III shows that pre-test and post-test upper body muscular strength and leg strength of battle rope training group. It shows that pre-test mean values of mental well-being and state anxiety 90.74 ± 0.55 and 72.37 ± 0.27 & post-test mean values of upper body muscular strength and leg strength 94.98 ± 0.56 and 75.49 ± 0.28 respectively. It also shows that the't' value was 22.52 and 33.16. The table value required for significant difference with 1 df 19 at .05 level is 2.09. Since, the obtained "t" ratio value of battle rope training group is greater than the table value, it was under should that the battle rope training group had significant improve upper body muscular strength and leg strength.

Table – IV

Control Group Pre-Test, Post-Test Means and "T" Ratio Results On Upper Body Muscular Strength and Leg Strength

Variables	Pre Test		Post-test		Mean Differences	Standard Error	't' ratio
	Mean	±SD	Mean	±SD			
Upper body muscular strength	90.84	0.59	91.49	1.63	0.65	0.35	1.82
Leg strength	72.42	0.29	72.72	0.98	0.30	0.21	1.45

Required T (.05), (df 19) =2.09 * Significant at .05 level of confidence

Table-IV shows that pre-test and post-test upper body muscular strength and leg strength of control group. It shows that pre-test mean values of upper body muscular strength and leg strength 90.84 ± 0.59 and 72.42 ± 0.29 & post-test mean values of upper body muscular strength and leg strength 91.49 ± 1.63 and 72.72 ± 0.98 respectively. It also shows that the't' value was 1.82 and 1.45. The table value required

for significant difference with 1 df 19 at .05 level is 2.09. Since, the obtained "t" ratio value of control group is lower than the table value, it was under should that the control group had not significant improve upper body muscular strength and leg strength.

Table – V Analysis of Covariance (ANCOVA) for different variables: Upper Body Muscular Strength and Leg Strength

Adjusted post-test means							
Variables	**BTG**	**CG**	**SOV**	**SS**	**Df**	**MS**	**F-ratio**
Upper body muscular strength	95.00	91.48	**B.S**	122.51	1	122.51	81.13*
			W.S	55.87	37	1.51	
Leg strength	75.50	72.71	**B.S**	76.96	1	76.96	147.98*
			W.S	19.24	37	0.52	

Required F(.05),(df 1,37) =4.11 * Significant at 0.05 level of confidence

Table-V shows that the adjusted posttest mean value of upper body muscular strength and leg strength for battle rope training group & control group are 95.00 and 75.50 & 91.48 and 72.71 respectively. The obtained F-ratio of 81.13 and 147.98 for the adjusted posttest mean is more than the table value of 4.11 for df 1 and 37 required for significance at .05 level of confidence. Since the value of F-ratio is higher than the table value, it indicates that there is significant difference exit between the adjusted post-test means of battle rope training group significant improve upper body muscular strength and leg strength when compared to control group.

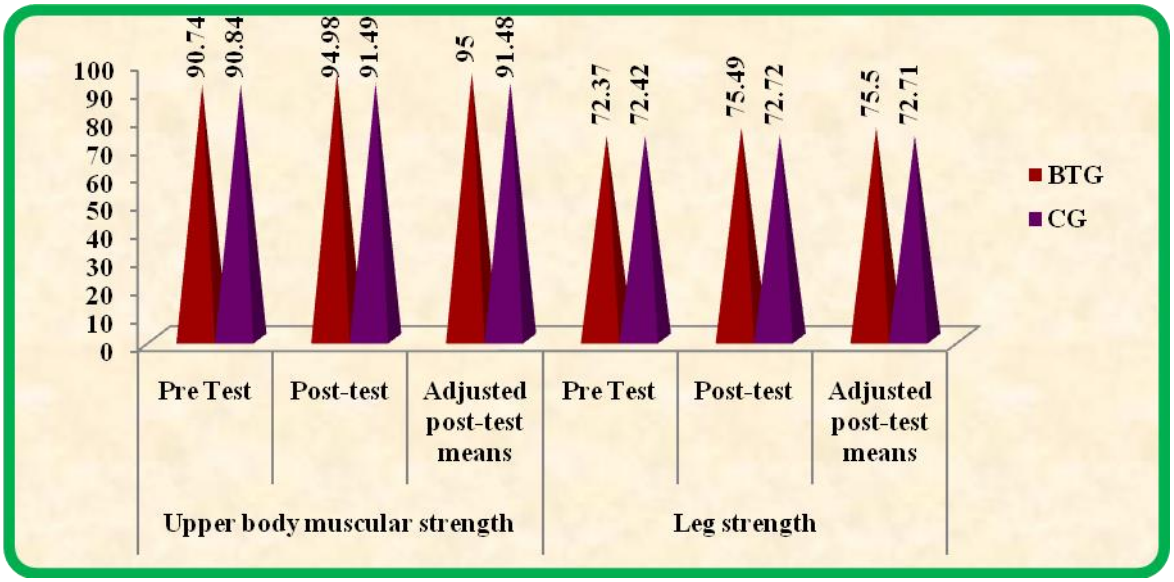

Figure-I the pre, post and adjusted mean values of upper body muscular strength and leg strength of each experimental and control groups are graphically represented in the Determine-I.

Discussion Findings

After eight weeks of battle rope training, kabaddi players reported increased upper body muscular strength and leg strength. There was no noticeable difference between the kabaddi players who maintained their usual routine training control group. (Parasuraman & Mahadevan 2018) witnessed that systematic 6-week kettlebell and battle rope training resulted in significant differences in upper body

muscular strength and core strength compared to the control group in selected physical variables among intercollegiate volleyball players. (Chen et al., 2018) documented that the battle rope training group improved significantly in aerobic capacity, upper-body anaerobic power, upper-body power, lower-body power, core muscular endurance, and shot accuracy. (Prakashraaj et al., 2017) results suggest that the 8 weeks battle rope high intensity group exhibited substantial improvement in grip strength, maximal strength, and performance.. (Mohan & Kaba Rosario 2016) discovered that the battle rope high intensity interval training group shown substantial improvement in explosive power, grip strength, core strength, and performance.

Conclusions

Our findings suggest that eight weeks of battle rope training improves upper body muscular strength and leg strength in kabaddi players. Practically speaking, the current study shows that providing administrators with eight weeks of combat rope training improves upper body muscular strength and leg strength.

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