



Effect of Sand Running on Selected Physiological Variables among College Men Sprinters

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Abstract

The purpose of the study was to find out the effect of sand running on selected physiological variables such as breath holding time and resting pulse rate. To achieve this purpose of the study, thirty men students studying in Voorhees College, Vellore, Vellore District, Tamil Nadu, India were selected as subjects at random. The age of the subjects were ranged from 18 to 20 years. The selected subjects were divided into two equal groups of fifteen subjects each, such as sand running group (Group I) and control group (Group II). The sand running group (Group I) underwent their respective training programme for three days per week for twelve weeks. Group II acted as control. All the subjects of two groups were tested on selected criterion variable such as breath holding time at prior to and immediately after the training programme by using holding the breath for time and radial pulse. The analysis of covariance (ANCOVA) was used to analysis the significant difference, if any in-between the groups. The level of significant to test the 'F' ratio obtained by the analysis of covariance was tested at .05 level of confidence, which was considered as an appropriate. The results of the study revealed that there was a significant difference between sand running group and control group on selected physiological variables such as breath holding time and resting pulse rate. Significant changes on selected criterion variables namely breath holding time and resting pulse rate were also noticed due to sand running.

Keywords: Sand Running, Physiological Variables, Men Sprinters.

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Introduction

Scientific training methods and application of basic principles of body mechanics in sports skill have been attributed to the higher level of performance in sports skills. Performance is the combined result of coordinated exertion and integration of a variety of functions. Genetic factor probably plays an important role in an individual's performance. It appears that upto seventy percent of an individual's maximal force, power or capacity is a matter of genetic factor. The environments as well as geographic location too play an important role in performance. Moreover performance to a certain extent depends upon the physical and motor fitness qualities in which definite improvement can be achieved through appropriate training.

Sand running may be a more intensive workout and may have other benefits as well, but there are also people that prefer running on concrete. If you are undecided whether you should practice one or the other, you should know a few things about running on sand and on concrete. When you compare running on sand with running on concrete in terms of calories consumed, running on sand is clearly a more intensive workout and

you will burn more calories, as this type of workout is more difficult. Just try walking on sand and then walk on concrete; you will feel the difference. In addition, you may slip on sand and have to fight the friction; this will add to the difficulty of the workout.

Methodology

The purpose of the study was to find out the effect of sand running on selected physiological variables such as breath holding time and resting pulse rate. To achieve this purpose of the study, thirty men students studying in Voorhees College, Vellore, Vellore District, Tamilnadu, India were selected as subjects at random. The age of the subjects were ranged from 18 to 20 years. The selected subjects were divided into two equal groups of fifteen subjects each, such as sand running group (Group I) and control group (Group II). The sand running group (Group I) underwent their respective training programme for three days per week for twelve weeks. Group II acted as control. All the subjects of two groups were tested on selected criterion variable such as breath holding time at prior to and immediately after the training programme by using holding the breath for time and radial pulse. The analysis of covariance (ANCOVA) was used to analysis the significant difference, if any in-between the groups. The level of significant to test the 'F' ratio obtained by the analysis of covariance was tested at .05 level of confidence, which was considered

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as an appropriate.

Analysis of the Data

The influence of sand running on each physiological variables were analyzed separately and presented below.

Breath Holding Time

The analysis of covariance on breath holding time of the pre and post test scores of sand running group and control group have been analyzed and presented in Table 1.

Table 1

Analysis of covariance of the data on breath holding time of pre and post tests scores of sand running group and control group

Test	Sand Running Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	41.87	41.73	Between	0.13	1	0.13	0.29
S.D.	0.62	0.96	Within	12.67	28	0.45	
Post Test							
Mean	47.87	41.93	Between	264.03	1	264.03	25.97*
S.D.	0.68	0.68	Within	284.70	28	10.17	
Adjusted Post Test							
Mean	47.84	41.96	Between	256.24	1	256.24	377.91*
			Within	18.31	27	0.68	

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 28, 1 and 27 were 4.20 and 4.21 respectively)

The table 1 shows that pre-test means on breath holding time of sand running group and control group are 41.87 and 41.73 respectively. The obtained “F” ratio of 0.29 for pre -test means is less than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on breath holding time. The post-test means on breath holding time of sand running group and control group are 47.87 and 41.93 respectively. The obtained “F” ratio of 25.97 for post-test means is more than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on breath holding time. The table 1 further shows that the adjusted post-test mean values on on breath holding time of sand running group and control group are 47.84 and 41.96

respectively. The obtained “F” ratio of 377.91 for adjusted post-test means is greater than the required table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on breath holding time. The results of the study indicated that there was a significant difference between the adjusted post-test means of sand running group and control group on breath holding time.

Resting Pulse Rate

The analysis of covariance on resting pulse rate of the pre and post test scores of sand running group and control group have been analyzed and presented in Table 2.

Table 2

Analysis of covariance of the data on resting pulse rate of pre and post tests scores of sand running group and control group

Test	Sand Running Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	73.07	72.93	Between	0.13	1	0.13	0.08
S.D.	1.34	1.31	Within	47.87	28	1.71	
Post Test							
Mean	69.87	72.67	Between	58.80	1	58.80	16.16*
S.D.	1.18	1.07	Within	101.87	28	3.64	
Adjusted Post Test							
Mean	69.81	72.72	Between	63.49	1	63.49	206.79*
			Within	8.29	27	0.31	

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 28, 1 and 27 were 4.20 and 4.21

respectively)

The table 2 shows that pre-test means on resting pulse rate of sand running group and control group are 73.07 and 72.93 respectively. The obtained “F” ratio of 0.08 for pre -test means is less than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on resting pulse rate. The post-test means on resting pulse rate of sand running group and control group are 69.87 and 72.67 respectively. The obtained “F” ratio of 16.16 for post-test means is more than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on resting pulse rate. The table 2 further shows that the adjusted post-test mean values on resting pulse rate of sand running group and control group are 69.81 and 72.72 respectively. The obtained “F” ratio of 206.79 for adjusted post-test means is greater than the required table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on resting pulse rate. The results of the study indicated that there was a significant difference between the adjusted post-test means of sand running group and control group on resting pulse rate.

Conclusions

1. There was a significant difference between sand running group and control group on breath holding time.
2. There was a significant difference between sand running group and control group on resting pulse rate.
3. And also it was found that there were significant changes on selected criterion

variables such as breath holding time and resting pulse rate due to sand running.

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