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Effect of Plyometric Training with Specific Skill Exercises on Explosive Power of Kabaddi Players

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ABSTRACT

This paper aspires to see the degree to which Plyometric training could improve explosive power among male intercollegiate level Kabaddi players. A total of 40 participants from degree colleges, Bengaluru (Karnataka-India), were randomly separated into 2 (two) groups: viz., Experiment Group-A (PTSSE, 20 players) received Plyometric training with practices of specific skill exercises and the other is Group-B (CG, 20 players), was the control group. The pre test scores were obtained for equally groups utilizing the Sargent Vertical Jump Test (In meters) to assess the explosive power of legs of the participants. Group-A involved in Plyometric exercises with specific skill exercises for 5 (five) days a week continued for eight weeks along with their routine, whereas the control group uphold their regular timetable. After the training period, post-test scores for explosive power were collected. A paired dependent 't' test and an independent sample 't' test were utilized to find out the significance in the said criterion variable scores at both 0.05 and 0.01 levels of confidence. The results examined using SPSS and MS Excel, revealed a significant change in explosive power of legs among Kabaddi players who underwent Plyometric training with practices of specific skills exercises.

Keywords: Plyometric Training, Explosive Power, Legs, Intercollegiate, Male Kabaddi Players.

1. INTRODUCTION

Plyometric training consists of high-intensity, explosive workouts such as jumps, hops and bounds that aim to improve muscle power and speed. It works by exploiting the stretch-shortening cycle of muscles, allowing athletes to perform rapid, strong motions required for sports such as Kabaddi. Specific skill exercises, on the other hand, are drills and techniques that mimic Kabaddi's dynamic movements, such as raids, tackles and quick directional changes, with the goal of increasing sport-specific performance. The combination of plyometric training and particular skill exercises is critical for Kabaddi players because it directly improves their explosive power-a necessary component for quick sprints,

powerful jumps and effective tackles. This combination not only boosts physical fitness, but it also sharpens game-specific actions, allowing players to perform with more agility, strength and precision. Thus, plyometric training, combined with particular skill exercises, is an integral component of a Kabaddi player's training program, ensuring peak performance and a competitive advantage on the pitch.

Several studies have looked at how plyometric training affects athletes' physical fitness and skill performance. Kumar (2019) discovered that combined resistance and plyometric training greatly increased both arm and leg explosive strength in Kabaddi players. Deshmukh and Chouhan (2021) discovered that Kabaddi players' agility and explosive power improved significantly after participating in plyometric training. Other studies, such those by Parry et al. (2019) and Sekhon et al. (2023), stressed that plyometric exercise outperformed resistance training in terms of improving performance variables such as agility, speed and explosive power. However, incorporating specialized skill exercises into plyometric training for Kabaddi players is an underexplored field, with little study focused on the combined impact. This study seeks to fill this vacuum by investigating the impact of plyometric training combined with specific skill exercises on the explosive power of Kabaddi players, notably at the intercollegiate level in Bengaluru, Karnataka.

2. REVIEW OF RELATED LITERATURE

Plyometric training has received a lot of attention in sports training, especially for improving explosive power, agility and speed, which are important in sports like Kabaddi. Several research have looked into the effects of plyometric activities on athletic performance. Oliver et al. (2024) did a meta-analysis on strength, plyometric and combination training and found that youth soccer players improved in strength, power and speed after training. Similarly, Sureshkumar et al. (2023) shown gains in leg explosive power and Kabaddi-specific skills with interval and continuous training. Sekhon, Malar and Maniazhagu (2023) discovered that combining low-intensity plyometric exercise with aerobic training resulted in larger increases in explosive power than plyometric training alone. According to studies by Kumar (2019) and Deshmukh & Chouhan (2021), plyometric training greatly improves explosive strength in Kabaddi players. In terms of developing agility, speed and explosive power, Parry et al. (2019) discovered that plyometric exercise outperformed resistance training. Despite these encouraging results, there is still a need to better understand the benefits of plyometric training paired with Kabaddi-specific skill exercises. While earlier study has focused on the individual impact of plyometric exercises, there is no information on how plyometric training, when combined with skill-specific drills for Kabaddi, affects explosive power in male intercollegiate Kabaddi players. This study intends to fill this vacuum by investigating the combined effects of plyometric training and Kabaddi skill exercises on explosive power, which will provide significant information for Kabaddi training regimens.

3. STATEMENT OF THE PROBLEM

"Effect of Plyometric Training with Specific Skill Exercises on Explosive Power of Kabaddi Players"

4. AIM AND OBJECTIVES

The aim and objective of investigation is to assess the influence of Plyometric training with specific skill exercises on explosive power in male Kabaddi players.

5. HYPOTHESES

1. There is no significant difference in the pre-test and post-test scores of Explosive Power among male Kabaddi players in the control group and the experimental group (PTSSE).
2. There is no significant difference in the Explosive Power of male Kabaddi players between the control group and the experimental group in the pre-test and post-test scores.

6. METHODOLOGY

This paper aspires to see the degree to which Plyometric training could improve explosive power among male intercollegiate level Kabaddi players. A total of 40 participants from degree colleges, Bengaluru (Karnataka-India), were randomly separated into 2 (two) groups: viz., Experiment Group-A (PTSSE, 20 players) received Plyometric training with practices of specific skill exercises and the other is Group-B (CG, 20 players), was the control group. The pre test scores were obtained for equally groups utilizing the Sargent Vertical Jump Test (In meters) to assess the explosive power of legs of the participants. Group-A involved in Plyometric exercises with specific skill exercises for 5 (five) days a week continued for eight weeks along with their routine, whereas the control group uphold their regular timetable. After the training period, post-test scores for explosive power were collected. A paired dependent 't' test and an independent sample 't' test were utilized to find out the significance in the said criterion variable scores at both 0.05 and 0.01 levels of confidence. The results examined using SPSS and MS Excel, revealed a significant change in explosive power of legs among Kabaddi players who underwent Plyometric training with practices of specific skills exercises.

7. DATA ANALYSIS

The data composed prior to and following the investigational periods on PTSSE training on explosive power of legs of Experimental Group-A (PTSSE), receiving Plyometric training with practices of specific skill exercises and Group-B (CG), the control group were analyzed and presented in the following tables.

Table-1: Paired 't' test results between pre and post tests scores on Explosive Power of Legs of Kabaddi players of control & experimental groups.

Group	Post	Number	Mean	Standard Deviation	Std. Error Mean	't' and 'P' values	Sig. Level
CG Group (N=20)	Pre	20	42.820	1.768	0.395	1.91 (P=0.071)	NS
	Post	20	43.005	1.885	0.421		
PTSSE Group (N=20)	Pre	20	41.945	1.888	0.422	5.89 (P=0.000)	**
	Post	20	50.305	6.481	1.449		

[NS] indicates Not Significant; ** shows significant at 0.01 level (df = 19, 2.88)

This table compares the pre-test and post-test scores of explosive power of legs between the control group (CG) and the experimental group (PTSSE) through dependent (paired test) 't' test

In the CG group, the mean score of explosive power increased slightly from 42.820 (pre-test) to 43.005 (post-test), but this change is not statistically significant (t=1.91, p=0.071). The significance value (p=0.071) is greater than 0.05, indicating that the control group did not show any significant change in explosive power during the test period.

In the PTSSE group, the mean score increased substantially from 41.945 (pre-test) to 50.305 (post-test), with a statistically significant difference (t=5.89, p=0.000). The p-value is less than 0.01, which indicates that the plyometric training combined with specific skill exercises had a significant impact on the explosive power of the legs of Kabaddi players. Fig.1 present the graphical representation confirms statistical results, showing a more considerable improvement in the post-test scores for the experimental group compared to the control group.

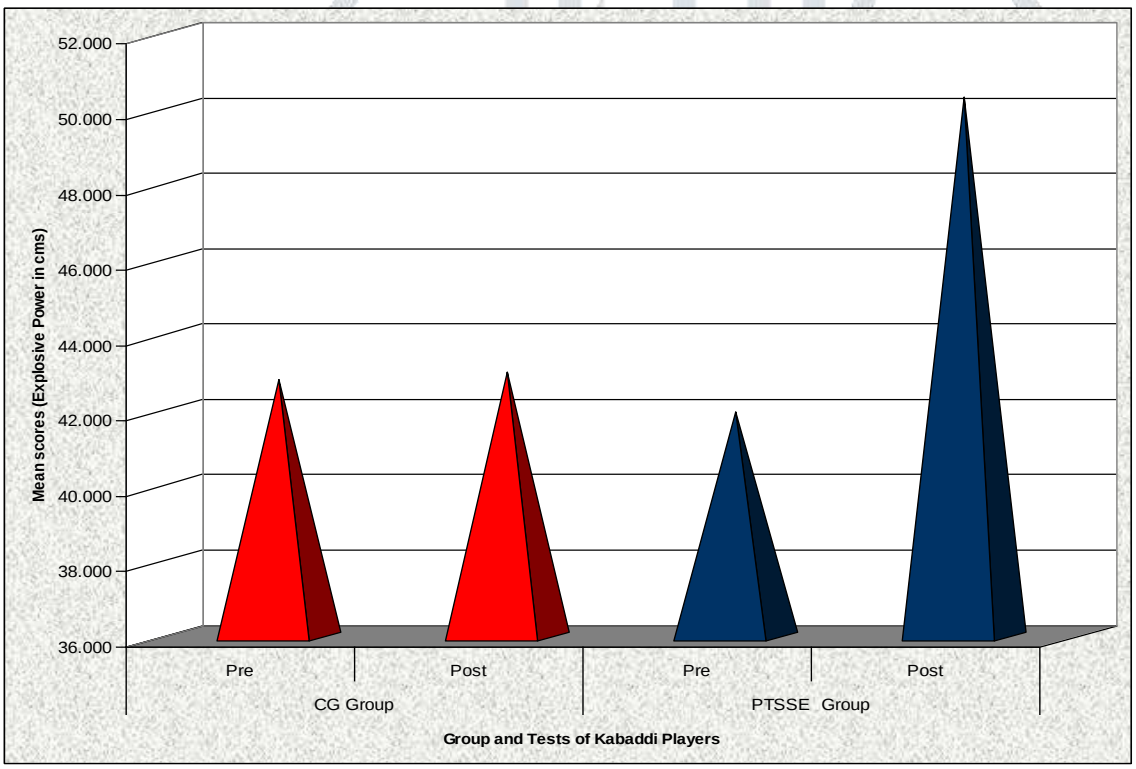

Fig.1: Assessment of Explosive Power of Legs between of pre and post tests scores of Kabaddi players in control and experimental groups.

Table-2: Independent sample t test outcomes in the Explosive Power of Legs between CG and PTSSE Groups before and after the intervention (Pre and Post tests).

Test	Group	Number	Mean	Standard Deviation	Std. Error Mean	't' and 'P' values	Sig. Level
Pre	CG Group	20	42.820	1.768	0.395	1.51 (P=0.139)	NS
	PTSSE Group	20	41.945	1.888	0.422		
Post	CG Group	20	43.005	1.885	0.421	4.84 (P=0.000)	**
	PTSSE Group	20	50.305	6.481	1.449		

NS explains not significant; **illustrate Significant at 0.01 level (df = 38, 2.71)

Table-2 shows the results of the independent sample t-test, which examined differences in explosive power (leg power) between the CG and PTSSE groups before and after the intervention.

In the pre-test, the mean explosive power of the CG group was 42.820 with a standard deviation of 1.768, while the PTSSE group had a mean of 41.945 with a standard deviation of 1.888. The calculated t-value was 1.51, with a p-value of 0.139, which is not statistically significant (NS). This indicates no significant difference in explosive power between the two groups before the intervention.

In the post-test, the CG group demonstrated a mean explosive power of 43.005 with a standard deviation of 1.885, whereas the PTSSE group showed a significantly higher mean of 50.305 with a standard deviation of 6.481. The t-value for the post-test was 4.84, with a p-value of 0.000, which is statistically significant at the 0.01 level. This demonstrates a significant improvement in explosive power in the PTSSE group compared to the CG group after the intervention.

These results suggest that the PTSSE training was effective in significantly enhancing explosive leg power compared to no specific intervention in the control group.

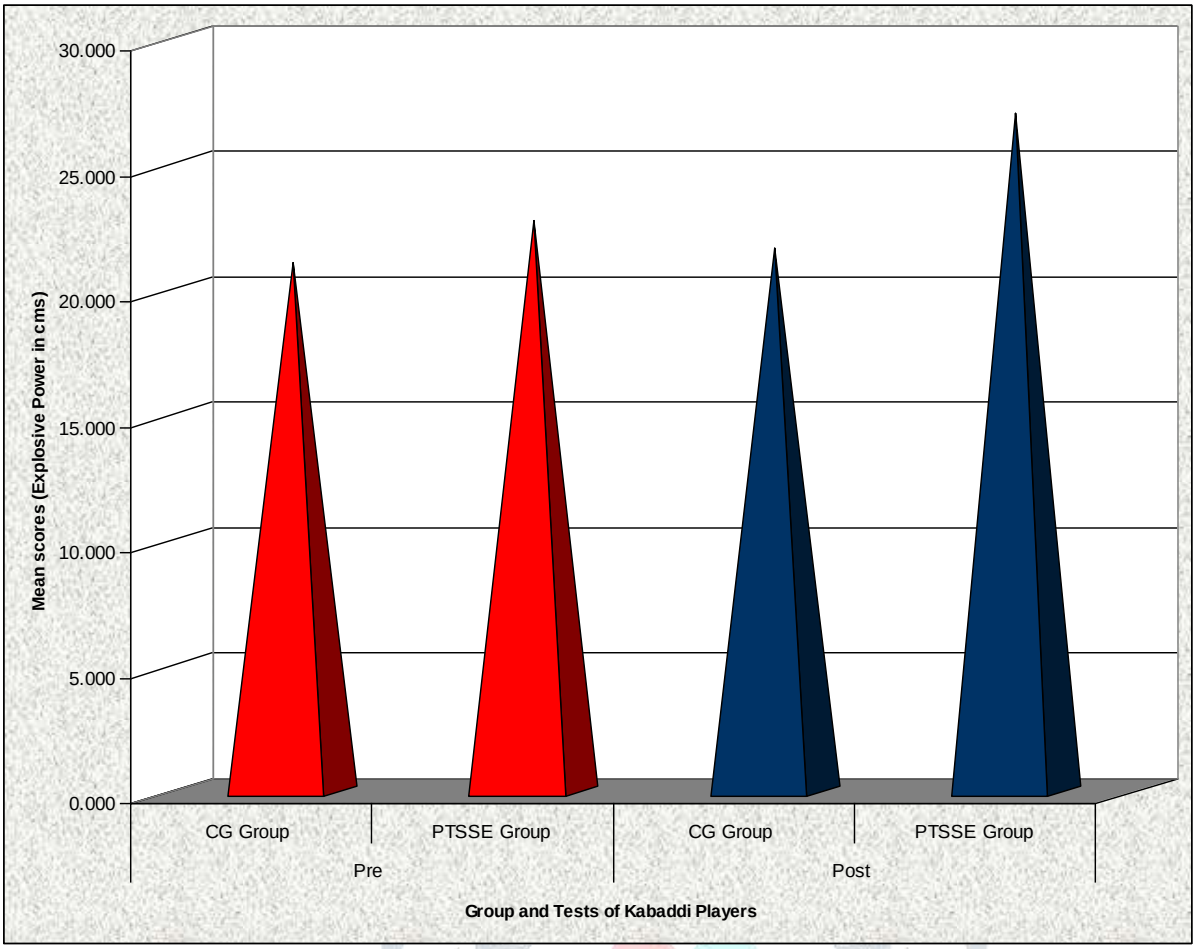

Fig.2: Estimation of pre-test and post-test scores of Explosive Power of Legs of Kabaddi players between control and experimental groups.

8. DISCUSSION

The results of the present study on plyometric training with specific skill exercises are consistent with earlier research. Oliver et al. (2024) discovered that plyometric training improved strength, power and speed, which is consistent with the present study's findings, which show that the experimental group had significant increases in explosive power. Sureshkumar et al. (2023) also reported increases in explosive power from combined training, corroborating the idea that combining plyometrics with sport-specific workouts improves performance, as seen in this study. Kumar (2019) and Deshmukh & Chouhan (2021) have also found that plyometric training improves the explosive strength of Kabaddi players. Parry et al. (2019) discovered that plyometric exercise was more effective than resistance training for increasing explosive power, corroborating the present findings of examination. However, this examination fills a gap by integrating plyometric training with Kabaddi-specific skill activities, which has not previously been fully examined. The results indicate that this combination improves explosive power more significantly than isolated training approaches, giving vital importance for building more effective Kabaddi training programmes.

9. CONCLUSION

In conclusion, plyometric training mixed with specialized skill exercises considerably increases male Kabaddi players' explosive power, as seen by the considerable difference between the experimental

group's pre-test and post-test scores. This training strategy is especially beneficial for players in high-performance sports such as Kabaddi, where explosive power is required for important motions like jumping, tackling and sprinting.

10. RECOMMENDATIONS AND SUGGESTIONS

The findings of this examination include various recommendations and practical solutions. Mainly Coaches and trainers increases Kabaddi players' explosive power by combining plyometric training with specialized skill exercises in their training regimen. This could result in improved performance in important areas such as speed, agility and power during matches. Furthermore, this training method might be extended to other sports that need similar explosive actions, increasing its scope in sports training.

11. SUGGESTIONS FOR FURTHER RESEARCH

Future studies should look into the long-term benefits of plyometric training paired with skill exercises on other areas of athletic performance, such as endurance, reaction time and overall fitness. Similar studies also be undertaken with female Kabaddi players or across different age groups to determine the generalizability of these findings. Exploring alternative variants of plyometric workouts and their specific impact on different skill sets within Kabaddi could be a fascinating area for future research.

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