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Impact of Resistance Training on Specific Physical Fitness Variables of Intercollegiate Male Kabaddi Players

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Abstract

This study aimed to assess the An Impact of Resistance Training on Specific Physical Fitness Variables of Intercollegiate Kabaddi Players total of 40 male kabaddi players were selected for the study and randomly divided into two equal groups: Group I resistance training (RTG), while Group II served as the control group (CG). The experimental group received training sessions five days a week (on Monday, Tuesday, Wednesday, Thursday, and Friday) for a duration of six weeks, whereas the control group continued with their regular activities without any additional training. The specific physical fitness variables evaluated included arm explosive power and leg explosive power. The collected data from the subjects were subjected to statistical analysis using the 't' ratio to determine if there were significant improvements at a confidence level of 0.05. The results indicated a significant enhancement in arm explosive power and leg explosive power due to the impact of resistance training, despite the potential influence of factors such as diet, climate, lifestyle, and prior training. These findings align with the results of previous research conducted by experts in the field of sports sciences, demonstrating that resistance training significantly improves specific physical fitness variables of arm explosive power and leg explosive power among intercollegiate male kabaddi players.

Key words: Resistance Training, Arm explosive power, Leg explosive power,

Introduction

Resistance training, encompassing exercises designed to enhance strength and endurance, often involves weight lifting but also includes techniques like calisthenics, isometrics, and plyometrics. Properly executed, it offers numerous health benefits, including increased muscle, tendon, ligament, and bone strength, improved joint function, injury prevention, enhanced bone density, metabolism, fitness, and cardiac function. This training typically involves progressively increasing muscle force through incremental weight increases, targeting specific muscle groups with various exercises and equipment. While primarily anaerobic, resistance training can also incorporate aerobic benefits through circuit training.

In sports, strength training is crucial for enhancing athletic performance, which depends on various fitness components such as aerobic and anaerobic fitness, dynamic balance, agility, neuromuscular coordination, and lung capacity. Techniques like heavy-resistance training, sprint drills, combined resistance and sprint training, and plyometric training develop strength and power. Plyometrics, involving rapid muscle stretching followed by concentric contraction, boost strength and explosiveness.

Weight training, a common form of strength training, uses gravity to resist muscle force during contraction, helping develop skeletal muscle strength and size. Training programs should align with athletes' specific needs, reflecting the biomechanical and physiological demands of their sport. Research indicates resistance training enhances vertical jump performance, acceleration, leg strength, muscular power, joint awareness, and proprioception. Combining weight training with plyometrics is especially impactive for improving strength and power. Despite recent advancements in training protocols, particularly in Iran, limited research exists on physical fitness in sports, highlighting the need for further study.

Need of the Study

The significance of this study lies in its potential to contribute valuable insights into the optimization of training regimens for intercollegiate kabaddi players. Kabaddi, a sport that demands high levels of physical fitness, particularly explosive power in both the arms and legs, requires athletes to perform rapid and powerful movements. Enhancing these specific fitness components can directly impact the players' performance, giving them a competitive edge. Despite the recognition of resistance training's benefits, there is a scarcity of research focusing on its impact on kabaddi players, particularly at the intercollegiate level.

Resistance training is a well-established method to improve muscle strength and endurance, but its specific effects on arm and leg explosive power in the context of kabaddi are not well-documented. Given the sport's unique physical demands, understanding how targeted resistance training can enhance these fitness variables is crucial. This study addresses this gap by systematically investigating the effects of a structured resistance training program on the explosive power of kabaddi players, providing empirical evidence to support the integration of such training into regular practice routines.

The findings from this research could inform coaches and trainers about the effectiveness of specific resistance exercises, leading to more scientifically grounded training protocols. As kabaddi continues to grow in popularity and competitiveness, optimizing training methods to improve athletic performance becomes

increasingly important. The study's results can also serve as a reference for further research in similar sports requiring explosive power, ultimately contributing to the broader field of sports science.

This study not only aims to enhance the performance of intercollegiate kabaddi players but also seeks to fill a critical gap in sports training literature, offering practical applications and paving the way for future research.

RESEARCH METHODOLOGY

Experimental Approach to the Problem

In order to address the hypothesis presented herein, we selected 40 intercollegiate male kabaddi players were selected from Bharathiar University. The subjects were randomly assigned in to two equal groups, namely, resistance training group (n=20) and control group (n=20). The respective training was given to the experimental group the 5 days in a week for the training period of six weeks. The control group was not given any sort of training except their routine.

Design

The evaluated physical fitness parameters Arm explosive power assessed were by Medicine ball throwing test and the unit of measurement was in meters, leg explosive power was assessed by Standing broad jump test the unit of measurement were in meters. The variables were measured at baseline and after 6 weeks of resistance training were examined.

Training programme

The training programme was lasted for 45 minutes for session in a day, 5 days in a week for a period of 6 weeks duration. These 45 minutes included 10 minutes warm up, 15 resistance training for 25 minutes and 10 minutes warm down. Every five weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of resistance training is prescribed based on the number of sets and repetitions.

Statistical Analysis

The collected data on above said variables due to the impact of resistance training was statistically analyzed with ‘t’ test to find out the significant Improvement between pre and post test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$)

TABLE- I

COMPUTATION OF T RATIO ON SELECTED SPECIFIC PHYSICAL FITNESS VARIABLES OF INTERCOLLEGIATE MALE KABADDI PLAYERS ON CONTROL GROUP

Control Group						
		Mean	N	Std. Deviation	Std.Error Mean	T ratio
	Pre test	3.02	20	0.09		

Arm Explosive Power	Post test	2.96	20	0.22	0.05	1.31
Leg Explosive Power	Pre test	2.19	20	0.08	0.005	1.9
	Post test	2.18	20	0.09		

*significant level 0.05 level

Table I reveals the computation of mean, standard deviation and 't' ratio on selected specific physical fitness variables, namely arm explosive power and leg explosive power of control group. The obtained 't' ratio arm explosive power and leg explosive power on were 1.31 and 1.9 respectively. The required table value was 2.145 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained t values were not greater than the table value it was found statistically insignificant.

FIGURE- I

BAR DIAGRAM SHOWING THE MEAN VALUE ON SELECTED SPECFIC PHYSICAL FITNESS VARIABLES OF INTERCOLLEGIATE MALE KABADDI PLAYERS CONTROL GROUP

TABLE- II

COMPUTATION OF T RATIO ON SELECTED SPECIFIC PHYSICAL FITNESS VARIABLES OF INTERCOLLEGIATE MALE KABADDI PLAYERS ON EXPERIMENTAL GROUP

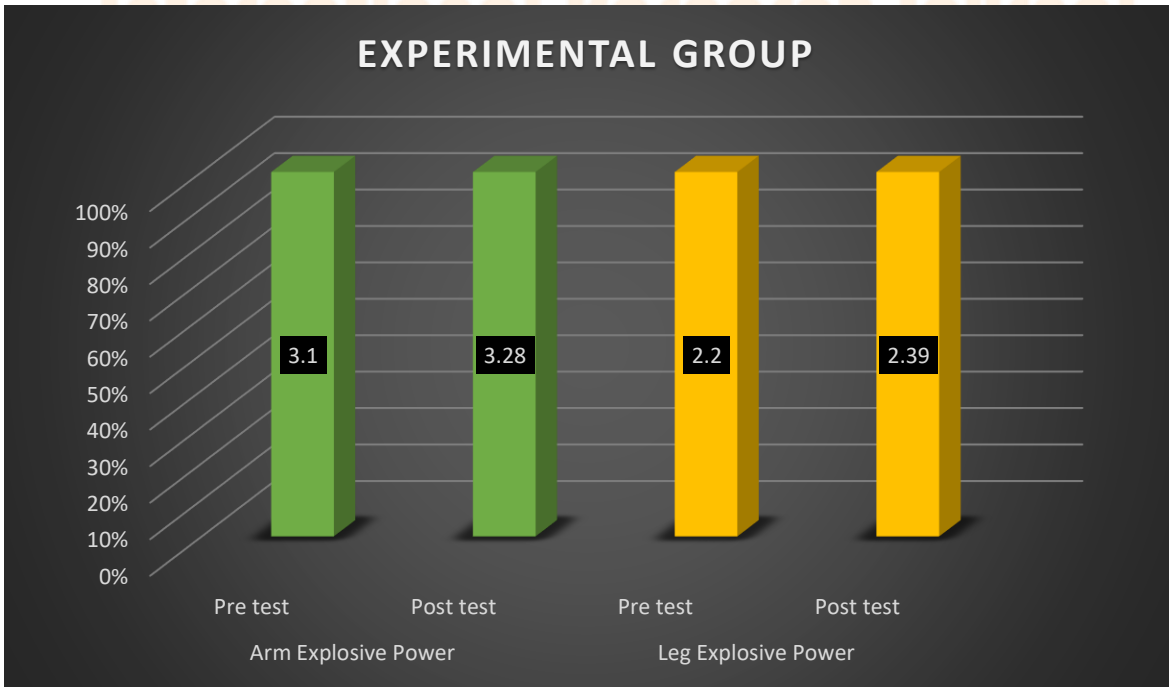
Experimental Group						
		Mean	N	Std. Deviation	Std.Error Mean	T ratio
Arm Explosive Power	Pre test	3.10	20	0.22	0.05	3.32*
	Post test	3.28	20	0.34		
Leg Explosive Power	Pre test	2.20	20	0.08	0.009	19.51*
	Post test	2.39	20	0.06		

*significant level 0.05 level

Table II reveals the computation of mean, standard deviation and 't' ratio on selected specific physical fitness variables, namely arm explosive power and leg explosive power of Experimental group. The obtained 't' ratio arm explosive power and leg explosive power on were 3.32 and 19.51 respectively. The required table value was 2.145 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained t values were greater than the table value it was found statistically significant.

FIGURE- II

BAR DIAGRAM SHOWING THE MEAN VALUE ON SELECTED SPECFIC PHYSICAL FITNESS VARIABLES OF INTERCOLLEGIATE MALE KABADDI PLAYERS EXPERIMENTAL GROUP



Discussion on Findings

The impact of resistance training is a fantastic training which has been found to be beneficial for the intercollegiate male kabaddi players. To study the resistance training on selected specific physical fitness variables of intercollegiate male kabaddi players, it was tested under, to differentiate between resistance training group and control group. The resistance training, arm explosive power includes on feet elevated plyo push up, dumbbell bent over row, barbell flat bench press and dips. Leg explosive power includes on frog squat jump, stair squat jump, jumping lunges and explosive step up. It also improves the game tactics, anaerobic capacity, quickness, eye hand coordination and other than some physical fitness components are namely speed, agility, and power. The following studies was revealed that **S Jayakumar,** *et al.,* **(2010)** Resistance training is a form of physical activity that is designed to improve muscular fitness by exercising a muscle or a muscle group against external resistance. The purpose of the study was to investigate the impact of resistance training on selected physical fitness variables among inter collegiate kabaddi players. Forty out of kabaddi players were randomly selected from Bharathidasan university, Trichy district, the selected players were divided into two groups consisting of 20 inter collegiate kabaddi players. No attempt was made equate the groups. The age of the subjects ranged between 18 to 21 years. The result of the study supports the result of the present study. **Fella Maifitri,** *et al.,* **(2008)** The aim of this study is to determine the impact of weight training using bench press towards arm muscle explosive power of UNP karate athletes. This is quasi-experimental research involving 22 athletes. The result of the study supports the result of the present study. These finding had not been previously replicated for a sample of college students. The result of the study showed that the control group was not significantly improved.

Testing Hypotheses

In hypothesis, it was hypothesized that there would be significant improvement on arm explosive power and leg explosive power of intercollegiate male kabaddi players due to impact of resistance training. The result of study indicates that arm explosive power and leg explosive power improved significantly due to resistance training. Hence, the hypotheses of the investigator was accepted.

Results of the Study

The study aimed to evaluate the impact of resistance training on specific physical fitness variables, namely arm explosive power and leg explosive power, among intercollegiate male kabaddi players. The participants were divided into two groups: an experimental group that underwent resistance training and a control group that did not receive any additional training.

- Arm Explosive Power: The experimental group showed a significant increase in arm explosive power (t=3.32), whereas the control group did not exhibit a significant change (t=1.31).
- Leg Explosive Power: The experimental group demonstrated a significant enhancement in leg explosive power (t=19.51), while the control group showed no significant improvement (t=1.9).

These results confirm that resistance training significantly improved both arm and leg explosive power among the intercollegiate male kabaddi players in the experimental group. Conversely, the control group, which did not undergo any additional training, did not show significant changes in the measured variables. This highlights the effectiveness of the resistance training program in enhancing specific physical fitness components critical for kabaddi players.

Conclusion

Based on the findings and within the limitation of the study it is noticed that practice of resistance training helped to improve arm explosive power and leg explosive power on intercollegiate male kabaddi players. It was also seen that there is progressive improvement in the selected criterion variables of resistance training group of intercollegiate male kabaddi players after six weeks of resistance training programme. Further, it also helps to improve arm explosive power and leg explosive power.

1. It was concluded that individualized impact of resistance training group showed a statistically significant positive sign over the course of the treatment period on specific physical fitness variables of intercollegiate male kabaddi players.
2. It was concluded that individualized impact of control group showed a statistically insignificant positive sign over the course of the period on specific physical fitness variables of intercollegiate male kabaddi players.

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