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THE IMPACT OF DURATION VARIABILITY ON HANDBALL PLAYERS' REACTION TIME

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ABSTRACT:

This study aimed to investigate the impact of duration variation on the reaction time of handball players. Thirty male handball players, aged 17 to 20, from the Lucknow district were enlisted for the study. An electronic reaction timer was employed to measure standard variations in reaction time. An analysis of variance was conducted to assess significant alterations in diurnal variations in response times among handball players in the Lucknow district, revealing that the mean reaction times of the right and left hands did not differ significantly.

Key Words: - Reaction Time

INTRODUCTION

The influence of climate, seasons, and weather on physical activities and sports warrants the establishment of a sub-discipline within sports medicine called bioclimatic sports. The physical, physiological, and psychological responses of individuals are shaped by environmental conditions. Temperature, seasonal fluctuations, sunlight, and many environmental elements can exert both beneficial and detrimental effects on the human body. Severe weather changes will alter physical performance efficiency and capacity, as well as fatigue sensitivity and overall health status. Seasons are characterized by distinct climatic and climatological phenomena that are closely associated with physical performance, training, and athletics. The biological clock, an intrinsic mechanism, regulates the other factor influencing variations in performance efficiency. Qualitative study on biological phenomena indicates that biological clocks consist of divisions of hours, minutes, and seconds, alongside measurements of days, weeks, months, and years, akin to a conventional clock. It also illustrates biological periodicity, a "strategy" employed by a living organism to sustain a consistent and stable life process. Biological clocks govern physiological functions, which subsequently affect daily capabilities, exhibiting periodic oscillation from milliseconds to hours, days, years, or longer in reaction to environmental changes. In each instance, the organism must acclimatize to a set of conditions that disrupt normal physiology to a degree that significantly hinders its performance. The body possesses a notable ability to adapt to environmental conditions, either wholly or partially, when afforded the

opportunity. Although it can be scientifically contended that a minor handicap does not affect an athlete's competitive performance, it could significantly influence the outcome of a conflict. Moreover, an additive effect may occur when a performer participates in prolonged activities such as running, swimming, cycling, or similar endeavors, in contrast to shorter events. Consequently, when assessing the impacts of adverse environmental circumstances, the duration of potential exposure is essential. An athlete's performance is strongly influenced by exposure to diverse climatic conditions, depending on the season or environment during participation. The objective of the study was to ascertain the impact of regular variation on the reaction times of handball players. It was hypothesized that there would be no significant variability may exist in the average reaction time of particular subjects.

METHODOLOGY

Thirty male handball players, aged 17 to 20, from the Lucknow district were selected as subjects. They received a comprehensive elucidation of the testing methodology prior to undertaking the selected examination. Data on the specified variables of right and left hand movement was collected at regular intervals throughout the day. Data was obtained with an Electronic Reaction Time Chronometer to measure the response time. The protocol was presented to all subjects prior to the reaction time test. No motivational technique was employed, and each participant had three trials, with the mean response time score utilized. One-way variance analysis was employed to investigate the effect of diurnal variation on leg movement reaction time (F test). A significance level of 0.05 was employed to evaluate the hypothesis.

FINDINGS

Table 1
Analysis of variance of reaction time (right hand)

Source of Variance	df	SS	M.S.S.	F-ratio
Between the Group	2	0.0048	0.00145	2.54
Within the Group	87	0.0578	0.00069	

* Tab $F_{.05}(2,87)= 3.10$

Table 1 indicates a significant disparity in response time for the right hand, with the observed value of 2.54 being less than the computed value.

Table2
Analysis of variance of reaction time (left hand)

Source of Variance	df	SS	M.S.S.	F-ratio
Between the Group	2	0.0014	0.000686	1.048
Within the Group	87	0.0583	0.000669	

* $F_{.05}(2,27)= 3.10$

Table 2 indicated that there was no significant variation in the response time of the left hand, as the real value of 1.048 was less than the calculated value.

CONCLUSION

The data analysis indicates no significant difference in reaction time between the right and left hands. The minor discrepancy may be attributable to the type of test employed. Handball players typically employ diverse motions during a game, while the test utilised a range of moves. There was no significant difference in reaction time between the right and left hands in response to the visual stimuli. A contributing factor to these results may be the limited sample size. The hypothesis regarding the reaction times of the right and left hands was validated based on the investigation's results.

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