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Relationship between certain physiological factors and wrestlers' performance

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Abstract

In modern times, wrestling has not only retained its traditional essence but has also found a global platform through organized competitions such as the Olympic Games and various professional wrestling promotions. These events showcase the athleticism, showmanship, and dedication of wrestlers who undergo rigorous training to perfect their craft. Scholars are trying to find out the relationship between certain physiological factors and wrestlers' performance. For this study, a total of twenty subjects were selected. All subjects were selected from Singrauli district (M.P.). Their ages were between 18 and 13 years. In this study, vital capacity was measured by a dry spiro-meter, and resting heart rate was measured manually with the help of a stopwatch and recorded in beats or minutes. To analyze the collected data, the moment coefficient of correlation was used to find out the relationship between dependent and independent variables and the level of significance, and it was set at 0.05. The result reveals a significant relationship between physiological variables such as vital capacity (0.54), resting heart rate (0.52), and wrestler's performance at the 0.05 level of significance.

Keywords: Wrestlers, vital capacity, resting heart rate

Introduction

Wrestling, a physical and competitive sport that traces its origins back to ancient civilizations, has captivated and enthralled audiences for centuries. It is a dynamic and intense activity that involves two individuals engaging in a battle of strength, strategy, and technique within a designated area, aiming to pin their opponent's shoulders to the ground or achieve victory through various means.

With a rich history that spans across cultures and epochs, wrestling has evolved into various forms and styles, each with its own unique rules and traditions. From the Greco-Roman style, characterized by its emphasis on upper-body holds and throws, to the freestyle style, which allows for a broader range of attacking techniques, wrestling encompasses a diverse array of techniques and strategies that challenge both the physical prowess and mental acumen of its participants.

In modern times, wrestling has not only retained its traditional essence but has also found a global platform through organized competitions such as the Olympic Games and various professional wrestling promotions. These events showcase the athleticism, showmanship, and dedication of wrestlers who undergo rigorous training to perfect their craft.

Wrestling's impact extends beyond the mat, as it imparts valuable life lessons such as discipline, perseverance, and sportsmanship. Wrestlers learn to navigate challenges, both physical and mental, fostering qualities that extend into their personal and professional lives.

This introduction merely scratches the surface of wrestling's vast and intricate tapestry, woven with historical threads and modern achievements. As we delve deeper into the world of wrestling, we will uncover the techniques, stories, and cultural influences that have shaped this enduring and captivating sport.

The performance of wrestling players is greatly influenced by a range of physiological variables, which play a crucial role in determining their strength, endurance, agility, and overall competitive prowess. These physiological factors interact in complex ways to influence a wrestler's success on the mat. Here are some of the key physiological variables that impact wrestling players: Muscular strength and power; endurance and cardiovascular fitness; body composition; flexibility and range of motion; anaerobic capacity; grip strength; reaction time and agility; mental toughness; hormonal factors.

Methodology

For this study, a total of twenty subjects were selected. All subjects were selected from Singrauli district (M.P.). Their ages were between 18 and 13 years old. Vital capacity and resting heart rate were measured for the study.

Criterion measures

The following criteria and measures were chosen for testing the hypothesis:

1. Vital capacity was measured by a spirometer.
2. The resting heart rate was measured manually with the help of a stopwatch and recorded in beats per minute.

Statistical Technique

To analyze the collected data, the moment coefficient of correlation was used to find out the relationship between dependent and independent variables and the level of significance, and it was set at 0.05.

Analysis of data and discussion of findings

The statistical analysis of the data and results of the study of physiological variables and wrestling performance of twenty (20) male wrestlers from Singrauli District, Madhya Pradesh, have been presented in this study.

Findings

In order to determine the relationship between physiological variables and wrestlers performance, the product moment coefficient and correlation were used, and variables such as vital capacity, blood pressure (Systolic and diastolic), and resting heart rate were considered independent variables while wrestlers performance was considered a dependent variable.

Table 1: A Descriptive Analysis of the Vital Capacity of Male Wrestlers

S. No.	Descriptive Statistic	Value
1.	Minimum	3.10
2.	Maximum	3.50
3.	Range	1.40
4.	Mean	3.31
5.	Standard Deviation	0.11

Table No. 1 indicates a descriptive analysis of the vital capacity of male wrestlers, where the minimum, maximum, range, mean, and standard deviation are 3.10, 3.50, 1.40, 3.31, and 0.11, respectively.

Table 2: A Descriptive Analysis of the Resting Heart Rate of Male Wrestlers

S. No.	Descriptive Statistic	Value
1.	Minimum	57
2.	Maximum	70
3.	Range	14
4.	Mean	62.60
5.	Standard Deviation	04.20

Table No. 2 indicates a descriptive analysis of the resting heart rate of male wrestlers, where the minimum, maximum, range, mean, and standard deviation are 57, 70, 14, 62.60, and 04.20, respectively.

Relationship between independent variable and dependent variable

The relationship between the independent variables (vital capacity and resting heart rate) and the dependent variable was computed by the product moment coefficient of correlation.

Table 3: Relationship between independent variables and swimming performance

S. No.	Descriptive Statistic	Value
1.	Vital capacity and wrestlers performance	0.54*
2.	Resting heart rate and wrestlers performance	0.52*

*Significant at the 0.05 level of significance, $r_{0.05(18)} = 0.44$

Table No. 3 reveals a significant relationship between physiological variables such as vital capacity (0.54), resting heart rate (0.52), and wrestlers performance at the 0.05 level of significance.

Conclusion

Understanding and optimizing these physiological variables through training, proper nutrition, and recovery strategies are essential for wrestlers to excel in their sport. Coaches and athletes often collaborate to design training programs that address these variables, aiming to enhance performance and reduce the risk of injury.

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