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PHYSICAL FITNESS LEVELS AMONG 200, 500 AND 1000 METER CANOEING PLAYERS: A COMPARATIVE STUDY

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Abstract:
The purpose of this study was to compare Physical Fitness levels among 200, 500 and 1000 Meter Canoeing Players. To obtain data, the investigators had selected Twenty one (N = 21) male Canoeing Player of 19 to 25 years (Mean ± SD: Age: 19.761 ± 2.488 years; Body Mass: 1.749 ± 7.046 kilograms; Body Height: 65.047 ± 9.286 meters) of age to act as subjects. Components of Physical fitness (i.e., Agility, Balance, Coordination, Power, Reaction Time and Speed) were taken up for the present study. Statistical analysis was performed using the Statistical Package for the Social Sciences for Windows version 16.0 software (SPSS Inc., Chicago, IL). Data is expressed as the mean ± SD. One way Analysis of Variance (ANOVA) was employed to find out the intra-group differences. To test the hypothesis, the level of significance was set at 0.05. No significant differences were found in Agility, Balance, Coordination, Power and Speed. However, significant differences were found in Reaction Time.

Keywords: canoeing, agility, balance, coordination, power, reaction time, speed

1. Introduction

Canoeing is a sport which involves endurance and strength [1]. Work intensity is varied, mostly high, sub-maximal and maximal [2]. Research conducted on canoeists [3] and kayakers [4, 5] contributed to the scientific definition of the required somatic model.

The previous studies showed that canoeists are characterized by very strong skeletal build, tallness, large body mass, long upper limbs, muscularity of the chest and

upper limbs and athletic build [6,7], having at the same time narrow hips and slim lower limbs [8].Considering the potential role of physical characteristics, when examining paddlers using the ergometry system, all subjects overcome the same resistance in order to perform work, irrespective of body mass [9, 10].

Within particular sports, there exist various disciplines or playing positions with specific demands that require different approaches in training and are associated with different physical and morphological characteristics [11, 12]. Traditionally, the determination of a physical profile in a given sport involves the use of predictive testing as a measure of power and strength [13], speed [14], aerobic fitness [15] or flexibility [16].

2. Material and Methods

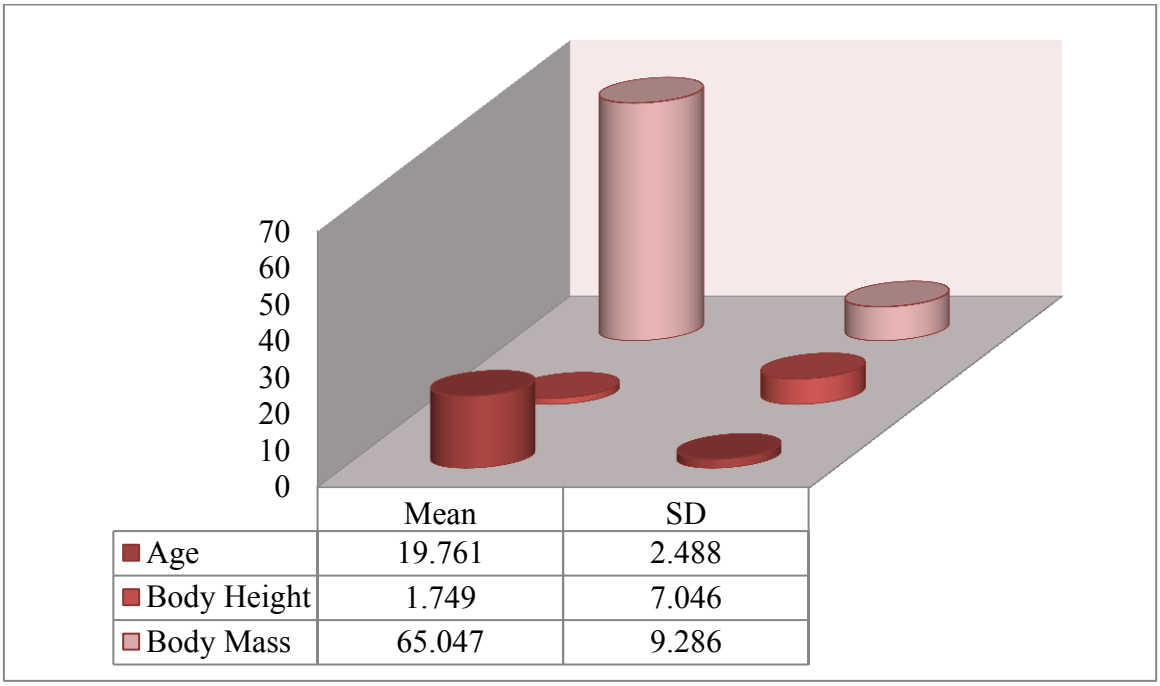
2.1 Selection of Subjects

To obtain data, the investigators had selected Twenty one (N = 21) male Canoeing Player of 19 to 25 years (Mean ± SD: Age: 19.761 ± 2.488 years; Body Mass: 1.749 ± 7.046 kilograms; Body Height: 65.047 ± 9.286 meters) of age to act as subjects. The data were collected from All India Open Canoe Sprint Championship organized by Sant Seechewal water sports centre Sultanpur Lodhi, Kapurthala, Punjab from16-18 June, 2017.

All the subjects were informed about the objective and protocol of the study. Distribution and demographics of subjects are brought forth in Table 1.

Table 1: Distribution and demographics of subjects

Variables	**Sample Size (N=21)**
	Mean ± SD
Age	19.761 ± 2.488
Body Mass	1.749 ± 7.046
Body Height	65.047 ± 9.286



	Mean	SD
Age	19.761	2.488
Body Height	1.749	7.046
Body Mass	65.047	9.286

Figure 1: Distribution and demographics of subjects

2.2 Selection of Variables

The following components of Physical fitness were taken up for the present study:

i. Agility
ii. Balance
iii. Coordination
iv. Power
v. Reaction Time
vi. Speed

3. Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences for Windows version 16.0 software (SPSS Inc., Chicago, IL). Data is expressed as the mean ± SD. One way Analysis of Variance (ANOVA) was employed to find out the intra-group differences. To test the hypothesis, the level of significance was set at 0.05.

4. Results

For each of the chosen variable, the result pertaining to components of Physical fitness of Canoeing Player are brought forth in the following tables:

Table 2: Analysis of variance (ANOVA) results among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Agility

Source of Variation	Sum of Squares	d.f.	Variance	F-value	p-value
Between Groups	1.2457	2	0.6229	F = 1.47408	.255352
Within Groups	7.6057	18	0.4225		
Total	8.8514	20			

The f-ratio value is 1.47408. The p-value is .255352. The result is not significant at p < .05.

It is concluded that the null hypothesis Ho is not rejected. Therefore, there is not enough evidence to claim that not all 3 population means are equal, at the α=.05 significance level.

Table 3: Analysis of variance (ANOVA) results among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Balance

Source of Variation	Sum of Squares	d.f.	Variance	F-value	p-value
Between-treatments	9.5238	2	4.7619	F = 0.12014	.887498
Within-treatments	713.4286	18	39.6349		
Total	722.9524	20			

The f-ratio value is 0.12014. The p-value is .887498. The result is not significant at p < .05.

It is concluded that the null hypothesis Ho is not rejected. Therefore, there is not enough evidence to claim that not all 3 population means are equal, at the α=.05 significance level.

Table 4: Analysis of variance (ANOVA) results among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Coordination

Source of Variation	Sum of Squares	d.f.	Variance	F-value	p-value
Between-treatments	82.5714	2	41.2857	F = 1.0342	.375699
Within-treatments	718.5714	18	39.9206		
Total	801.1429	20			

The f-ratio value is 1.0342. The p-value is .375699. The result is not significant at p < .05.

It is concluded that the null hypothesis Ho is not rejected. Therefore, there is not enough evidence to claim that not all 3 population means are equal, at the α=.05 significance level.

Table 5: Analysis of variance (ANOVA) results among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Power

Source of Variation	Sum of Squares	d.f.	Variance	F-value	p-value
Between-treatments	15.5238	2	7.7619	F = 1.04043	.373606
Within-treatments	134.2857	18	7.4603		
Total	149.8095	20			

The f-ratio value is 1.04043. The p-value is .373606. The result is not significant at p < .05.

It is concluded that the null hypothesis Ho is not rejected. Therefore, there is not enough evidence to claim that not all 3 population means are equal, at the α=.05 significance level.

Table 6: Analysis of variance (ANOVA) results among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Reaction time

Source of Variation	Sum of Squares	d.f.	Variance	F-value	p-value
Between-treatments	0.0069	2	0.0034	F = 4.70599	.022698
Within-treatments	0.0132	18	0.0007		
Total	0.0201	20			

The f-ratio value is 4.70599. The p-value is .022698. The result is significant at p < .05.

It is concluded that the null hypothesis Ho is rejected. Therefore, there is enough evidence to claim that not all 3 population means are equal, at the α=.05 significance level.

Table 7: Analysis of least significant difference (LSD) post-hoc test among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Reaction time

Analysis Multiple Comparisons

Group (A)	Group (B)	Mean Difference	Sig.
200 M	500 M	-.00814	.580
(0.1631)	1000 M	-.04186*	.010
500 M	200 M	.00814	.580
(0.1713)	1000 M	-.03371*	.032
1000 M	200 M	.04186*	.010
(0.205)	500 M	.03371*	.032

*. The mean difference is significant at the 0.05 level.

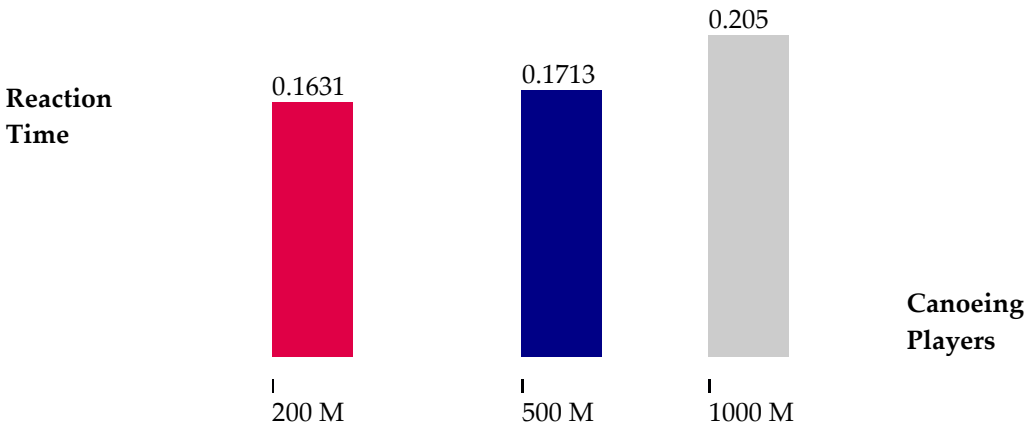


Figure 2: Graphical representation of mean scores among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Reaction time

Table 8: Analysis of variance (ANOVA) results among 200 Meter, 500 Meter and 1000 Meter men Canoeing players with regard to the sub-parameter Speed

Source of Variation	Sum of Squares	d.f.	Variance	F-value	p-value
Between-treatments	0.0543	2	0.0271	F = 2.06024	.156423
Within-treatments	0.2371	18	0.0132		
Total	0.2914	20			

The f-ratio value is 2.06024. The p-value is .156423. The result is not significant at p < .05.

It is concluded that the null hypothesis Ho is not rejected. Therefore, there is not enough evidence to claim that not all 3 population means are equal, at the α=.05 significance level.

5. Conclusions

In summary, the current study exhibits an intervening attempt to determine the difference of Physical Fitness levels among 200, 500 and 1000 Meter Canoeing Players. No significant differences were found in Agility, Balance, Coordination, Power and Speed. However, significant differences were found in Reaction Time.

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