



COMPARISON OF PHYSIOLOGICAL VARIABLES BETWEEN SWIMMERS AND RUNNERS OF KASHMIR DIVISION

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Abstract

The researchers conducted this survey to find out the difference in the physiological performance by collecting data for some selected physiological variables from two different sports groups. In this study the comparison of physiological such as VO2 max, resting heart rate exhale volume between swimmers and runners of KASHMIR division was done. In this survey a total of 60 athletes 30 swimmers and 30 runners were selected by a sampling technique such as sample random method. The age of both the category were taken from 25-30. Various equipment required for collecting the data related to physiological variables are peak flow meter for exhale , stop watch for recording heart rate and for Vo2 max bench metronome stopwatch. After the data that was recorded for all the variables from both the swimmers and runners were recorded in separate and cross checked in separate columns Then the analysis of data was carried out by average., standard deviation and by applying formula of statistical technique 't'- test in order to find out the significance difference of all the variables included in survey between swimmers and runners of Kashmir Division and the level of significance as per norm was kept as ($p < 0.05$). The solved means and calculated standard deviation of all the three variables from runners of KASHMIR division that is , the mean and standard deviation of Exhale capacity is respectively(434.74 ± 74.94), the mean and standard deviation of Resting heart rate is (67.68 ± 5.07) and the mean and standard deviation vo2 Max is (58.24 ± 6.68) and the calculated means and standard deviation of all three variables from swimmers viz. the average and standard deviation of Exhale capacity is (402 ± 54.79), the mean and standard deviation of Resting heart rate is (70.74 ± 5.65) and the mean and standard deviation of VO2 Max is (58.66 ± 5.62). Hence runners were with sound burst in all three variables and good bearing respiratory capacities as swimmers of KASHMIR division the difference wide and adequate may be due to work load and exercise.

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INTRODUCTION

Christie (2006) had taken the study on “Impact of training status on maximal oxygen uptake criteria attainment during running”. The aims of this study were to assess whether training status influenced maximal physiological and perceptual responses and whether certain maximal criteria were more sensitive for individuals with different levels of training methods. Males who were either trained (N=8) or untrained (N=9) underwent a maximal treadmill test to assess whether the criteria to indicate VO₂ max were training-specific results. VO₂ max was significantly higher in the trained (70.0ml. O₂kg-1.min-1) compared with the untrained group (54.5 mlO₂.kg-1.min-1). **Futoshi (2011) et.al**, conducted the study on “Oxygen uptake in one-legged and two legged exercise” The purpose of this study was to determine the primary factors causing the differential oxygen uptake (VO₂) response at sub maximal intensities between one-legged and two-legged exercise, and whether peak oxygen uptake(VO₂peak) increases in proportion to the increase in active muscle mass. **Lambert, (2013)** conduct a study on “Physical Fitness and Physiological Parameters of Sport Persons”. Physical traits are considered to be important for athletes (sprinter) such as strength, power, speed, agility, co-ordination, muscular-endurance, reaction-time, cardiovascular, respiratory endurance and flexibility. Since, speed, agility, power, co-ordination and reaction-time are specific motor traits, these traits are best developed by the repeated practice

of the different trainings for which they are needed. The strength, speed, agility, co-ordination, power, flexibility contribute to the respective motor traits. Only selected physiological parameters namely “Blood Pressure-diastolic, Blood Pressure-Systolic, Pulse Rate, Breath Hold, and Respiratory-Rate” were considered for the present study. **Kishore Kumar, (2013)** conducted study on “Selected Physiological Variables of Hisar District Junior And Senior Athletes” **David F. Laver (2007)** Exhale capacity is the total amounts of air that can be forcibly expire after a complete inspiration has been used frequently as a measure of adequacy of the respiratory system. Although it measures the approximately capacity of the lungs, recent information indicates it is of little use in predicting ability to perform tasks of endurance. Obviously other factors are more important. For example, any limitations of the oxygen delivery system to the cells will reduce the effectiveness of the delivery; regardless of vital capacity is the ability to take in more air per unit of time with fewer, but deeper inspiration, thus prolonging the onset of fatigue in the respiratory muscle.

Physical fitness

Physical health is a state of fitness and well-being, especially the capability of body to perform sports, occupations and daily activities in a better way. Good health is usually achieved through proper nutrition, moderate strenuous exercise and adequate rest. The ability of human body to perform an activities or given activities

with best performance without any discomfort or hindrance is its sound fitness. plays an important role in all sports endeavours we have seen without good fitness a player cannot perform well fitness has direct impact on ones performance. It is a prerequisite of all sports activities to be sound mentally physically and physiologically. All players are trained with progressive training load with much repetitions for performing better in sports. There are various physiological components such as strength, agility, speed endurance, vital capacity cardiovascular endurance, tidal volume etc. which are being developed through training.

Physiology.

In physiology we study the function of various systems of human body. The various systems of body have direct impact on the overall performance in sports activities. The cardiovascular respiratory variables are directly dependent on the sound functioning of the heart and lungs. Vital capacity and endurance mainly depend on smooth and sound functioning of heart and lung to provide oxygen and blood to the organs used during play. Soundness or wellness of heart and lungs increase endurance in players and enable them to perform for longer periods of time without undue fatigueness.

METHODOLOGY

Sixty athletes that were taken as subject for comparison were 30 as swimmers and 30 runner from Kashmir division for the collection of data. The subjects were chosen by using simple random sampling method.

Equipments Used For Collection of Data

The different testing kits and instruments that were used for the collection of data related to various physiological variables of swimmers and runners of Kashmir division were scientifically approved. the exhale capacity of lungs of both the groups was measured by an equipment called as Peak flow meter. For measuring resting heart rate of runners and swimmers A digital Stopwatch was used and for maximum oxygen intake capacity following equipment were used Vo2max., Bench stopwatch, metronome for cardiovascular endurance.

Table 1

Exhale tendency or Capacity between runners And Swimmers of Kashmir division

Group	Mea n	S.D .	M.D.	D. F.	O. T.	T. T.
Runners	434. 74	74.9 4	32.54	58	2.5 4	2.0 0
Swimmers	402	54.5 7				

***Level of Significance = 0.05**

Tabulated't' 0.05 (58) =2.00

Table-1 shows that that the mean difference of exhale capacity between runners and swimmers as the mean of both the group is 434.74 and 402.respectivelyand this indicates that mean of runners group is greater than swimmers group and their mean difference is 32.54 It was also prerequisite to calculate the standard deviation of the data related to exhale capacity before applying T test for checking portentous deviation or difference and the

authentication of hypothesis, standard deviation was calculated between runner and swimmers group which was estimated as 74.94 and 54.57 respectively. T test was used to compare the exhale capacity between two groups As the 't' test was applied it was found that there is significant difference in exhale capacity between runners and swimmers of Kashmir as the obtained value of calculated 't' (2.54) was greater than tabulated 't' (2.00) when level of significance was at 0.05, which shows that there is a portentous difference in exhale power or capacity between runners and swimmers of Kashmir division.

Table 2
Resting Heart rate or beats per minute between Runners and Swimmer of Kashmir division

Group	Mea n	S.D .	M. D.	D. F.	O. T.	T. T.
Runners	65	4.2 3	14	58	2.1 4	2.0 0
Swimmers	71	4.5 3				

*Level of Significance = 0.05

Tabulated 't' 0.05 (58) = 2.00

Table-2 shows that that the mean difference of resting heart rate between runners and swimmers as the mean of both the group is 65beats/min and 71 Beats/min. respectively and this indicates that mean of runners group is less than swimmers group and their mean difference is 14 It was also prerequisite to calculate the standard deviation of the data related to resting heart rate before applying T test for checking portentous deviation or difference and the

authentication of hypothesis, standard deviation was calculated between runner and swimmers group which was estimated as 4.23and 4.53 respectively. T test was used to compare the Resting heart rate between two athlete groups As the 't' test was applied it was found that there is significant difference in Resting Heart rate between runners and swimmers of kashmir as the obtained value of calculated 't' (2.14) was greater than tabulated 't' (2.00) when level of significance was at 0.05, which shows that there is a portentous difference in resting rate of runners and Swimmer of Kashmir division .

Table 3
Vo₂ Max capacity between runners and swimmer of Kashmir

Group	Mea n	S. D.	M. D.	D. F.	O. T.	T. T.
Primary- industrial	85.6 6	6.5 2	7.4 2	18 .4	2.5 0	2.0 0
Secondary- Industrial	67.2 4	6.0 4		2		

*Level of Significance = 0.05

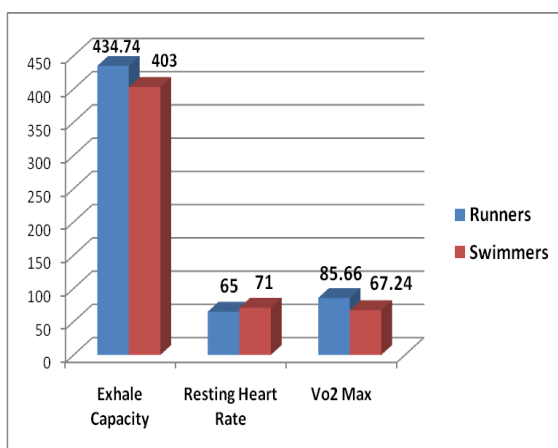
Tabulated 't' 0.05 (58) = 2.00

Table-4 highlights that the average difference of max. oxygen intake capacity between runners and Swimmer because the mean of both the group is 85.66 and 67.24 respectively this indicates that mean of runners group is greater than s swimmers group and their average difference is 18.42 It was also required to calculate the standard deviation of the data related to max. oxygen intake capacity before applying T test for checking significance difference and the validation of hypothesis ,

standard deviation was calculated between runner and swimmers group which was estimated as 6.52 and 6.04 respectively. T test was used to compare the exhale capacity between two groups As the 't'test was applied it was found that there is portentous deviation in max. Oxygen intake capacity between runners and swimmers of Kashmir division , as the obtained value of calculated 't' (2.50) was greater than tabulated 't' (2.00) when level of significance was at 0.05, which shows that there is a portentous difference in max. Oxygen intake capacity between runners and Swimmer of Kashmir division

Graph-1

Graph for all the selected variables in comparison between runners and Swimmer of Kashmir division



DISCUSSION

It was presumed that there would be significant difference in the physiological variables between swimmers and runners of Kashmir division.the main observation of the present study is that runners were having good exhale capacity and VO2 Max power and resting heart rate than that of swimmers.

CONCLUSION

Taken into consideration analytic and scientific process of obtained data related to various variables of the discussed study the researchers come to the following conclusions.

After statistical analysis and interpretation obtained of data for all three variables from both runners and Swimmer a enormous difference in the physiological components of runners and Swimmer Kashmir Division discovered. From result of this survey type of study that was conducted on the runners and Swimmer of Kashmir division we arrived to this strong conclusion that physiological capacities of runners were far better than swimmers and hence showed good performance as compared to swimmers because in all the all selected physiological variables the swimmers showed very low performance as compared runners of Kashmir division. Hence the researchers pre assumed hypothesis has been accepted as there was found significant differences in physiological capabilities between runners and Swimmer of KASHMIR division.

RECOMMENDATION

Taking into consideration the results of the conducted study, I am, strongly going for below mentioned recommendations that are preferably suggested for the betterment of the sports players in different endeavour for future generation and for practical applications:

1. It is recommended to conduct same study on international athletes for comparison.
2. It is recommended to conduct study on runners and Swimmer on other physical variables for comparison

3. It is recommended to conduct study on runners on other physiological variables with responses to training.

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