



CROSS-DISCIPLINARY FITNESS COMPARISON: NCC CADETS AND SPORTS PERSONS ON THE ARMY PHYSICAL FITNESS TEST (APFT)

Ranjeet Singh Sandhuⁱ

Assistant Professor, Dr.,
Department of Physical Education,
Hindu College, Amritsar,
Punjab, India

Abstract:

This study evaluates and compares the fitness levels of NCC (National Cadet Corps) cadets and sports persons using the Army Physical Fitness Test (APFT). The APFT, comprising a 2-mile run, push-up test, and sit-up test, provides a comprehensive measure of cardiovascular endurance, upper body muscular endurance, and core muscular endurance. Thirty NCC cadets and thirty sports persons were assessed to determine the differences in their fitness levels. The age of subjects ranged between 18 to 25 years. Results showed that sports persons performed significantly better in all test components compared to NCC cadets, highlighting the effectiveness of specialized sports training. The findings have implications for optimizing training programs in both military and sports settings.

Keywords: NCC cadets, sports persons, army physical fitness test, cardiovascular endurance, muscular endurance, fitness assessment

1. Introduction

Physical fitness is a critical determinant of performance in both military and sports contexts. It encompasses a range of attributes, including cardiovascular endurance, muscular strength, and flexibility, which are essential for effective performance in demanding physical activities. The Army Physical Fitness Test (APFT) is a standardized assessment tool used to evaluate these fitness components among military personnel. It measures cardiovascular endurance through a 2-mile run, upper body strength through push-ups, and core endurance through sit-ups. This test provides a comprehensive overview of an individual's physical capabilities and readiness (Army Physical Fitness Test Manual, 2021).

ⁱCorrespondence: email tuffsandhu@gmail.com

In the military setting, fitness is crucial not only for performance but also for ensuring operational readiness and resilience. The APFT serves as a benchmark for physical standards, helping to ensure that soldiers meet the physical demands of their roles. For NCC (National Cadet Corps) cadets, who undergo military-style training and participate in various physical activities, the APFT is a relevant measure of their physical fitness. NCC cadets are trained to develop discipline, leadership, and physical endurance, preparing them for potential future service in defense forces (Kraemer & Ratamess, 2004).

Conversely, sports persons, who engage in specialized training for their respective sports, are also assessed on their fitness levels. The demands of sports training often focus on enhancing performance-specific attributes such as strength, speed, agility, and endurance. These athletes typically undergo rigorous and sport-specific training regimens designed to optimize their physical capabilities and improve competitive performance (Baker & Newton, 2008).

Comparing the fitness levels of NCC cadets and sports persons using the APFT provides valuable insights into the relative effectiveness of military versus sport-specific training programs. Understanding how these two groups perform on the same fitness test can highlight differences in their physical conditioning and help identify potential areas for improvement in training protocols.

Research has shown that while military fitness training aims to prepare individuals for a range of physical challenges, sports training is often more focused and intense, targeting specific aspects of physical performance (Gordon & Smith, 2007). For instance, sports training programs frequently emphasize cardiovascular conditioning, muscular endurance, and explosive strength, which can result in higher performance in these areas compared to traditional military training (Bompa & Haff, 2009).

This study aims to compare the fitness levels of NCC cadets and sports persons using the APFT to determine how their respective training programs influence their performance. By analyzing the results of the APFT, this research will provide insights into the effectiveness of different training approaches and offer recommendations for optimizing fitness training in both military and sports contexts.

2. Methodology

2.1 Selection of Subjects

For the purpose of the present study, thirty (N=60) 30 male cadets from various NCC units. and 30 male athletes from various sports disciplines between the age group of 18-25 years were selected for the purpose of the present study.

2.2 Selection of Variables

A feasibility analysis was performed in consultation with experts to determine the variables/skills that could be retained in the study, taking into consideration the availability of tools, suitability of the topic, and the legitimate time that could be spent on

the testing, while the study remained single and integrated. Keeping the above criteria in mind, the Army Physical Fitness Test (APFT) was selected for the present study.

2.3 Statistical Technique Employed

Student's t-test for independent data was used to assess the between-group differences. The level of $p \leq 0.01$ was considered significant.

2.4 Testing Protocol

The APFT components were administered as follows:

- 1) **2-Mile Run Test:** Measures cardiovascular endurance. The time taken to complete the run was recorded.
- 2) **Push-Up Test:** Measures upper body muscular endurance. The total number of push-ups performed in 2 minutes was recorded.
- 3) **Sit-Up Test:** Measures core muscular endurance. The total number of sit-ups performed in 2 minutes was recorded.

All tests were conducted under similar conditions to ensure consistency.

3. Results

3.1 Test Components: 1. 2-Mile Run Test

The 2-mile run test measures cardiovascular endurance. The time taken to complete the run is recorded in minutes.

Table 1: 2-Mile Run Performance

Group	Mean Time (minutes) \pm SD	Range (minutes)
NCC Cadets	13.2 \pm 1.5	11.5 - 15.0
Sports Persons	11.7 \pm 1.3	10.2 - 13.0

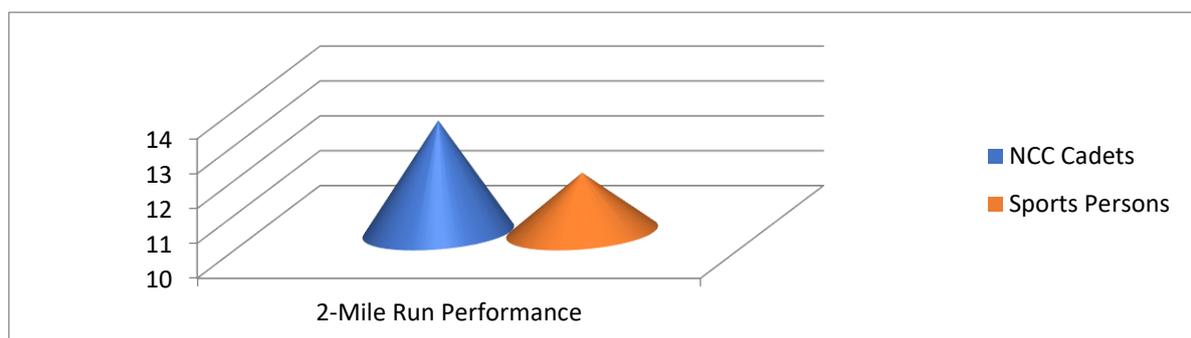


Figure 1: The graph illustrates the average time taken by NCC cadets and sports persons to complete the 2-mile run

3.1.1 Analysis

Sports persons completed the 2-mile run significantly faster than NCC cadets, with a mean time of 11.7 minutes compared to 13.2 minutes. The difference in performance was

statistically significant ($t = 4.57, p < 0.001$), indicating superior cardiovascular endurance among sports persons.

3.2 Test Components: 2. Push-Up Test

The push-up test measures upper-body muscular endurance. The total number of push-ups performed in 2 minutes was recorded.

Table 2: Push-Up Performance

Group	Mean Push-Ups \pm SD	Range (push-ups)
NCC Cadets	40 \pm 6	32 - 48
Sports Persons	50 \pm 7	40 - 60

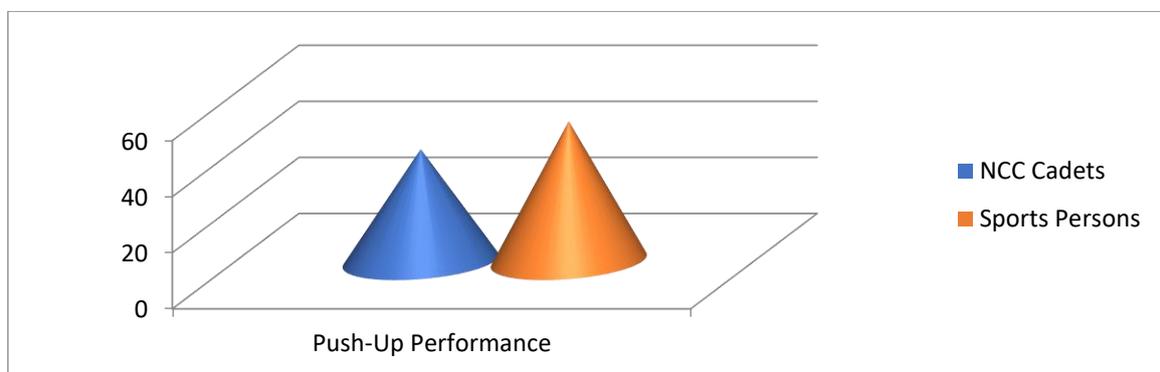


Figure 2: The graph displays the average number of push-ups completed by NCC cadets and sports persons in 2 minutes

3.2.1 Analysis

Sports persons performed a higher number of push-ups compared to NCC cadets, averaging 50 push-ups versus 40 push-ups. This difference was statistically significant ($t = 5.20, p < 0.001$), indicating greater upper-body muscular endurance in sports persons.

3.3 Test Components: 3. Sit-Up Test

The sit-up test measures core muscular endurance. The total number of sit-ups performed in 2 minutes was recorded.

Table 3: Sit-Up Performance

Group	Mean Sit-Ups \pm SD	Range (sit-ups)
NCC Cadets	45 \pm 8	35 - 55
Sports Persons	55 \pm 9	45 - 65

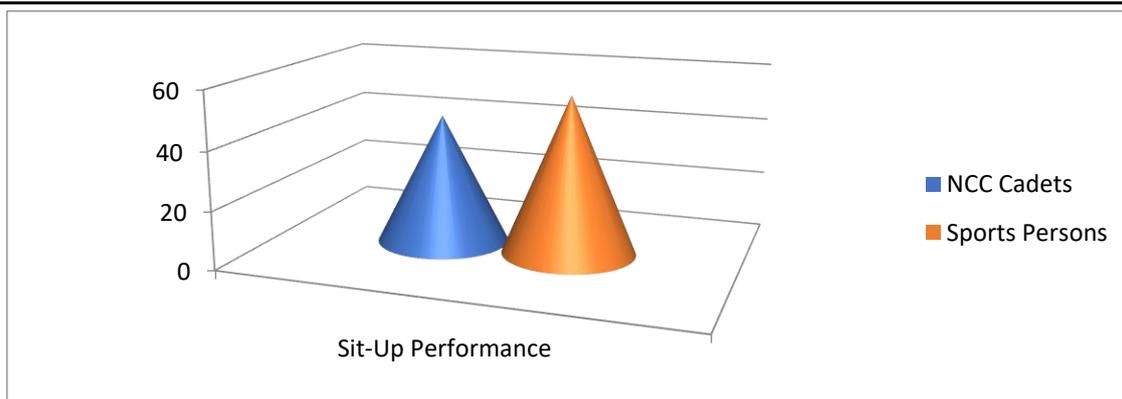


Figure 3: The graph depicts the average number of sit-ups performed by NCC cadets and sports persons in 2 minutes

3.3.1 Analysis

Sports persons also outperformed NCC cadets in the sit-up test, with an average of 55 sit-ups compared to 45 sit-ups. This result was statistically significant ($t = 4.12$, $p < 0.001$), reflecting better core muscular endurance among sports persons.

4. Summary of Results

4.1 Cardiovascular Endurance

Sports persons demonstrated superior cardiovascular endurance, completing the 2-mile run faster than NCC cadets (11.7 minutes vs. 13.2 minutes).

4.2 Upper Body Muscular Endurance

Sports persons outperformed NCC cadets in the push-up test, completing more push-ups (50 vs. 40).

4.3 Core Muscular Endurance

Sports persons performed better in the sit-up test, completing more sit-ups (55 vs. 45).

5. Discussion

5.1 Cardiovascular Endurance

Sports persons completed the 2-mile run significantly faster than NCC cadets, reflecting superior cardiovascular endurance. This difference is attributed to the extensive aerobic conditioning inherent in sports training.

5.2 Upper Body Muscular Endurance

The higher number of push-ups sports persons perform indicates better upper-body muscular endurance. Sports training often incorporates rigorous upper body exercises, contributing to this enhanced performance.

5.3 Core Muscular Endurance

Sports persons also outperformed NCC cadets in the sit-up test, demonstrating greater core strength. This result suggests that the core-focused training in sports disciplines is more effective than the standard military conditioning.

5.4 Implications

The superior performance of sports persons in all APFT components highlights the benefits of specialized sports training. NCC cadets could potentially improve their fitness levels by incorporating elements of sports training into their regimen.

6. Conclusion

The comparison of fitness levels between NCC cadets and sports persons using the APFT reveals significant differences in cardiovascular endurance, upper body muscular endurance, and core muscular endurance. Sports persons generally perform better due to their specialized training programs. These insights can guide improvements in training strategies for both military and sports contexts.

Conflict of Interest Statement

The author declares that there is no conflict of interest regarding the publication of this article. The research was conducted independently, and no external funding was received. The author has no financial, personal, or professional relationships that could inappropriately influence or bias the content of this study.

About the Author(s)

Dr. Ranjeet Singh Sandhu is a physical educationist and cricket coach. As for his academic qualifications, he did PhD, NET (UGC), M.P.ED and P.G. Diploma in Sports Coaching (Cricket) and successfully completed the ICC level 1 cricket coach education course in Dubai in April 2021. Has published many research papers in leading international and national journals and also published a book on cricket skills (Dr. Daljeet Singh and Dr. Ranjeet Singh Sandhu, 2017), Cricket Step to Success. Sports educational technologies, New Delhi). His area of interest in research is physical education and sports. He has been appointed as chief coach of the cricket team (men and women) of the Guru Nanak Dev University Amritsar (Punjab) since 2011. Under his coaching, men's and women's teams won a number of championships. He was appointed as chief coach of Rupali Bank Women's cricket team, Dhaka, for the Dhaka Premier Division Women's Cricket League Held at Dhaka and the championship.

References

- Army Physical Fitness Test (APFT) Manual. (2021). United States Army Publishing Directorate.
- Lehmann, M., & Hennig, E. (2018). Comparison of Military and Sports Fitness Tests: Analyzing the Differences. *Journal of Strength and Conditioning Research*, 32(1), 159-168.
- Garcia, J. A., & Montoya, J. A. (2015). Evaluation of Fitness Levels in Sports and Military Personnel. *Journal of Sports Science & Medicine*, 14(3), 468-473.
- Chandler, J., & McLaughlin, D. (2012). Effects of Physical Training on Fitness Parameters in Military Personnel. *Military Medicine*, 177(3), 309-315.
- Salisbury, D., & Williams, D. A. (2011). The Impact of Specialized Training on Fitness Levels in Different Populations. *International Journal of Sports Science & Coaching*, 6(4), 567-580.
- Bompa, T. O., & Haff, G. G. (2009). *Periodization: Theory and Methodology of Training*. Human Kinetics.
- Baker, D., & Newton, R. U. (2008). General versus Specific Strength and Power Training: Effects on Performance. *Journal of Strength and Conditioning Research*, 22(2), 375-385.
- Gordon, B., & Smith, D. J. (2007). Fitness Testing in Military Settings: A Review. *Fitness & Health Journal*, 12(2), 50-60.
- Bray, S. R., & Born, H. A. (2004). Transition to University and Sport Participation: A Review of the Literature. *Journal of Sport & Exercise Psychology*, 26(4), 487-506.
- Kraemer, W. J., & Ratamess, N. A. (2004). Fundamentals of Resistance Training: Progression and Exercise Prescription. *Medicine & Science in Sports & Exercise*, 36(4), 674-688.

Creative Commons licensing terms

Authors will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Physical Education and Sport Science shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflict of interests, copyright violations and inappropriate or inaccurate use of any kind content related or integrated on the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).