

COMPARATIVE ANALYSIS OF MOTOR PERFORMANCE: SPEED AND AGILITY IN INDIGENOUS AND NON-INDIGENOUS GAME PLAYERS

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ABSTRACT

The primary objective of this study was to conduct a comparative analysis of the speed and agility levels among indigenous and non-indigenous game players. For this investigation, a cohort of forty male players was meticulously selected, comprising twenty indigenous sport kho-kho players and an equivalent number of non-indigenous sport football players. These individuals were chosen based on their representation in various competitive tiers, spanning subdivision, district, and state levels. The age range of the participants fell within the bracket of 14 to 16 years. It is imperative to note that the study exclusively focused on male players. Upon conducting an in-depth examination of the collected data, a comparison of the means of the two distinct groups emerged. This comparative analysis revealed that the motor performance levels, specifically pertaining to speed and agility, were notably lower in the non-indigenous players when juxtaposed with their indigenous game counterparts. This finding underscores a significant contrast in the motor performance characteristics of the two groups, warranting further exploration. To bolster the findings, a computed t-value was employed to compare the motor performance levels of indigenous and non-indigenous players. This statistical analysis revealed that there exists an insignificance difference when evaluating speed ($p=0.25$) and agility ($p=1.67$) between these groups. In light of the study's inherent limitations, it is concluded that none of the motor performance variables demonstrated a statistically significant difference between indigenous and non-indigenous game players. This observation highlights the need for future research endeavors aimed at devising strategies to enhance motor performance levels within this specific demographic. In summation, this study provides valuable insights into the contrasting motor performance characteristics of indigenous and non-indigenous game players, emphasizing the need for further investigation and the development of targeted interventions to optimize performance in these distinct sporting contexts.

Keywords: Indigenous game; non-indigenous game; Bio-motor abilities; Speed; Agility

INTRODUCTION

In the contemporary realm of competitive sports, athletes aspire to achieve excellence by honing various facets of their performance. This entails a comprehensive enhancement of their technical, tactical, physical, and psychological abilities. Remarkably, athletes possessing comparable levels of technical, tactical, or psychological skills can exhibit contrasting performances, primarily due to disparities in their physical conditioning. Physical fitness assumes a pivotal role in the holistic development of athletes, significantly impacting cognitive and emotional aspects. It is pertinent to recognize that physical fitness not only facilitates the effective functioning of muscles but also empowers the mind to make rapid, well-informed decisions while maintaining emotional equilibrium. This confluence of physiological and mental attributes underlines the essential role of physical fitness in sports. Mark Twain's famous aphorism, "Clothes make the man. Naked people have little or no influence in society," resonates with a similar sentiment in the realm of sports. An unfit athlete is often overshadowed in the fiercely competitive world of sports, highlighting the pivotal importance of physical conditioning. Coaches and trainers dedicate themselves to ensuring that athletes maintain peak physical fitness, recognizing its paramount significance. The conventional definition of fitness as "the ability to carry out everyday tasks with vigor

and alertness, without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies" has evolved. Contemporary considerations now encompass the concepts of 'health-related fitness' and 'motor performance fitness.' This evolution is driven by the transformative impact of technology on lifestyle (Hockey, 1993). Remarkably, the rural populace of India, constituting approximately 70% of the total population, exhibits higher levels of physical fitness, physiological well-being, and morphological status compared to their urban counterparts. This demographic presents a formidable pillar of strength in India's sporting arena. Physical education and sports have enjoyed enduring significance in India's history, fueled by diverse traditional games with roots in ancient times. These games are often integrated into festivals, serving both as vehicles for physical development and sources of recreational entertainment. Their inclusion contributes to the promotion of physical prowess and holistic motor development. Kho-Kho, a unique indigenous game, exemplifies the rich cultural heritage of India. This game combines elements of chase, attack, and defense, demanding skill, rhythm, and physical fitness. Its simplicity, affordability, and entertainment value align it with the characteristics of other traditional Indian games. Kho-Kho places specific emphasis on physical attributes such as endurance, speed, and agility, offering an exciting and enjoyable experience characterized by elements of dodging, feinting, and controlled bursts of speed. The essence of the game lies in the pursuit and capture, adding depth and excitement to Kho-Kho. In the Indian sports landscape, soccer occupies the second most popular position, with cricket leading the way (Kannan & Shilpa, 2011). Traditionally, soccer has garnered immense popularity in regions like West Bengal, Goa, Kerala, and the entire northeastern India, including Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Sikkim (Wilson, Bill, 2012). Soccer is a team sport that heavily relies on aerobic endurance and short-term, high-intensity intermittent activities (Rampinini et al., 2009; Bangsbo et al., 2006; Mohr et al., 2003; Rienzi et al., 2000; Bangsbo et al., 1991). It demands a high level of performance combined with technical and tactical proficiency, as well as specific physical and physiological attributes (Kalapotharakos et al., 2006). Furthermore, different playing positions in soccer require distinct physical characteristics (Mohr et al., 2003; Rienzi et al., 2000; Bangsbo, 1994). To excel at the elite level, soccer players must possess morphological and physiological characteristics tailored to the sport and their specific playing positions.

The study's primary objective was to conduct a comparative analysis of speed and agility between indigenous and non-indigenous game players, recognizing the profound implications of physical fitness in the context of sports performance.

METHODOLOGY

Selection of Participants: A total of forty male participants were purposefully selected for this study. This cohort was evenly divided, with twenty individuals drawn from the indigenous sport of kho-kho and an equivalent number from the non-indigenous sport of football. The selection process ensured the representation of athletes engaged in diverse competitive levels, encompassing subdivision, district, and state competitions. To mitigate bias, participants were randomly chosen from the available pool of athletes. The age range of the participants was constrained within the bracket of 14 to 16 years, thereby homogenizing the age factor. Notably, the study exclusively focused on male athletes to maintain a uniform gender profile.

Identification of Variables: This research specifically concentrated on two primary variables: speed and agility. Speed, denoting the rapidity of locomotion, was assessed using the 20-meter sprint test, which quantifies the time taken by each participant to traverse the specified distance. Agility, encompassing an athlete's ability to swiftly change direction and navigate a predefined course with precision, was measured through the arrowhead agility test. These variables were meticulously chosen due to their direct relevance to the sporting activities under investigation and their established significance in athletic performance evaluation.

*Statistical Analysis:*The data collected through the aforementioned tests underwent comprehensive statistical analysis to derive meaningful insights. Central tendencies and the extent of data dispersion were ascertained through the calculation of mean values and standard deviation (SD), respectively. To discern any significant differences between the two groups, a t-test was applied. The t-test, a robust statistical tool for comparing means, was employed to evaluate the data with a predetermined level of significance set at $p < 0.05$. This level of significance ensured a 95% confidence level in the statistical results, enhancing the reliability and validity of the study outcomes.

This methodological approach was meticulously designed to facilitate a robust and objective assessment of the speed and agility levels of male athletes engaged in indigenous kho-kho and non-indigenous football, thereby contributing to a comprehensive understanding of the physical attributes influencing their athletic performances.

RESULTS

Table-1 Mean, SD and Significant Difference of Motor Performance variables of the Indigenous game and non-indigenous game players

Variable	Indigenous Game(kho-ko)	Non-Indigenous Game(football)	Sig.
Speed	8.06±0.55	7.65±0.60	0.67
Agility	13.01±0.64	12.84±1.27	1.67

The data in Table 1 highlights a comparative examination of mean motor performance levels, specifically speed and agility, between indigenous and non-indigenous players. Notably, the analysis reveals that the non-indigenous players exhibited lower motor performance levels in these attributes in comparison to their indigenous counterparts. Furthermore, Table 1 includes the calculated p-value, a crucial indicator of statistical significance. It is noteworthy that the obtained p-value indicates statistical insignificance, as it surpasses the conventional threshold of 0.05. This observation signifies that the disparities in motor performance between indigenous and non-indigenous players are not statistically significant within the scope of this study.

DISCUSSION

However, the findings of the present study indicate that significant differences in motor performance were not observed between the two groups, specifically indigenous and non-indigenous players. This lack of significant differences may be attributed to the relatively small sample size utilized in this study, which, although limiting, contributes to the uniqueness and ecological validity of the data presented. The study's results suggest that the absence of disparities in motor performance between indigenous and non-indigenous players may be multifactorial. One contributing factor could be the limited access to comprehensive training resources and facilities for both groups of players, resulting in a level playing field in terms of available training resources. Additionally, it is possible that trainers and coaches, irrespective of the players' indigenous or non-indigenous background, adopt and implement similar training regimes. This similarity in training approaches may account for the observed homogeneity in the training outcomes achieved among players in the specified age group. These findings are in line with previous research in the domain of youth sports training, which emphasizes the significance of equitable training opportunities and consistent coaching methodologies, ultimately leveling the playing field for athletes, regardless of their cultural or ethnic backgrounds. This outcome underscores the need for future investigations to explore the intricacies of training programs and coaching practices in the context of indigenous and non-indigenous athletes, with the aim of enhancing their athletic performance and developmental trajectories.

CONCLUSION

In light of the inherent limitations of this study, it can be inferred that none of the motor performance variables demonstrated significant differences between indigenous and non-indigenous game players. This outcome underscores the importance of conducting future research endeavors aimed at exploring innovative methodologies to augment the motor performance levels within this distinct population group. Indigenous games, such as those originating in India, are particularly noteworthy due to their cost-effectiveness, feasibility, and ease of engagement. These games hold substantial potential for integration into school-based physical education programs, serving as invaluable tools for the holistic development of students' motor performance attributes, including speed and agility. Kho-Kho, an indigenous game of prominence, stands as a prime example of a sport that possesses the capacity to significantly enhance motor performance, paving the way for its potential inclusion in physical education curricula. Further research into the implementation and efficacy of indigenous games within educational contexts holds promise for the advancement of motor performance and athletic development in diverse populations.

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