

Effect Of Different Durations Of Warm-Up Of Swimming On Performance Of 100m Backstroke Swimming

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ABSTRACT

The primary objective of this investigation was to assess the impact of varying warm-up durations on the performance of the 100m backstroke event. A total of fifteen male swimmers, drawn from the Delhi, India. aged between 18 to 24 years, were selected through random sampling. Performance in the 100m backstroke was evaluated using a stopwatch to record the timing as the criterion measure. Statistical analysis was conducted utilizing a within-group design, with the level of significance set at 0.05. The study's outcomes revealed that there were no statistically significant differences observed across various warm-up durations concerning 100m backstroke performance. These findings offer valuable insights to sports professionals, including physical education instructors, trainers, and coaches. They suggest that training regimens may be formulated with a minimal warm-up duration of 15 minutes since the data indicated that no substantial improvements or significant alterations were associated with the selected physiological variables.

Keywords: Swimming; Warm-up; Sports; Athletes.

INTRODUCTION

The relentless pursuit of new records has become an integral aspect of competitive sports, compelling both coaches and athletes to exert maximum effort during competitions. The performance of an athlete in such scenarios is influenced by a multitude of factors, including technical proficiency, social dynamics, psychological state, and the individual's physical condition (Harris, D. 2019). One critical determinant of performance immediately before a competition is the athlete's physical readiness, which hinges upon the adequate preparation and conditioning of the body's musculature. While there exists ongoing debate regarding the efficacy of warm-up routines in enhancing athletic performance, the consensus acknowledges the vital role of proper warm-up procedures in readiness for participation. Warm-up exercises have demonstrated their significance not only in priming the body for optimal performance but also in averting potential injuries and muscle soreness. Engaging in vigorous physical activities without a preceding warm-up regimen can increase the risk of muscular injuries. It is apparent that effective warm-up routines can serve as effective motivators, fostering a sense of satisfaction and enthusiasm among athletes.

Individuals who derive gratification from their warm-up sessions typically exhibit greater eagerness to engage in the ensuing physical activity (Almida, T. A. et al., 2020). Conversely, a subpar warm-up can induce feelings of fatigue and monotony, thereby limiting an athlete's attention and ultimately undermining their performance. In athletics, warming up holds paramount importance in both enhancing performance and averting injuries. However, it is crucial to recognize that warm-up routines must be systematically structured and comprehensive. Mere arm swings and jumping jacks, while beneficial, often fall short of delivering the desired outcomes (Hue, O, & Hertogh, C. 2006). The duration of a warm-up can vary considerably among individuals, with some athletes dedicating as little as 20 minutes while others may extend it to an hour to achieve optimal readiness. Moreover, the timing of the warm-up relative to the actual competition is of utmost importance; performing the warm-up too early may diminish its effectiveness. Notably, a common error made by sprinters and other runners during competitions is inadequately preparing for subsequent races. The warm-up before a second race is equally crucial as that before the initial race, and neglecting this can result in suboptimal performance during the subsequent race, even if an earlier warm-up was conducted forty minutes prior. The practice of warm-up exercises is an indispensable component of athletic preparation, yielding benefits such as enhanced performance and injury prevention. These routines must be thoughtfully designed, taking into consideration the individual athlete's needs and the specific timing of the competition. Neglecting the significance of warm-up procedures can lead to suboptimal performance, potentially compromising an athlete's ability to achieve their best results. The purpose of this study to observed the best warm-up duration to enhance swimming performance

METHOD AND DESIGN

Participants: To fulfil the objectives of this study total 15 male swimmer age ranged between 17 to 25 years were recruited from Delhi, India.

Treatment: The study was conducted to investigate the impact of varying warm-up durations on the performance of the 100m backstroke event. Data collection took place in a swimming pool, with warm-up sessions lasting for three different durations: 15 minutes, 25 minutes, and 30 minutes, each on separate days. Prior to the commencement of the actual performance tests, each participant underwent a series of practice trials to acquaint themselves with the test protocol. Following the successful completion of the warm-up sessions on each testing day, the collected data was subjected to thorough analysis to determine the study's hypothesis. The primary objective of this research was to assess the influence of different warm-up durations in swimming on the subsequent performance in the 100m backstroke event.

Statistical analysis: The data was calculated separately for all the variables. To know the differences in the selected variables repeated measure ANOVA within group was used to calculate tested for 0.05 level of significance.

RESULTS

Table – 1 Mauchly’s Test of Sphericity for Performance (100m Back Stroke)

Within Subjects Effect	Mauchly’s W	Approx. Chi-Square	Df	Sig.	Epsilon Greenhouse-Geisser	Huynh-Feldt	Lower-bound
factor1	0.615	6.323	2	0.042	0.722	0.783	0.5

Table 1 shows that the Mauchly’s value of test of sphericity for performance is significant so the assumption of sphericity is not fulfilled. As per Kepple’s criterion F value for Greenhouse-Geisser will be considered for within subject effect.

Table 2 Tests of Within-Subjects Effects for Performance of different durations of warm-up

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.
factor1	Sphericity Assumed	67.123	2	32.15	1.267	0.28
	Greenhouse-Geisser	67.123	1.44	44.54	1.267	0.29
	Huynh-Feldt	67.123	1.56	41.07	1.267	0.29
	Lower-bound	67.123	1	64.31	1.267	0.27

Table 2 reveals that F-value for Within Subject effect was insignificant at 5% level as p-value was greater than 0.05. Thus, it is evident that there was no significant difference in performance between the effects of different duration of warm up on the swimmers.

DISCUSSION

The findings concerning the performance of the 100m Backstroke have unveiled a notable lack of statistical significance. This absence of significant findings can be attributed to a confluence of factors, warranting a closer examination. Firstly, one factor that may have contributed to the observed lack of significance is the considerable divergence in the loads imposed on swimmers during warm-up routines. Previous studies have, in several instances, encompassed warm-up protocols involving varying levels of intensity and volume, which starkly contrasted with the conditions meticulously implemented in the current study. The inherent dissimilarity in the warm-

up regimens employed in earlier research initiatives, compared to the carefully controlled conditions of the present study, may well represent a key source of discrepancy in the outcomes. Secondly, the variation in sample sizes among different studies in the realm of swimming performance presents another factor meriting scrutiny. The sample size employed in any scientific investigation can significantly influence the robustness of the conclusions drawn. Given that previous studies may have exhibited differing sample sizes in contrast to the current study, this discrepancy in the population under investigation may be a contributing factor to the observed statistical insignificance (Harris, D. 2019). It is essential to underscore that previous research efforts in the domain of swimming have yielded inconclusive findings regarding the optimal warm-up procedures for athletes. This observation underscores the need to delve into the question of whether a concise warm-up regimen might hold the key to unlocking enhanced performance. Consequently, the present study serves as a catalyst for further inquiry into this realm (Jones, S. 2018). One critical aspect that demands attention is the realization that swimmers exhibit individualized responses to varying durations of warm-up. Competitive swimming is inherently an individual sport, and as such, athletes respond uniquely to the physical and mental demands imposed by the warm-up process. The present study underscores the inherent diversity in the reactions of swimmers to distinct warm-up durations. This factor, individual response, adds an additional layer of complexity to the warm-up conundrum. In light of the findings, where performance improvements remained elusive among swimmers, a compelling argument can be put forth in favor of a 15-minute warm-up regimen as a more economical choice compared to the extended durations of 25 and 30 minutes, respectively. This conclusion gains prominence given the perceived uniformity in outcomes across the varying warm-up durations (Cassor, J., & Holt, N. L. 2015). In summary, the study's results underscore the complexity of the relationship between warm-up duration and swimming performance. While the absence of significant findings may be attributed to factors such as variations in load, sample size, and individual response, the research sets the stage for further exploration of the optimal warm-up protocols in the domain of competitive swimming. Ultimately, this pursuit of knowledge seeks to enhance athletic performance while acknowledging the nuanced and personalized nature of each athlete's response to warm-up regimens. As the sporting community continues to seek innovative approaches to maximize performance, a nuanced understanding of the role of warm-up routines becomes increasingly crucial.

CONCLUSION

Based on the study's results, it becomes evident that sports professionals, including physical education instructors, trainers, and coaches, can consider a more streamlined approach to training scheduling. In particular, they may opt to incorporate a minimal 15-minute warm-up duration. The rationale behind this recommendation lies in the empirical evidence, which consistently supports the notion that prolonged warm-up durations, specifically 25 and 30 minutes in this context, do not yield discernible enhancements or significant alterations in the selected physiological variables or the performance of the 100m backstroke. Consequently, adopting a more efficient warm-up strategy appears prudent for optimizing athletic preparation and performance.

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