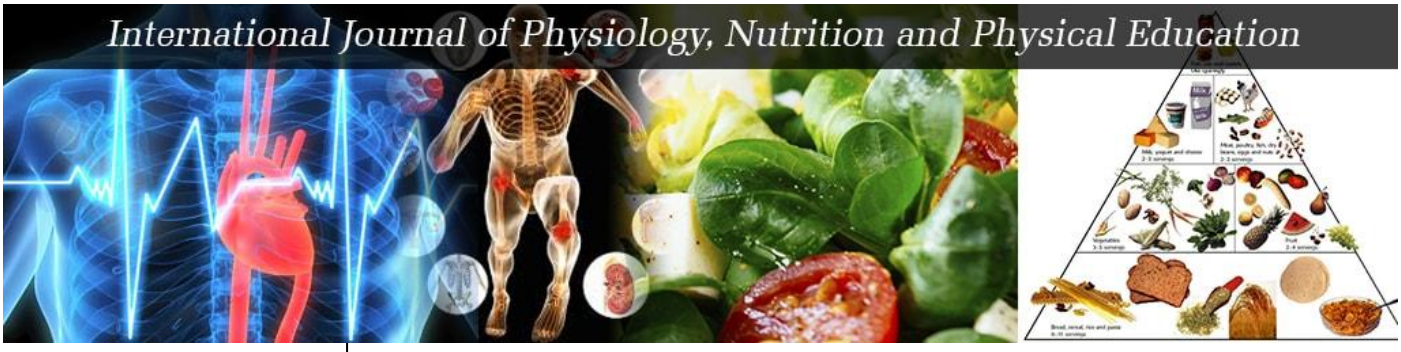

ISSN: 2456-0057
IJPNPE 2025; 10(2): 162-164
Impact Factor (RJIF): 5.91

www.journalofsports.com
Received: 27-06-2025
Accepted: 30-07-2025

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Post-retirement physical fitness and health outcomes: An analytical study of male and female athletes

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Abstract
In today's fast-paced world, individuals are engaged in continuous daily activities with minimal rest, leading to increased levels of stress and anxiety, which can negatively impact overall well-being. To counteract these effects, people often turn to physical activities and sports as a means of stress relief. Historically, recreational activities, exercise, and sports have played a vital role in promoting mental and physical health. There is substantial scientific evidence supporting the benefits of regular physical activity as a key factor in maintaining health and fitness. Retirement from an athletic career represents a significant life transition. Failure to adapt to this change can result in adverse health outcomes. The present study aims to assess the physical fitness status of retired male and female sportspersons from Karnataka state. A total of 80 retired athletes (male = 41, female = 39), who had previously represented Karnataka in various sports and games, were selected for the study. Their physical fitness was evaluated using measures of flexibility and hand grip strength. Descriptive statistics, including mean and standard deviation, were applied, along with tabular and percentage analyses to categorize Body Mass Index (BMI) and Blood Pressure levels. The findings reveal that retired sportspersons often face challenges in maintaining a healthy body weight and normal blood pressure levels post-retirement. These insights highlight the need for targeted interventions to support the health and fitness of retired athletes.

Keywords: Retirement, sportspersons, physical fitness, flexibility, hand grip strength

Introduction
In today's demanding and fast-paced world, individuals are often engaged in daily routines with little to no rest, which results in elevated levels of stress and anxiety. These psychological pressures can have a detrimental impact on one's overall well-being. To counterbalance such negative effects, many individuals turn to physical activities and sports as effective methods of stress relief and mental rejuvenation.

Historically, it has been evident that human beings have consistently engaged in recreational activities, physical exercise, and sports as a natural outlet to cope with the challenges of life. The significance of sports and physical activity has been well established, playing an integral role in human development. Numerous benefits are derived from regular participation in physical activities, including improved mental health, physical fitness, and enhanced quality of life. Scientific research confirms that regular exercise and physical activity are key determinants of health. Long-term engagement in exercise whether practiced consistently throughout life or adopted later has been linked with reduced risks of chronic diseases and a decreased likelihood of premature death (Hawkins, Wiswell, & Marcell, 2003) [2].

Representing one's state or nation in sports is a prestigious achievement and a source of immense pride. Sportspersons strive for excellence not only to win medals but also to bring honor to themselves, their families, coaches, institutions, states, and countries. In this pursuit of glory, they also contribute to building a healthy and fit society. From a national perspective, both physical fitness and achievement in sports are of paramount importance. The sports environment fosters a disciplined lifestyle characterized by commitment, routine, and focus, often shielding athletes from external distractions (Stephan *et al*., 2003) [3].

However, retirement from professional sports is an inevitable phase that all athletes must eventually face (Lavallee, 2012) [5]. The transition from an active sports career to retirement can pose significant challenges to maintaining physical and mental health.

Physical fitness is defined as the ability to perform daily tasks with vigor and alertness, while still having energy to enjoy leisure activities and handle unexpected demands. It encompasses

endurance, resilience, and the capacity to withstand stress attributes that are essential for overall health and well-being (Singh *et al*., 2013). According to a systematic review aligned with Canada's Physical Activity Guidelines for Older Adults, regular exercise, particularly involving aerobic and strength training, can help maintain or even improve functional abilities in older adults (Paterson & Warburton, 2007) [1]. While flexibility tends to decline with age, affecting normal daily functioning, evidence shows that older adults can still enhance joint mobility through consistent stretching and flexibility exercises.

Objectives of the study

The purpose of the present study was to assess the Physical Fitness status of retired male and female sportspersons of Karnataka state. For this purpose, selected Flexibility and Static strength.

Methodology

To achieve the purpose of the study, a total of eighty retired sportspersons who had previously represented Karnataka State in various sports and games were selected. Among them, 41 were males and 39 were females. The details are presented in Table 1.

Table 1: Event wise details of retired male and female sportspersons

Sl. No.	Games	Men section	Women's section
1.	Athletics	6	5
2.	Basketball	6	6
3.	Cycling	6	5
4.	Handball	6	6
5.	Hockey	6	6
6.	Volleyball	5	5
7.	Wrestling	6	6
Total		41	39
		80	

The physical fitness status of retired sportspersons was assessed using two parameters: flexibility and dominant hand grip strength. Flexibility among retired male and female sportspersons was measured through the *Sit and Reach Test*, which is widely used to assess hamstring and lower back flexibility, originally described by Wells and Dillon (1952) and later by Lemmink *et al*. (2003). Dominant hand grip strength was assessed using a Jamar Hydraulic Hand Grip Dynamometer.

The tests on flexibility and grip strength were administered to the selected subjects either at their residence or workplace. Prior to the assessment, the objectives of the tests were clearly explained to the participants by the researcher. For analysis, descriptive statistics including mean and standard deviation were employed. Additionally, tabular and percentage analyses were carried out to obtain information regarding different categories of Body Mass Index (BMI) and Blood Pressure.

Findings of the study

The results on Mean and Standard deviation of Flexibility and Dominant hand grip strength are given in table 2.

Table 2: Details on mean and standard deviation of flexibility and dominant hand grip strength of retired athletes

	Flexibility	Dominant hand grip strength
Men	30.17 ± 8.36	48.95 ± 5.63
Women	30.08 ± 4.46	34.41 ± 7.79

From Table 2, it is evident that the data on flexibility and dominant hand grip strength of male and female retired sportspersons are normally distributed and demonstrate acceptable homogeneity, as reflected in the standard deviation values. The mean flexibility scores of men and women were 30.17 ± 8.36 and 30.08 ± 4.46, respectively. The mean dominant hand grip strength was 48.95 ± 5.63 for men and 34.41 ± 7.79 for women. The present data were further subjected to percentage analysis and compared against available normative standards. The results pertaining to flexibility are presented in Table 3.

Table 3: Summary of percent analysis on percent flexibility of retired male and female sportspersons

Normative ranges	Normative category	Men		Women	
		Frequency	%	Frequency	%
Poor	5.05 & below	-	-	-	-
Fair	5.06 to14.54	-	-	-	-
Average	14.54 to22.04	07	17. 07	01	2.56
Good	22.05 to 33.53	32	78.05	29	74.35
Excellent	33.54 & above	02	4.88	09	23.07
		41	100%	39	100%

From Table 3, it is evident that among men, 17.07% were categorized as Average in flexibility, 78.05% as Good, and 4.88% as Excellent. In the case of women, 2.56% were classified as Average, 74.35% as Good, and 23.07% as Excellent. Similarly, the data on dominant hand grip strength of male retired sportspersons were subjected to percentage analysis, and the corresponding results are presented in Table 4.

Table 4: Summary of dominant hand grip strength of retired male sportspersons

Normative ranges	Normative category	Men	
		Frequency	%
Strong	39.66 & below	41	100
Above average	37.62 to 39.65	-	-
Average	35.58 to 37.61	-	-
Below Average	33.54 to 35.57	-	-
Weak	33.53 & below	-	-
Total		41	100

From Table 4, it is evident that 100% of men were categorized as Strong in dominant hand grip strength. Similarly, the data on dominant hand grip strength of female retired sportspersons were subjected to percentage analysis, and the corresponding results are presented in Table 5.

Table 5: Summary of dominant hand grip strength of retired male sportspersons

Normative ranges	Normative category	Women	
		Frequency	%
Strong	32.96 & above	17	43.6
Above average	30.83 to 32.95	-	-
Average	28.69 to 30.82	16	41.02
Below Average	26.56 to 28.68	02	5.12
Weak	26.55 & below	04	10.25
Total		39	100

From table 5 it is clear that in women section 43.6% were Strong in Dominant Hand Grip Strength; 41.02 were Average; 5.12 were Below Average and 10.25 were Weak.

Discussion

Flexibility is recognized as one of the most important health-related physical fitness components for both active and retired sportspersons. Among men, 17.07% were classified as Average in flexibility. Although the majority of male retired sportspersons demonstrated Good to Excellent flexibility compared to available norms, the presence of individuals in the Average category is a matter of concern, as reduced flexibility particularly stiffness in the lower back and hamstrings may predispose them to future injuries. In women, only 2.56% fell into the Average category, while 74.35% were Good and the remaining participants were Excellent, reflecting comparatively better flexibility levels.

With respect to dominant hand grip strength, male retired sportspersons showed consistently high performance, with 100% categorized as Strong. Given this uniformity, there is little scope for extended discussion, as all male participants exhibited grip strength superior to age-matched norms. However, the results for women were more varied: 41.02% were Average, 5.12% were Below Average, and 10.25% were classified as Weak. These disparities in grip strength warrant further exploration, as they may be considered one of the potential repercussions of sports retirement. Individuals in the Below Average and Weak groups may struggle to efficiently perform routine daily activities. Possible reasons for these discrepancies could include lethargy, prior injuries, reduced functional capacity, or lifestyle-related factors often associated with post-retirement life.

Conclusion

The percent analysis of flexibility among retired sportspersons, as per available norms, revealed that in men, 17.07% were classified as Average, *78.05% as Good, and *4.88% as Excellent. In women, 2.56% were Average, *74.35% were Good, and *23.07% were Excellent.

With regard to dominant hand grip strength, 100% of male retired sportspersons were categorized as Strong. In contrast, among women, 43.6% were Strong, *41.02% were Average, *5.12% were Below Average, and *10.25% were Weak.

These findings highlight that while male retired sportspersons generally maintain high levels of strength, a proportion of both male and female participants fall into lower categories of flexibility, which may have implications for musculoskeletal health. Furthermore, the disparities observed in women's hand grip strength suggest the need for targeted post-retirement fitness interventions to preserve functional capacity and overall well-being.

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