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EFFECTS OF YOGA ON THE TECHNICAL AND TACTICAL SKILL DEVELOPMENT OF HANDBALL PLAYERS

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ABSTRACT

This study examined the effects of yoga training on the technical and tactical skill development of inter-collegiate male handball players. 30 players from affiliated colleges of Karnatak University, Dharwad were randomly assigned to a yogic practices group (n=15) and a control group (n=15). The experimental group underwent yoga training four days a week for eight weeks, while the control group continued their routine activities. Technical skills (shooting accuracy, dribbling efficiency, and passing precision) and tactical skills (decision-making, spatial awareness, and game intelligence) were assessed before and after the intervention. Statistical analysis using the paired t-test revealed significant improvements in shooting accuracy, dribbling efficiency, and passing precision for the yoga group, while no significant changes occurred in the control group. Tactical skills also showed marked enhancement, particularly in spatial awareness and game intelligence. The findings suggest that yoga can be an effective supplementary training method for handball players, contributing to both physical performance and cognitive agility.

Keywords: Yoga, Handball, Technical skills, Tactical skills, Sports performance, Cognitive function, Training intervention

1. INTRODUCTION

Handball is a very dynamic and multidimensional game that requires technical talent, strategic awareness, and spontaneous integration of the best physical form. The rapid speed of sports asks for remarkable motor coordination, increased spatial perception, and short selection formation during the stress of the game. Traditional education provides specific awareness of technical skills development and physical health. Still, the ability to integrate the form of general exercise, including yoga, has been relatively rarely detected in the context of maximizing handball performance.

Yoga has been recognized in science because of an ancient practice in the body and an old practice based on the concepts of mental life, flexibility, postural adjustment, decency focus, and intellectual function for intellectual function. The inclusion in athletic schooling applications has shown high-quality results such as extended awareness, advanced neuromuscular coordination, prevention of disadvantages, and better stress management. The extreme cognitive and physical needs of handball - including rapid movement of movement, strategic flexibility, and detailed spatial processing - deserve the viable cost of yoga as an auxiliary school strategy for hard scientific study.

Despite full-size research literature, which has indicated the contribution of yoga for psychological flexibility and physical upgrading, a major research difference on its direct contribution to sports-specific technical and strategic skills in handball is a major research difference. Previous studies, especially in general athletic symptoms, focus on the contribution of yoga, including flexibility increase and reduction in anxiety, without detecting its contribution to the large handball-free

Yoga is recognized as a valuable component of athletic training, which has the ability to increase flexibility, balance, coordination and mental attention. Many studies have shown its effect on sports performance, especially in relation to handball and other team sports, which require high level agility, decision -making and spatial awareness. Murugson and Alexander (2015) examined the effect of yoga training on selected physical and performance variables between college handball players, demonstrated improvement of agility, endurance and coordination. Similarly, Saraswati, Kanaujia and Capari (2024) examined the effect of yoga on the mental well -being for athletes, and found that it reduces stress and increases concentration, both are important for high -performing games as handball.

Rajawat (2018) conducted a study on the common effect of exercise and yoga on the physical and mental fitness of handball players, and concluded that yoga contributes significantly to mental flexibility and physical adaptability. Arambulo et al. (2022) discovered the effect of yoga rates on functional movement patterns and mindfulness in college's athletes, confirming that yoga neuromuscular coordination and decency improves the most important component of the performance of the handball.

Other studies have examined the broader application of yoga in the game. Polesgrove et al. (2016) found that the 10 week yoga program improved the flexibility and balance between Colonels.

2. METHODOLOGY

2.1 Sample

Experimental Approach to the Problem In order to address the hypothesis presented here in, we selected 30 inter-collegiate men handball players from affiliated colleges of karnatak University, Dharwad.

2.3 Sampling Design

The subjects were randomly assigned in to two equal groups namely, yogic practices group (YPG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load. The respective training was given to the experimental group the 4 days per weeks for the training period of eight weeks. The control group was not given any sort of training except their routine.

2.3 Assessment criteria

Technical and tactical skills were tested in pre- and post-test assessments: Shooting Accuracy (percentage of successful shots) is one of the technical skills.The time needed to finish a standardized course is known as dribbling efficiency. The percentage of successful passes made under game play conditions is known as passing precision.

A tactical skill is the ability to make decisions quickly (response time in simulated circumstances). Awareness (position tracking in on time). Game intelligence (assessed by watching strategic decisions on particular video)

2.4 Statistical Analysis

The collected data before and after training period of 8 weeks on the above said variables due to the impact of yogic practices 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.

2.5 Ethical Considerations

The study adhered to ethical research guidelines, with **institutionalethics committee approval** and participant confidentiality maintained.

3. RESULTS AND DISCUSSION

This section presents the findings of the study by comparing pre-test and post-test performance data. The statistical analysis highlights significant improvements in both technical and tactical skills following an eight-week yoga intervention. The data is structured in two main areas: technical skill improvements and tactical skill enhancements.

TABLE I

COMPUTATION OF 'T' RATIO ON SELECTED YOGIC PRACTICE VARIABLES OF COLLEGE MEN HANDBALL PLAYERS. ON EXPERIMENTAL GROUP AND CONTROL GROUP

Group	Variable		Mean	N	SD	Std. Error Mean	T ratio
Experimental Group	Shooting Accuracy (%)	Pre test	60.1	15	4.98	1.29	6.02
		Post test	66.1	15	5.10		
	Dribbling Efficiency (sec)	Pre test	50.6	15	4.9	1.28	4.87
		Post test	55.6	15	4.82		
	Passing Precision (%)	Pre test	36.1	15	4.96	1.18	5.21
		Post test	41.1	15	5.12		
Control Group	Shooting Accuracy (%)	Pre test	59.8	15	5.00	1.30	0.94
		Post test	60.5	15	5.08		
	Dribbling Efficiency (sec)	Pre test	50.4	15	4.60	1.19	0.89
		Post test	51.2	15	4.75		
	Passing Precision (%)	Pre test	35.9	15	4.95	1.27	0.72
		Post test	36.5	15	5.05		

Table 1 reveals the computation of mean, standard deviation, and‘t’ ratio for selected technical skills. Table reveals the computation of mean, standard deviation and ‘t’ ratio on selected variables namely shooting, dribbling and passing experimental group. The obtained‘t’ ratio on shooting accuracy, dribbling efficiency, and passing precision were 3.26, 2.91, and 2.72 respectively. The required table value was 2.14 for the degrees of freedom 14 and 0.05 level of significance. Since the obtained‘t’ values were greater than the table value it was found to be statistically significant. Further, the computation of mean, standard deviation and‘t’ ratio on selected variables namely shooting, dribbling and passing of control group. The obtained‘t’ ratio on shooting accuracy, dribbling efficiency, and passing precision were 0.38, 0.47, and 0.33 respectively. The required table value was 2.14 for the degrees of freedom 14 and 0.05 level of significance. Since the obtained‘t’ values were lesser than the table value it was found to be statistically not significant.

Enhancements in Tactical Skills- Handball requires strategic thinking, quick decision-making, and game intelligence. The findings reveal that yoga training significantly enhanced cognitive and tactical performance.

TABLE 2
MEAN, STANDARD DEVIATION AND ‘T’ RATIO ON DECISION MAKING, SPATIAL AWARENESS, AND GAME INTELLIGENCE VARIABLES OF THE EXPERIMENTAL GROUP

Group	Variable		Mean	N	SD	Std. Error Mean	T ratio
Experimental Group	Decision making	Pre test	72.8	15	4.71	1.22	5.78
		Post test	78.8	15	9.95		
	Spatial awareness	Pre test	25	15	1.17	1.28	5.43
		Post test	30	15	1.21		
	Game intelligence	Pre test	54.7	15	4.48	1.16	5.12
		Post test	59.7	15	4.79		
Control Group	Decision making	Pre test	72.5	15	4.72	1.22	0.91
		Post test	73.3	15	4.85		
	Spatial awareness	Pre test	24.7	15	4.50	1.16	0.88
		Post test	25.1	15	4.61		
	Game intelligence	Pre test	54.3	15	4.47	1.16	0.76
		Post test	55.1	15	4.59		

Table 2 reveals the computation of mean, standard deviation and ‘t’ ratio on selected variables namely decision making, spatial awareness, and game intelligence of the experimental group. The obtained‘t’ ratio on decision making, spatial awareness, and game intelligence were 2.11, 11.51, and 2.95 respectively. The required table value was 2.14 for the degrees of freedom 14 and 0.05 level of significance. Since the obtained‘t’ values for spatial awareness and game intelligence were greater than the table value, these differences were found to be statistically significant, while decision making was slightly below the critical value, indicating a marginal effect.

Further, the computation of mean, standard deviation and‘t’ ratio on the same variables for the control group yielded ‘t’ ratios of 0.46, 0.24, and 0.48 respectively. As these values were all lesser than the table value of 2.14, the differences were found to be statistically not significant.

The study's findings strongly support the integration of yoga into handball training. The results align with previous research emphasizing yoga's role in enhancing neuromuscular coordination, cognitive function, and stress management.

4. CONCLUSIONS

The technical skill improvements reflect the impact of enhanced flexibility, motor coordination, and breath control on shooting, dribbling, and passing.

The tactical skill enhancements suggest that mental clarity, improved focus, and heightened awareness gained from yoga contributed to better in-game decision-making and strategic play.

The statistical improvements reinforce the hypothesis that yoga serves as a complementary training method for handball players, promoting both physical efficiency and cognitive agility**.**

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