



Comparative Study of Cardio Vascular Parameters among Hockey Players and Golf Players

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Abstract

Physical activity and sports engagement are often associated with numerous health benefits, particularly in cardiovascular fitness. Among the wide range of sports available, hockey and golf stand out to be two popular and distinct disciplines, each demanding unique physical and physiological demands from their players. The aim was to find out differences in cardiovascular parameters that is resting heart rate (HR), systolic blood pressure (SBP), and diastolic blood pressure (DBP) among hockey and golf players. The results revealed significant differences between hockey and golf players (p -value $<.01$), with golf players exhibiting higher mean values for resting heart rate($71\pm 1.490/\text{min}$), systolic blood pressure(123 ± 2.538 mmHg), and diastolic blood pressure(81.3 ± 1.494 mmHg). The study has implications for sports-specific training programs, injury prevention strategies, and overall cardiovascular health optimization for athletes in hockey and golf. Coaches and athletes can use this information to tailor training regimens and address the specific cardiovascular demands of each sport to enhance performance potential and minimize injury risks. In conclusion, this study provides valuable insights into cardiovascular health in hockey and golf players. It serves as a foundation for future research and offers practical applications for promoting athlete well-being and performance in these sports.

Key Words: Cardiovascular Parameters, Hockey, Golf, Heart Rate, Systolic Blood Pressure, Diastolic Blood Pressure.

1. Introduction:

Physical activity and sports engagement are often associated with numerous health benefits, particularly in cardiovascular fitness and overall well-being. Among the wide range of sports available, hockey and golf stand out to be two popular and distinct disciplines, each has unique physical and physiological demands from their players. While both sports involve varying degrees of physical exertion and skill, their contrasting nature may result in differential effects on cardiovascular parameters. Thus, understanding the impact of these sports on cardiovascular health is crucial for optimizing performance and promoting the well-being of athletes. Several studies have delved into the cardiovascular responses of athletes participating in different sports, providing valuable insights into the physiological adaptations associated with their training regimes. Previous research has highlighted that regular physical activity, especially in the context of competitive sports, is linked to improved cardiovascular fitness, reduced risk of cardiovascular diseases, and enhanced overall quality of life.^{1,2} The physiological demands of hockey, a high-intensity team sport, involve rapid bursts of sprinting, quick changes in direction, and physical collisions, placing significant strain on the cardiovascular system.³ In contrast, golf is a precision-based, low-impact sport, characterized by intermittent walking and periodic bouts of swinging a club, requiring a different set of physiological responses.⁴ These distinct physical demands suggest that hockey and golf players may exhibit different cardiovascular adaptations over time. This research paper aims to bridge the existing knowledge gap by conducting a comparative study of cardiovascular physiological parameters among hockey and golf players. By analyzing key cardiovascular indicators such as heart rate and blood pressure the study aims to discern potential differences in the physiological adaptations resulting from these sports.

2. Materials and Method:

A total of 20 state-level athletes, ten each from Hockey and Golf, were selected for this study. All participants fell within the age range of 20 to 30 years and met the inclusion criteria for their respective sports. The inclusion criteria comprised being a state-level player in either Hockey or Golf and belonging to the specified age range. Conversely, individuals with recent cardiovascular complaints, hypertension, stress or anxiety disorders, endocrine disorders, or a history of using anabolic steroids or caffeinated beverages before testing were excluded from the study. Before assessing the cardiovascular parameters, all participants underwent a 10-minute relaxation period to stabilize their baseline parameters. Resting heart rate was recorded through palpation of radial artery for one minute, while resting blood

pressure was recorded in millimeters of mercury (mmHg) with the assistance of a mercury sphygmomanometer. The data obtained from both groups of athletes were subjected to statistical analysis using SPSS.

3. Results and Discussion:

Comparison between Hockey and Golf players show significant difference with p -value .01 with higher mean values for resting heart rate (HR/min), systolic blood pressure (SBP in mmHg) and diastolic blood pressure (DBP in mmHg) for golf players than hockey players.

Table no.01: Comparative analysis for Heart Rate among Hockey and Golf Players.

S.No	Game	Sample size	Mean±Std Dev	t-value	p-value
1	Hockey	10	66.1±2.024	-6.162	<.01
2	Golf	10	71±1.490		

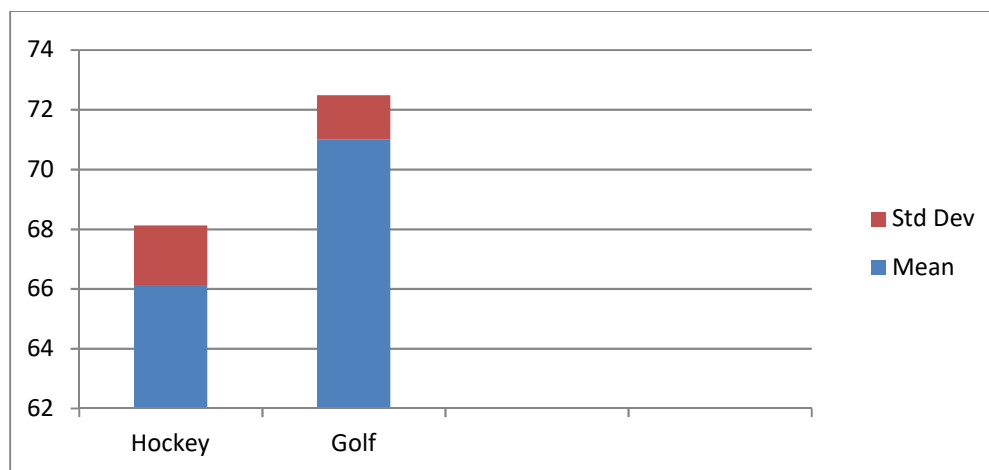


Figure. 01: Comparative analysis for Heart Rate among Hockey and Golf Players.

Table no.02: Comparative analysis for Systolic Blood Pressure (SBP) among Hockey and Golf Players

S.No	Game	Sample size	Mean±Std Dev	t-value	p-value
1	Hockey	10	116.4±3.025	-5.284	<.01
2	Golf	10	123±2.538		

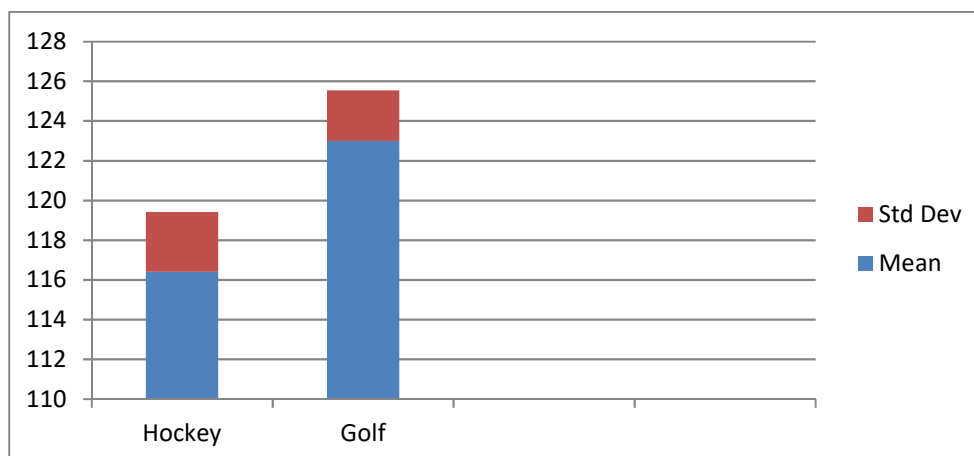


Figure. 02: Comparative analysis for Systolic Blood Pressure (SBP) among Hockey and Golf Players.

Table no.03: Comparative analysis for Diastolic Blood Pressure (DBP) among Hockey and Golf Players.

S.No	Game	Sample size	Mean±Std Dev	t-value	p-value
1	Hockey	10	78.7±0.823	-4.818	<.01
2	Golf	10	81.3±1.494		

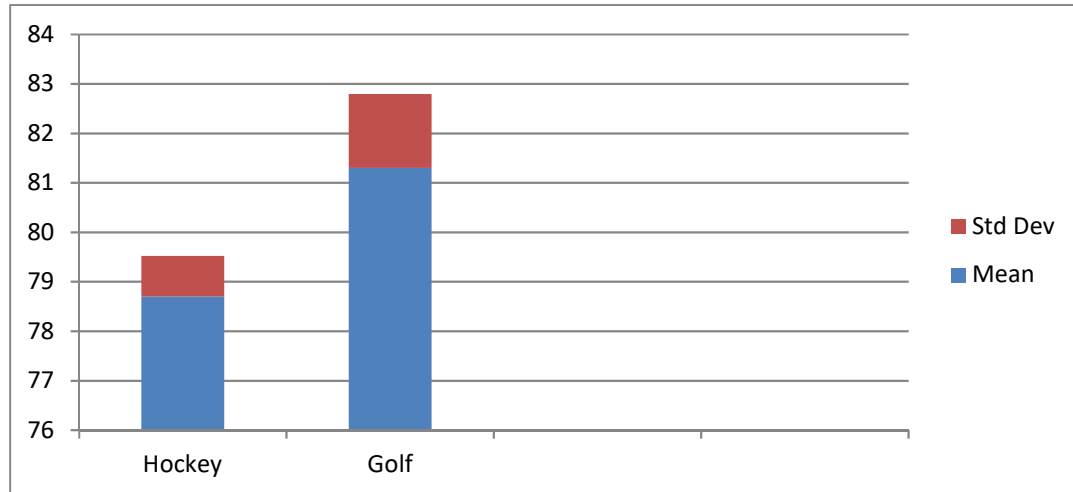


Figure. 02: Comparative analysis for Diastolic Blood Pressure (DBP) among Hockey and Golf Players.

4. Discussion:

The findings of this study gives valuable insights into the cardiovascular health of state-level Hockey and Golf players aged 20 to 30 years. Understanding the resting heart rate and blood pressure of athletes in these sports may help in forming a training programs and strategies for enhancing performance. The present study aimed to compare cardiovascular physiological parameters between hockey and golf players to understand potential differences in their adaptations resulting from these sports. The study analyzed key indicators such as resting heart rate (HR), systolic blood pressure (SBP), and diastolic blood pressure (DBP) among state-level athletes from both sports. The results indicated significant differences between hockey and golf players, with golf players exhibiting higher mean values for resting heart rate, systolic blood pressure, and diastolic blood pressure in contrast to hockey players. The findings of this study are consistent with the contrasting physical demands of hockey and golf. Hockey, being a high-intensity team sport, involves rapid and intense movements, leading to increased cardiovascular strain.⁵ On the other hand, golf is a precision-based sport with intermittent bouts of low-impact activity, which places comparatively less strain on the cardiovascular system.⁶ The higher resting heart rate observed in golf players may be attributed to factors such as mental stress and excitement during competitive rounds or anticipation before shots. The precision and skill required in golf might lead to an increased adrenaline response, influencing heart rate levels.⁷ Similarly, the results of the present study show lower resting systolic and diastolic blood pressure along with lower resting heart rate in hockey players is in accordance with the study that physiological changes such as decreased heart rate, higher QRS amplitude, and decreased diastolic blood pressure, are common in atheletes.⁸ This can be the attributed to the structural changes in cardiovascular system of hockey players due to training and also the result of cardiac hypertrophy.^{9,10}

The study has significant implications for sports-specific training programs. Coaches and athletes can use these findings to devise tailor training regimens to meet the specific cardiovascular demands of their respective sports. Hockey players may benefit from conditioning programs focused on endurance and high-intensity training, while golfers could incorporate exercises to manage stress and improve cardiovascular health during competitive play. Understanding the cardiovascular demands of each sport can help identify potential risks and develop injury prevention protocols. For example, hockey players may require specific cardiovascular conditioning to reduce the risk of fatigue-related injuries, while golfers may need exercises to strengthen the cardiovascular system during swing actions.

5. Limitation:

The small sample size of 20 state-level athletes may not fully represent the entire population of hockey and golf players. Additionally, individual variations in training history, genetic factors, and lifestyle choices could impact the observed differences. Future research with larger sample sizes and more diverse participants can provide more robust insights into the cardiovascular responses in these sports.

6. Conclusion:

In conclusion, this comparative study of cardiovascular physiological parameters among hockey and golf players provides valuable insights into the distinct adaptations associated with these sports. The findings can serve as a foundation for further research, and they offer practical applications for optimizing sports performance, preventing injuries, and promoting overall cardiovascular health for athletes engaged in hockey and golf.

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Conflicts of Interest: Nil

7. References:

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