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IMPACTS OF LOOP BAND TRAINING ON SELECTED STRENGTH PARAMETERS AMONG KABADDI PLAYERS

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ABSTRACT
The study aimed to investigate the impacts of loop band training on selected strength parameters among kabaddi players. Kabaddi, being a high-intensity sport, demands superior levels of upper body, core, and lower body strength for optimal performance during raiding and defensive actions. Fifteen university-level kabaddi players were selected and divided into two groups — an experimental group (loop band training) and a control group. The experimental group underwent a structured eight-week loop band training program consisting of progressive exercises focused on developing upper, core, and lower body strength. The control group continued their routine practice without additional training. Pre- and post-tests were conducted using the Dips Test (upper body strength), Plank Test (core strength), and Wall Squat Test (lower body strength). Data were analyzed using the dependent 't' test. Results revealed significant improvements in all three strength parameters—upper body strength (t=5.68), core strength (t=9.62), and lower body strength (t=7.44)—for the experimental group, while the control group showed no significant changes. The findings confirm that loop band training effectively enhances muscular strength and performance attributes relevant to kabaddi. The program's simplicity, cost-effectiveness, and adaptability make it an efficient method for improving athletic performance in team sports.

KEYWORDS: *Loop Band Training; Strength Parameters; Kabaddi Players; Core Strength; Upper Body Strength; Lower Body Strength; Resistance Training; Performance Enhancement.*

INTRODUCTION

Kabaddi is a high-intensity contact sport that demands a unique combination of strength, agility, speed, and endurance. Players must execute rapid changes in direction, powerful raiding maneuvers, and explosive defensive actions, all of which place significant demands on both the upper and lower body musculature **(Singh et al., 2017).** In recent years, training modalities that emphasise portability, multi-directional resistance and neuromuscular activation such as loop bands have gained traction in sport-specific preparation programmes. Loop band training (often a variation of elastic resistance training) uses continuous bands around limbs or attached to body-anchors, thereby altering force curves during movement and increasing muscle activation in end-range positions. For team and multi-directional sports, studies have shown that elastic-band training produces statistically meaningful improvements in strength- and power-related parameters. For example, a systematic review and meta-analysis found that elastic-resistance band training significantly improved lower-limb explosive power and change-of-direction performance in team-sport athletes. **(J. Funct. Morphol. Kinesiol 2025).** This suggests a theoretical basis for applying loop-band training in sports like kabaddi, where rapid accelerations, directional changes, leg strength and core stability are crucial.

Specifically for strength parameters, several studies have demonstrated that loop-band or elastic-band training leads to measurable gains in leg strength, lower-back strength and lower-body endurance. For instance, a study on college-level badminton players found that a six-week loop-band training programme significantly improved leg strength and lower-body strength endurance. **(Dr. V. Vallimurugan et al., 2025)** Another investigation involving basketball players showed that loop-band training produced significant enhancements in leg-strength compared to control conditions. While there is a paucity of research directly in kabaddi players, the transferability of strength modalities suggests that integrating loop-band training may enhance athletes' maximal and explosive strength an attribute vital for the physical demands of kabaddi, such as powerful tackles, sudden change-of-direction and repeated high-intensity movements.

Justification of the Study

Kabaddi is a physically demanding sport that requires explosive strength, agility, and muscular endurance for performance in raiding, dodging, and tackling actions. Strength plays a critical role in determining the effectiveness of both offensive and defensive maneuvers **(Singh et al., 2011).** While conventional strength training using free weights and machines has shown benefits, such methods are often costly, less accessible, and not always sport-specific.

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Loop band training, a type of resistance training using elastic bands, has emerged as an effective, portable, and low-cost method to enhance strength, especially among athletes. Research has shown that resistance bands can activate muscles similarly to traditional weights and are particularly useful for functional and sport-specific training **(Andersen *et al*., 2010).** In addition, resistance bands allow for variable resistance through a range of motion, which can enhance neuromuscular adaptation and dynamic strength **(Colado & Triplett, 2008).**

Despite these advantages, there is limited empirical research investigating the application of loop band training in kabaddi, a sport where dynamic strength and rapid force production are essential. Previous studies have emphasized the importance of sport-specific conditioning in improving performance outcomes **(Saini & Sidhu, 2012),** yet the integration of elastic resistance tools like loop bands in kabaddi training programs remains underexplored.

This study is therefore justified as it aims to:

1. Address a gap in the literature concerning loop band resistance training in kabaddi players.
2. Evaluate an accessible and low-cost strength training modality that could benefit athletes in resource-limited settings.
3. Contribute to the development of evidence-based training protocols that enhance performance and reduce injury risks in kabaddi.

METHODS

Experimental Design

The study was formulated as pre-test and post-test randomized groups design, based on the voluntary response to participate in, university kabaddi players were selected and they were divided into two equal groups namely loop band training and control group. The selected subject (N=15) was divided into two groups (n=15) of which loop band training group I and group II was considered as control group (CG). The loop band training group underwent the upper body strength, core strength, lower body strength for a period of eight weeks. After Pre-test, Group I was treated with upper body strength, core strength, lower body strength group II was not treated with any training but they were doing their regular activity.

Criterion Measures and Tests

TABLE – I

S.NO	VARIABLES	TESTS	UNIT OF MEASUREMENTS
1	Upper Body Strength	Dips Test	Counts
2	Core Strength	Plank Test	Seconds
3	Lower Body Strength	Wall Squat Test	Seconds

Training Programme

Phase I (Weeks I & II): Foundation Phase

The initial phase focused on developing basic muscular strength, flexibility, and endurance through controlled resistance exercises using body weight and simple movements. Each session began with a 10-minute warm-up to prepare the muscles and joints for activity. Exercises included Bridge Thrusts, Side Step Squats, Tricep Extensions, Horizontal Arm Extensions, Bicycles, and Ab Crunch with Rotation. Participants performed 2 sets of 10–12 repetitions for each exercise, with 30 seconds of rest between sets and one minute between exercises. The total session lasted about 60 minutes, emphasizing correct posture, movement coordination, and muscle activation.

Phase II (Weeks III & IV): Strength Development Phase

During this phase, the program progressed to moderate resistance and more complex movement patterns to enhance muscle tone and stability. Exercises included Band Squats, Vertical Arm Extensions, Lying Hip Abductors, Thigh Thrusts, Oblique Overhead Extensions, and Single-Leg Loop Bridge. Each exercise was performed for 3 sets of 10–12 repetitions with short recovery intervals of 30 seconds between sets and one minute between exercises. The focus was on improving lower- and upper-body strength, enhancing joint mobility, and building a solid foundation for the next training stages.

Phase III (Weeks V & VI): Advanced Strength and Coordination Phase

The third phase emphasized developing advanced strength, coordination, and balance using loop bands and compound movements. The exercise routine consisted of Clamshells, Lateral Arm Raises, Seated Rowing, Lateral Walks, Lat Pull-downs, and Rear Arm Extensions. Participants completed 4 sets of 10–12 repetitions for each movement, maintaining 30 seconds of rest between sets and one minute between exercises. The goal during this stage was to enhance muscle endurance, improve stability, and engage multiple muscle groups simultaneously for better overall performance.

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Phase IV (Weeks VII & VIII): Performance and Endurance Phase

In the final phase, training intensity was further increased to improve endurance, strength, and muscular control. Exercises included Lying Hip Abductors, Triceps Extensions, Clamshells, Vertical Arm Extensions, Single-Leg Loop Bridge, and Horizontal Arm Extensions. Each was performed for 4 sets of 12–15 repetitions, maintaining the same structured rest intervals. The phase focused on maximizing functional strength, refining movement efficiency, and ensuring overall fitness development. By the end of this phase, participants were expected to achieve improved muscle tone, coordination, and endurance.

Statistical Technique

As the purpose of the study was find out the impacts of loop band training on selected strength parameters among kabaddi players. at college level, the collected data prior to treatment and after of treatment period were tested using statistically dependent 't' test. It was considered as appropriate for this study.

RESULTS

Table 2: Computation of 't' ratio between pre and post-test means of Experimental group on Selected Strength Parameters

Experimental Group					
Strength Variables	**Pre/Post test**	**Mean**	**Std. Deviation**	**Std Error Mean**	**'t' Ratio**
Upper Body Strength	Pre-Test	12.00	1.30	1.35	**5.68***
	Post-Test	14.00	1.13		
Core Strength	Pre-Test	92.93	14.02	1.06	**9.62***
	Post-Test	103.20	16.37		
Lower Body Strength	Pre-Test	88.40	14.56	1.52	**7.44***
	Post-Test	99.73	16.03		

*Significant at 0.05 level of confidence (2.14), 1 & 14.

Table 2 reveals that the Computation of 't' ratio between pre and post-test means of experimental group on selected fitness parameters. The 't' ratio on upper body strength, core strength and lower body strength is 5.68, 9.62 and 7.44 respectively. The required table value was 2.14 for the degrees of freedom 14 at 0.05 level of significance. Since the obtained 't' ratio values were greater than the table value, it was found statistically significant.

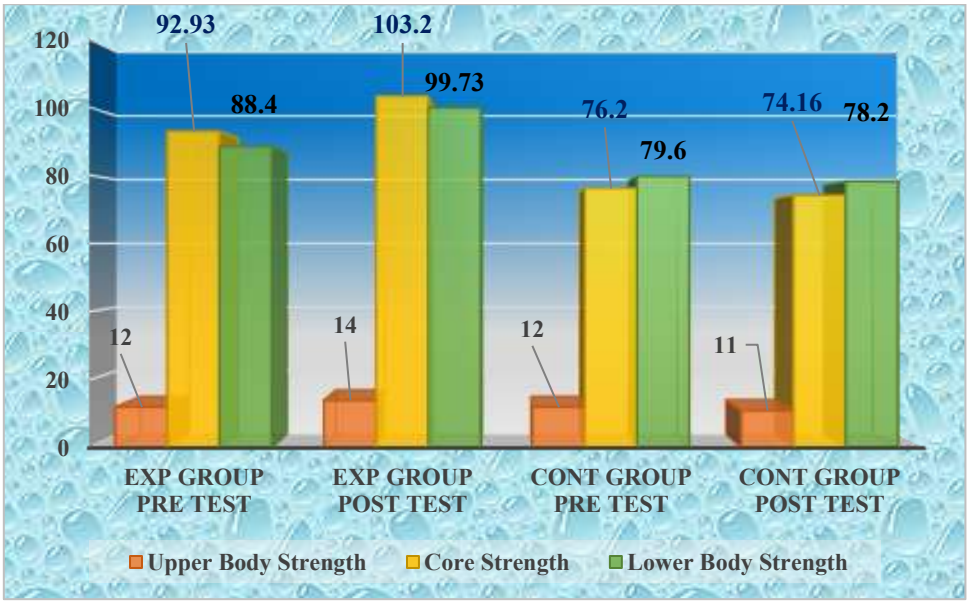
Table 3: Computation of 't' ratio between pre and post-test means of Control group on Selected Strength Parameters

Control Group					
Strength Variables	**Pre/Post test**	**Mean**	**Std. Deviation**	**Std Error Mean**	**'t' Ratio**
Upper Body Strength	Pre-Test	12.00	1.25	1.49	2.01
	Post-Test	11.00	1.19		
Core Strength	Pre-Test	76.20	7.67	1.17	1.75
	Post-Test	74.16	6.63		
Lower Body Strength	Pre-Test	79.60	7.50	1.72	1.92
	Post-Test	78.20	7.87		

*Significant at 0.05 level of confidence (2.14), 1 & 14.

Table 3 reveals that the Computation of 't' ratio between pre and post-test means of Control group on selected fitness parameters. The 't' ratio on upper body strength, core strength and lower body strength is 2.01, 1.75 and 1.92 respectively. The required table value was 2.14 for the degrees of freedom 14 at 0.05 level of significance. Since the obtained 't' ratio values were lower than the table value, it was found statistically not significant.

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DISCUSSION ON FINDINGS

The results of the study indicated that the selected strength parameters like upper body strength, core strength and lower body strength were improved significantly after undergoing impacts of loop band training. The changes in the selected parameters were attributed the proper planning, preparation and execution of the training package given to the players.

The impacts of loop band training is a fantastic training which has been found to be beneficial for the kabaddi players. To study the loop band training on selected strength of men kabaddi players at college level, it was tested under, to differentiate between loop band training group and control group. The loop band training includes on upper body strength, core strength and lower body strength. The Strength training exercises are namely, lateral squad, horizontal arm extension, bridge thrust, seated rowing, lateral walk, triceps extension, clamshell and etc. It also improves the raiding ability, game tactics, anaerobic capacity, quickness, eye hand coordination and other than some physical fitness components are namely speed, agility, and power. The obtained result proved positively the loop band training group significantly improved. The result of the present study showed that the impacts of loop band training has significant improvement on college level men kabaddi players. The following studies was revealed that **Vijayakumar (2021)** reported that a four-week elastic loop band program significantly improved upper body strength and showed a positive trend in lower body strength among healthy adults. **Murugavel (2022)** found that combining loop band and ladder training for eight weeks significantly enhanced passing and throwing accuracy in handball players. Similarly, **Sivanesa Selvaraj Pandian (2022)** demonstrated that eight weeks of loop band training notably improved speed and leg strength in hockey players. More recently, **Karthikeyan (2025)** revealed that six weeks of loop band training with specific drills significantly increased lower back, leg, and endurance strength among badminton players. Collectively, these studies highlight that loop band training effectively enhances strength and performance across various sports disciplines.

CONCLUSION

The results of the study demonstrated that loop band training significantly improved upper body, core, and lower body strength among college-level kabaddi players. The systematic and progressive training program contributed to enhanced muscular endurance, coordination, and functional performance required in kabaddi. The observed improvements can be attributed to the continuous resistance provided by the loop bands, which promotes neuromuscular activation and muscle adaptation throughout the range of motion. Therefore, loop band training serves as an effective, accessible, and low-cost alternative to traditional strength training methods. Coaches and physical trainers can incorporate this training into regular practice sessions to enhance athletic strength, reduce injury risks, and improve overall game performance.

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