

# A Video Analytical Approach on Navigation of Running Bonus Technique: Strategic Implementations

P. Sivakumar<sup>1</sup>, A. Dominic Xavier James<sup>2</sup>, C. Sugumar<sup>3</sup>

<sup>1</sup>Research Scholar (Full time), The Gandhigram Rural Institute (Deemed to be University), Gandhigram, Dindigul District, Tamilnadu, India.

<sup>2</sup>Guest Faculty in Physical Education, The Gandhigram Rural Institute (Deemed to be University), Gandhigram, Dindigul District, Tamilnadu, India.

<sup>3</sup>Director of Physical Education, The Gandhigram Rural Institute (Deemed to be University), Gandhigram, Dindigul District, Tamilnadu, India.

## Abstract

**Background:** The game of Kabaddi is played with offensive and defensive techniques. The offensive techniques in Kabaddi primarily relay on the movement pattern of the raiders. Movement pattern facilitates the raiders' scoring efficiency. To understand and improve the offensive strategies, it is important to analyze the tactical application of movement pattern technique of right and left raiders. **The aim:** The purpose of the study confined to "Video Analysis on running bonus technique performed in three different level of Kabaddi Tournament held in India".

**Methodology:** To achieve the objectives of this Study, the whole match videos of South Zone Inter University (SZIU) Kabaddi Men -2022-23 & 2023-24, 69<sup>th</sup> Men Senior National Kabaddi (SNKC) championship and Pro-Kabaddi Season 9 (PKS9) held in India were downloaded from available internet sources and the same were considered. From the match videos, 172 best videos were selected and considered for the present research. To have the precise insights, on quantitative and qualitative assessment in running bonus technique performed in right / left side while the raiders were with and without struggle situations. The researcher adopted quantitative assessment by means of repeated observation. For qualitative assessment, simulation method was adopted by using Dartfish Pro S 2024.

**Conclusions:** The study brought out with major outcomes that, right side raiders were dominant in South Zone Inter University matches, left raiders dominated the right raiders in scoring bonus point(s) in 69<sup>th</sup> Men Senior National championships and left raiders comprehensively excelled in Pro-Kabaddi Season 9. The study manifested the image of movement pattern in running bonus technique with resemblance of letter "L".

**Keywords:** Kabaddi, Raiders and Running Bonus

## INTRODUCTION

Kabaddi is the fastest growing game among the indigenous sport. Now days it is said to be a most dynamic body contact sports in the world. It is played at different format from village to metropolitan cities. Padmashree Late Dr.P.Sivanthi Adithan, former president of Indian Olympic Association, was

the key man to uplift the game of Kabaddi from domestic to Asian level competition. Kabaddi skills can be broadly categorized into offensive and defensive skill. Offensive skill raiding is used to elevate the points in score table by using the skills like bonus, touch, tukki, toe touch, kicks, jump which is determined by agility and power. The nature of the game Kabaddi was more suitable for village set-up until the introduction of playing surface with mat. There after the game evolved from amateur to professional level. Since the inspection of the Pro-Kabaddi league, its governing body modernized the game by making changes in its nature i.e. playing surface, duration of raid (30seconds), 3<sup>rd</sup> raid, super tackle and player review system... to popularize the sport for global recognition. During the past decade, Pro-Kabaddi league underscored the rest of the sports in India due to its popularity among the people and became a sport of spectator. Broadcasting channels prefers equal priority to time allotment to the game of Kabaddi. As the game grow faster with its popularity, from time to time the usage of scientific tools changes i.e. Video Feed Back (VFB), Augmented Reality method and Kinovea video analysis software etc.. to predict the match outcome & players' performance and team achievement in a season.

There has been a lot revolution occurred in teaching, learning, training, coaching and analyzing the components of sports and games. **Rucci and Tomporowski 2010**, used video feedback as a new learning aid to replace the old sports pedagogists and reexamine strategies for providing feedback on motor skills. In earlier times, visual-motor behavior rehearsal (VMBR) was very familiar among sports coaches and learners to refine and optimize motor skills. In the recent past, VMBR is replaced by augmented reality method. In that way, **Schmidt and Lee 2005, Swinnen 1996; Hodges, Chua, and Franks 2003** explained the importance of augmented source of feedback to learn static and dynamic movements of learners. VFB pedagogy assists learners to master over the sporting skills as quickly as possible. Numerous studies have ensured the advantage of VFB in various sports, such as the hurdling (**Palao et al., 2013**), spike jump in volleyball (**Parsons and Alexander 2012**), diving (**Thow, Naemi, and Sanders 2012**), weightlifting (**Rucci and Tomporowski 2010**), high jump (**Merian and Baumberger 2007**), gymnastics (**Mérian and Baumberger 2007**), golf swing (**Guadagnoli, Holcomb, and Davis 2002**), soccer skills (**Ziegler 1994**) and swimming (**Hazen et al., 1990**). **Hasanuddin Jumareng, et al., 2023**, in their study confined that defense skills contributed much for top ranking in the Pro Kabaddi league tournament. **Bhushan Babasaheb Bhosale**, analyzed five types of bonus line crossing technique namely slide, turn, pivot, feinting and running bonus technique at different zones. Based on the above fact and previous research studies, the researcher had an idea to utilize the video analysis technique to analyze the running bonus technique in three different types of Kabaddi tournament held in India. Present research had been sketch-out the following objectives to analyze the raiders' performance.

### Objectives of the study

1. Whether the raiders exhibit the running bonus technique.
2. To assess raiders' running bonus technique, while in struggle or without struggle situation.
3. Number of running bonus technique performed at raiders' preferable side (right side or left side).
4. To review running bonus technique performed by the teams in both sides.

### Methodology

To achieve the purpose of the study, the present research focused on running bonus technique whiles

the raider in struggle and without struggle. In that prospective, the investigators intended to describe the bonus point and running bonus technique in Kabaddi. In playing situations, when opposition has six or more players on the mat, the bonus line becomes active. In such a case, raiders foot lands over the bonus line without cutting it, then the raiding team will receive a bonus (+1) point even the raider is successfully tackled during the raid. An attempt of a raider to initiate his running movement from right side and approach towards the left side to cross the bonus line and vice versa is called as Running Bonus Technique. To achieve the objectives of this Study, match analysis technique was used by the researchers, there by match videos of three different types of Kabaddi Tournaments held in India were considered. The whole match videos were downloaded from available internet sources. Running bonus technique executed on right and left side was separated by repeated and careful observation of the match videos of the following tournaments.

1. South Zone Inter University (SZIU) Kabaddi Men -2022-23
2. South Zone Inter University (SZIU) Kabaddi Men - 2023-24
3. 69<sup>th</sup> Men Senior National Kabaddi (SNKC) championship - 2022-23 &
4. Pro Kabaddi Season 9 (PKS9) - 2022-23

Details of the collected match videos are as given in Table -1

**Table -1**  
**DETAILS OF MATCH VIDEOS COLLECTED FROM**

<b>Tournament</b>	<b>Held in the Year</b>	<b>Match Videos collected form</b>	<b>Number of Match videos collected</b>
South Zone inter University men Kabaddi tournament	2022-23	Quarter finals	4
	2022-23	League matches	6
	2023-24	League matches 1,2,3,5 & 6	4
69 <sup>th</sup> Men's senior National championship	2022-23	Quarter finals Semifinals & Final Match	7
Pro Kabaddi Season 9	2022-23	Eliminator 1 & 2 Semifinals & Final Match	5
Total number of Match Videos collected			26

From the 26 match videos of above said tournaments, 203 videos were separated. Out of 203, 172 best videos were selected and considered for the present research, i.e. 53 videos from the South zone inter university quarter finals, and league matches played during the year 2022-23, 31 videos from the South zone inter university league matches played during the year 2023-24, 43 videos from senior national championship Quarter finals and semifinal 1,2 and final matches and 45 videos from Pro-Kabaddi season 9 Elimination 1,2, semifinal 1,2 and final matches. To provide precise insights about running bonus technique, the researcher adopted the simulation method by using Dartfish Pro S 2024.

## Quantitative Analysis of the study

**TABLE-2**

### **RUNNING BONUS TECHNIQUE PERFORMED IN BOTH SIDE WITH AND WITHOUT STRUGGLE DURING SZIU QUARTER FINAL AND LEAGUE MATCHES -2022-2023**

Match	Teams	Points	With Struggle		Without Struggle	
			R	L	R	L
QF 1	Bharathidasan university	39	0	0	1	1
	University of Mysore	40	1	0	0	1
QF2	Mangalore University	45	1	0	0	0
	Bangalore North University	27	1	0	4	0
QF3	Vels University	44	3	0	2	0
	Kuvempu University	38	0	2	0	2
QF4	SRM IST	41	1	0	1	0
	Yogi Venama University	30	1	1	0	0
TOTAL			8	3	8	4

Match	Teams	Points	With Struggle		Without Struggle	
			R	L	R	L
L1	SRM IST	35	2	0	0	0
	University of Mysore	20	1	0	2	0
L2	Vels University	42	1	0	2	0
	Mangalore University	33	0	0	0	0
L3	SRM IST	32	0	0	0	0
	Mangalore University	29	0	0	1	1
L4	Vels University	15	1	1	2	0
	University of Mysore	05	0	0	2	0
L5	Vels University	49	3	0	2	1
	SRM IST	28	0	1	0	0
L6	Mangalore University	32	0	0	2	0
	University of Mysore	46	1	1	1	2
TOTAL			9	3	14	4

Table 2 portrays the details about south-zone inter-university Kabaddi matches played in quarter-finals and league during the year 2022-23 organized by Bangalore University, Bangalore from 9-10 Dec, 2022. The running bonus technique performed by the teams in quarter final and league matches at right and left side with struggle are eight & nine and three & three respectively. Similarly, during without struggle situation the teams performed running bonus technique in right and left side are eight & fourteen and four & four respectively.

**TABLE-3**  
**RUNNING BONUS TECHNIQUE PERFORMED IN BOTH SIDES WITH AND WITHOUT**  
**STRUGGLE DURING SZIU LEAGUE MATCHES - 2023-2024**

Match	Teams	Points	With Struggle		Without Struggle	
			R	L	R	L
L1	Vels University	48	2	2	2	1
	University of Mysore	25	1	0	1	1
L2	Yogi Venama University	44	0	0	1	1
	University of Mysore	46	1	1	0	0
L3	Yogi Venama University	27	0	0	2	1
	Mangalore University	36	0	1	0	3
L4	Yogi Venama University	Videos couldn't retrieved				
	Vels University					
L5	University of Mysore	Videos couldn't retrieved				
	Mangalore University					
L6	Vels University	51	3	0	2	0
	Mangalore University	46	2	0	3	0
TOTAL			9	4	11	7

Table 3 describes the particulars of south-zone inter-university Kabaddi matches played in league during the year 2023-24 held at JNTU, Kakinada, from 11-12 Nov, 2023. The running bonus technique performed by the teams in league matches at right and left side with struggle are nine & four correspondingly. Likewise, during without struggle situation the teams performed running bonus technique in right and left side are eleven and seven correspondingly.

**TABLE-4**  
**RUNNING BONUS TECHNIQUE PERFORMED IN BOTH SIDE WITH AND WITHOUT**  
**STRUGGLE DURING 69<sup>th</sup> MEN'S SENIOR NATIONAL CHAMPIONSHIP - 2022-2023**

Match	Teams	Points	With Struggle		Without Struggle	
			R	L	R	L
QF-1	Indian Railways	44	0	0	3	1
	Tamilnadu	26	0	1	0	0
QF-2	Uttarpratesh	38	0	0	2	2
	Goa	41	0	1	1	1
QF-3	Services	28	1	0	3	0
	Haryana	48	1	0	0	0
QF-4	Maharashtra	39	0	3	0	2
	Chandigarh	21	0	0	0	1

SF-1	Indian Railways	43	0	2	0	3
	Goa	20	0	0	0	2
SF-2	Haryana	33	2	0	0	0
	Maharashtra	27	0	3	0	1
Final	Maharashtra	38	0	1	0	1
	Indian Railways	21	2	0	1	2
TOTAL			6	11	10	16

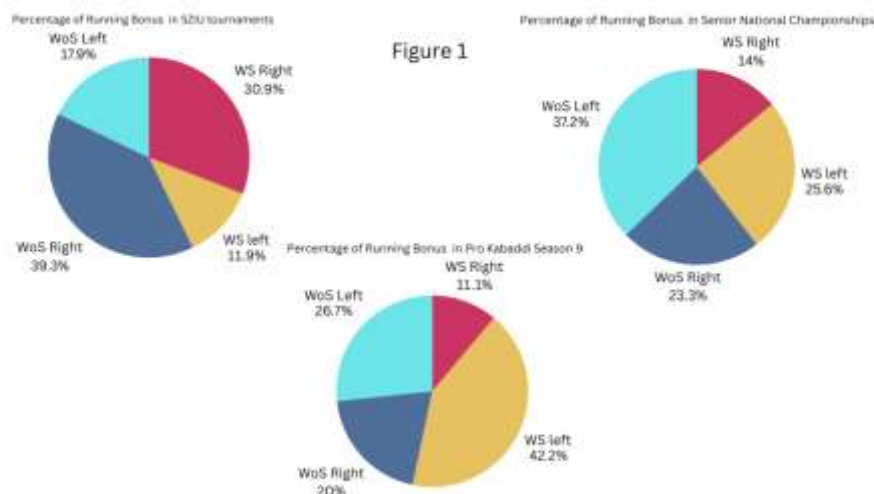
Table 4 interprets the particulars of 69<sup>th</sup> men's senior national championship matches played in quarter finals, semifinals and finals during the year 2022-23 held in Hariyana, from 21-24 July, 2022. The running bonus technique performed by the teams at right and left side with struggle are six & eleven correspondingly. Likewise, during without struggle situation the teams performed running bonus technique in right and left side are ten and sixteen correspondingly.

**TABLE-5**  
**RUNNING BONUS TECHNIQUE PERFORMED IN BOTH SIDES WITH AND WITHOUT STRUGGLE DURING PRO-KABADDI SEASON 9 - 2022-2023**

Match	Teams	Points	With Struggle		Without Struggle	
			R	L	R	L
E1	Bangalore Bulls	56	0	2	1	3
	Dapang Delhi	24	1	1	1	0
E2	UP Yodhas	36(4)	0	1	2	0
	Tamil Thalivas	36(6)	0	2	1	2
SF-1	Jaipur Pink Panther	49	0	4	0	3
	Bangalore Bulls	29	1	1	0	1
SF-2	Puneri Paltan	39	2	1	2	0
	Tamil Thalivas	37	0	6	1	0
FINAL	Jaipur Pink Panther	33	1	1	1	3
	Puneri Paltan	29	0	0	0	0
TOTAL			5	19	9	12

Here is the details of 69<sup>th</sup> men's senior national championship matches played in quarter finals, semifinals and finals during the year 2022-23 held in Hariyana, from 21-24 July, 2022. It is understood from the table-5 that, running bonus technique performed by the teams at right and left side with struggle are five and nineteen correspondingly. Likewise, during without struggle situation the teams performed in right and left side are nine and twelve correspondingly.





**Figure 1** portrays the percentage of running bonus technique executed by raiders on right and left side corresponding to with struggle (WS) and without struggle (WoS) situations.

## Qualitative Analysis of the Study

The investigators very carefully scrutinized the selected 172 videos to capture the simulation of images pertain with movement pattern involved in running bonus technique for which Dartfish Pro S 2024 was used. The captured simulations of images are given in figure 2 and 3.



## Discussion

In the present scenario there are numerous comprehensive approaches which often replace the old sophisticated methods on which most of the scientist rely on. In that way, **Andrew Hutcheon, 2022**, analyzed gymnastic performance by using Video Feedback and Peer Evaluation methods. By using machine learning algorithms method, **Singh et al., 2023** forecasted the Pro Kabaddi tournament result. By using KINOVA software version 0.8.15, **Asha and Chandrappa (2022)**, confirmed that, Pro Kabaddi Season matches back kick and bonus skills are widely used than the defensive skills. Based on the formers findings it is comprehend that bonus skill wins the crucial point which is likely to enhance the probability of winning moment of the match. In such aspects, the present study has been carried out by the researchers.

From the available source and the videos considered for the analysis on running bonus technique performed by the teams participated in South zone inter-university tournaments, 69<sup>th</sup> senior national

championship and Pro-Kabaddi season-9 the following insights were drawn. From the quantitative analysis data of south zone inter-university matches, it is understood that, whenever the raiders were in with or without struggle situation, more number of running bonus technique were successfully executed by right raiders when compared to left raiders. The 69<sup>th</sup> senior national championship illustrated that, participated teams executed the running bonus technique during with and without struggle was more by the left raiders than the right raiders. Besides to this, raiders' attempt on left side surpassed the right side by almost 50%. The systematic analysis made on the videos of the top most Indian Pro-Kabaddi season-9 visualized that, the raiders were more dominant in executing running bonus technique on left side than the right when in struggle or with our struggle. Based on the above findings, it is clear that, percentage of success of running bonus technique executed in struggle situation on right and left side were 25 and 75 respectively. Besides, the running bonus technique was executed by the raider equally on both sides.

In general, the technology of video feedback was used by **Potdevina, Vorsb, Huczezc, Lamoura, Davids and Schnitzler (2018)**, to improve motor learning under restricted experimental conditions. **Al-Abood, Davids, and Bennett, 2001**, examined the importance of Visual Demonstrations and Verbal Instructions in learning and acquiring of motor skills, **Renshaw, Chow, Davids, and Hammond, 2010**, described the integration of motor learning theory to accepting the game play and skill acquisition. Similarly, the present qualitative research is a phenomenal attempt to assess on running bonus technique pattern by using simulation images revealed a unique pattern of movement which seems exceptional for raiders to score a bonus point.

In the game of Kabaddi it is quiet common to observed that, whenever the bonus attempt is made weather the raider on right or left side and with or without struggle situation, the raiders' intuition is usually to anticipate for rushing back to cross the centre line. This pattern of approach by raiders' resembles the "L" shape.

The investigators submit their profound sense of gratitude to tournaments organizers, sponsors, media and broad casting networks without which such imitation of this investigation wouldn't have been possible.

## CONCLUSIONS

The study analyzed three major Kabaddi tournaments such as South Zone Inter-University (2022-23 and 2023-24), 69<sup>th</sup> Men's Senior National Kabaddi Championship, and Pro Kabaddi Season 9, all of which were conducted on mat surfaces further the study is purely on video analysis. The focus was on identifying the most effective offensive strategies for players to score points by means of running bonus technique and convert their raids into successful ones. From the quantitative and qualitative analysis, the following conclusions were drawn.

1. Right raiders are more in number at inter-university level competitions.
2. In national level competition, it seems that the teams are balanced with both right and left raiders. Comparatively, left raiders have dominated the right raiders in scoring bonus point(s).
3. Teams in Pro-Kabaddi Season 9 predominantly excelled with left raiders.
4. A unique and successful movement pattern of running bonus technique was repeatedly noticed in the three tournaments.
5. The movement pattern image of running bonus technique resembles "L" shape.
6. Left raiders are more likely to find transformation from amateur to professional level in the current scenario.



7. The investigators mind instigated that, to enrich the movement pattern of running bonus technique by utilizing advanced scientific tools.

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## Match video links

### South zone interuniversity2022-23 and 2023-24

#### League matches

40. Mangalore university vs University of Mysore <https://youtu.be/J6EM11WbHfISrm> university vs Mangalore university
41. <https://youtu.be/QMq4aqLyRSESrm> university vsVels university Chennai vs university of Mysore Srm university vs yogi venama university.
42. <https://youtu.be/fHTuWPsQOB8>Bharathidasn university vs university of Mysore
43. <https://youtu.be/i-PD0Vq7BZA>kuvempu university

44. <https://youtu.be/N6hmLRx3gWw>
45. Vels university vs Mysore <https://youtu.be/RtQ1oxNdwa4>
46. Vels university vs srm university <https://youtu.be/sUksufn4BzQ>
47. Vels vs Mangalore university <https://youtu.be/slR3wnJ1RUk>
48. Vels vs Mangalore university [https://youtu.be/7nimDH\\_Ixig](https://youtu.be/7nimDH_Ixig)
49. Vels vs Mysore <https://youtu.be/4v8kT6UA8DQ>
50. Yogi Vemana university vs Mangalore university <https://youtu.be/g4ai2qk7YSk>
51. Yogi Vemana university vs Mysore university <https://youtu.be/Tyk15dR3Zl8>
52. Mangalore vs BNU <https://youtu.be/jQXtBH6d9G8>

### **69<sup>th</sup> Men's Senior 69<sup>th</sup> National Championship.**

#### **Quarter Finals**

53. Haryana vs Maharashtra [https://youtu.be/c\\_HOa7hh0gk48](https://youtu.be/c_HOa7hh0gk48) Indian Railways vs Goa <https://youtu.be/nbmvlRBqHow> Indian Railways vs Tamilnadu <https://youtu.be/E0Zf3UK-8AY>
54. Maharashtra vs Chandigarh <https://youtu.be/7YIxrW3e0U>
55. Maharashtra vs Haryana [https://youtu.be/s3FfqrJgz\\_I](https://youtu.be/s3FfqrJgz_I)
56. Services 54 Uttar Pradesh vs Goa [https://youtu.be/edHmBa1B\\_28](https://youtu.be/edHmBa1B_28)
57. [playwithrules.com](https://playwithrules.com) <https://playwithrules.com/kabaddi-rules-how-to-play>
58. [Rules of Playing](https://rulesofplaying.com) <https://rulesofplaying.com/kabaddi-rules-explained>

#### **Prokabaddi**

59. <https://www.prokabaddi.com/news55> [https://www.hotstar.com/in/sports/kabaddi/vivo-pro-kabaddi-2022/938/replay-pink-panthers-paltan-infinal/1540020639/replay/watch?filters=content\\_type=sport\\_replay](https://www.hotstar.com/in/sports/kabaddi/vivo-pro-kabaddi-2022/938/replay-pink-panthers-paltan-infinal/1540020639/replay/watch?filters=content_type=sport_replay)
60. Final [https://www.hotstar.com/in/sports/kabaddi/vivo-pro-kabaddi-2022/938/replay-bulls-thalaivas-entersf/1540020636/replay/watch?filters=content\\_type=sport\\_replay](https://www.hotstar.com/in/sports/kabaddi/vivo-pro-kabaddi-2022/938/replay-bulls-thalaivas-entersf/1540020636/replay/watch?filters=content_type=sport_replay)
61. Semi 1&2 [com/in/sports/kabaddi/vivo-pro-kabaddi-2022/938/replay-pink-panthers-clinchtitle/1540020642/replay/watch?filters=content\\_type=sport\\_replay](https://www.hotstar.com/in/sports/kabaddi/vivo-pro-kabaddi-2022/938/replay-pink-panthers-clinchtitle/1540020642/replay/watch?filters=content_type=sport_replay)
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69. <https://thebridge.in/kabaddi/use-of-vide...>
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