REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 8 | ISSUE - 3 | DECEMBER - 2018

EFFECT OF SPECIFIC LENGTH FATIGUE ON SELECTED PSYCHO-MOTOR COMPONENTS

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ABSTRACT

The purpose of the study was to compare the study on the effect of physical fatigue of different duration on selected psychomotor components of handball players. Total Thirty (10 each) male players who have study in different college of Allahabad were selected for this study with age ranged between 17-25 years. Psycho-motors variables i.e. Speed of movement, Balance Ability and Orientation ability were selected for this study and on the basis of expert opinion and review of literatures it was hypothesized that no significant effects of physical fatigue of different duration on selected psychomotor components of basketball players.. For analysis of the data one way analysis of variance was used to examine the significance effects of physical fatigue of different duration on selected psychomotor components of handball players and the level of confidence was set at .05 level. It was observed that there was no significant difference between 15 minute, 20 minute, 25-minute duration of induced physical fatigue in case of hand steadiness, balance ability. Probably the reason hand steadiness is a measure of motor control.

KEYWORDS: *Psychomotor, Fatigue.*

INTRODUCTION:

Psychomotor learning has been characterized as relating to organismic and situational factors necessary for the acquisition and performance of behaviors that are generally reflected by movement. Psychomotor skills include actions such as contacting, manipulating, or moving an object and controlling the body or parts of the body. The purpose of this study was to investigate the effect of induce physical fatigue of different duration on selected psychomotor components of handball players. The study was delimited to the 10 male handball players who represented the Allahabad team. The study was confined to the following psychomotor components i.e. a).Speed of movement b). Hand steadiness c). Reaction time d). Balance ability and e). Orientation ability**.** The study was further delimitated of 15-minute duration 20 m duration and 25-minute duration for inducement of fatigue. The subjects were thoroughly acquainted with the testing procedure as well as the purpose of the study. It was hypothesized that there will be no significance difference in the psychomotor components to varying levels of physical fatigue. Physical fatigue was induced by bicycle ergo-meter test (continuous loading method) in which the subject was asked to pedal the ergo-meter continuously (load was fixed by trial). The induction of physical fatigue and pulse was noted by intra-pulse an instrument which measures pulse rate along with blood pressure as soon as the subject pulse rate reached the judgment criterion value of 150-170 bpm, they were continued for 15 minutes, 20 minutes, and 25 minutes after every duration of time they were tested on the psychomotor variables of speed of movements, hand steadiness, reaction time, balance ability, orientation ability. The data were collected with the help of fellow scholars who had experienced in conducting test and taking measurement under the direct supervision of the scholar. At a time only one test was administered so that the influence of fatigue

would be correctly assessed. Further adequate rest period was provided before administrating the next desired level of physical fatigue.

To compare the various selected psychomotor abilities 't' test (independent) was used at 0.05 level of significance.

Results

Table - 1

Significance of Difference between 20 minutes and 25 minutes on Speed of Movement

Duration	Mean	SD	SE Mean	DM	"t" ratio
20 minutes	.163	.0104	.0033		
25 minutes	.175	.0134	.0042	.0118	1.085

*Significant at 0.05 level

$t_{.05}(18) = 1.73$

Table-1 reveals the descriptive analysis of 20 minutes and 25 minutes on Speed of Movement. In case of 20 minutes shows value of mean and standard deviation (.163 ± .0104) respectively and 25 minutes shows value of mean and standard deviation (.175 ± .0134) respectively.

It is evident from Table-1 that there was no significant difference between the means of the 20 minutes and 25 minutes on Speed of Movement since the obtained value of 't' (1.085) was lower than the tabulated value of 't' (1.73) which was required to be significant at (18) degree of freedom with 0.05 level of confidence.

Table - 1

Significance of Difference between 20 minutes and 25 minutes on Hand Steadiness

Duration	Mean	SD	SE Mean	DM	"t" ratio
20 minutes	68.92	9.26	2.93		
25 minutes	69.82	9.19	2.91	.899	.006

*Significant at 0.05 level

$t_{.05}(18) = 1.73$

Table-1 reveals the descriptive analysis of 20 minutes and 25 minutes on Hand Steadiness. In case of 20 minutes shows value of mean and standard deviation (68.92 ± 9.26) respectively and 25 minutes shows value of mean and standard deviation (69.82 ± 9.19) respectively.

It is evident from Table-2 that there was no significant difference between the means of the 20 minutes and 25 minutes on Hand Steadiness since the obtained value of 't' (.006) was lower than the tabulated value of 't' (1.73) which was required to be significant at (18) degree of freedom with 0.05 level of confidence.

Table - 2

Significance of Difference between 20 minutes and 25 minutes on Reaction Time

Duration	Mean	SD	SE Mean	DM	"t" ratio
20 minutes	.198	.025	.008		
25 minutes	.230	.023	.007	.032	.115

*Significant at 0.05 level

$t_{.05}(18) = 1.73$

Table-2 reveals the descriptive analysis of 20 minutes and 25 minutes on Reaction Time. In case of 20 minutes shows value of mean and standard deviation (.198 ± .025) respectively and 25 minutes shows value of mean and standard deviation (.230 ± .023) respectively.

It is evident from Table-3 that there was no significant difference between the means of the 20 minutes and 25 minutes on Reaction Time since the obtained value of 't' (.115) was lower than the tabulated value of 't' (1.73) which was required to be significant at (18) degree of freedom with 0.05 level of confidence.

Table - 3

Significance of Difference between 20 minutes and 25 minutes on Balance Ability

Duration	Mean	SD	SE Mean	DM	"t" ratio
20 minutes	4.22	.559	.177		
25 minutes	4.29	.749	.237	.077	2.96*

*Significant at 0.05 level

$t_{.05}(18) = 1.73$

Table-3 reveals the descriptive analysis of 20 minutes and 25 minutes on Balance Ability. In case of 20 minutes shows value of mean and standard deviation (4.22 ± .559) respectively and 25 minutes shows value of mean and standard deviation (4.29 ± .749) respectively.

It is evident from Table-4 that there was a significant difference between the means of the 20 minutes and 25 minutes on Balance Ability since the obtained value of 't' (2.96) was higher than the tabulated value of 't' (1.73) which was required to be significant at (18) degree of freedom with 0.05 level of confidence.

The graphical representation of mean and SD of 20 minutes and 25 minutes on Balance Ability has been presented in Figure 4.

Table - 4

Significance of Difference between 20 minutes and 25 minutes on Orientation Ability

Duration	Mean	SD	SE Mean	DM	"t" ratio
20 minutes	8.39	.492	.155		
25 minutes	8.58	.399	.126	.185	1.16

*Significant at 0.05 level

$t_{.05}(18) = 1.73$

Table-4 reveals the descriptive analysis of 20 minutes and 25 minutes on Orientation Ability. In case of 20 minutes shows value of mean and standard deviation (8.39 ± .492) respectively and 25 minutes shows value of mean and standard deviation (8.58 ± .399) respectively.

It is evident from Table-5 that there was no significant difference between the means of the 20 minutes and 25 minutes on Orientation Ability since the obtained value of 't' (1.16) was lower than the tabulated value of 't' (1.73) which was required to be significant at (18) degree of freedom with 0.05 level of confidence.

CONCLUSION

From the results it was found that there was a substantial difference between the induced physical exhaustion period of 15 minutes, 20 minutes, 25 minutes. In the case of motion speed, reaction time and orientation capacity the cause was probably motion speed as the rate a person propels parts of his body through space. It depends upon technique, coordination, metabolic power (lactic acid, flexibility, attention and coordination). Reaction time is an individual's ability to respond to an external stimulus such as the time

from the occurrence of a stimulus to the completion of a basic muscle contraction, depending, for example, on the functional capability of the sensory organs. Heads, ears, etc. Managing CNS collection and decision-making processes, focus and concentration and anticipation. Whereas orientation ability is the ability to analyse and change position and movement of the body in space and time related to defence action, it depends upon perception, position, movement and the motor action to change the body position and movement of head and eyes is important. On other hand, kinesthetic sense organs assume more important function for orientation. All these three psychomotor abilities depends upon functional capacity of the CNS of an individual due to induced physical fatigue would induced local muscular fatigue plus other factor such as low blood glucose levels (hypoglycemia), liver glycogen depletion, loss of body water (dehydration), loss of body electrolytes (salt and potassium), high body temperature (hypothermia) which affect the psychomotor ability of the handball players. On the other hand , it was found that there was no substantial difference in the period of induced physical exhaustion between 15 minutes, 20 minutes, 25 minutes in the case of hand-steadiness, balance capacity. The explanation for the steadiness of the hand is possibly a function of motor control. It depends upon an individual's coordination, versatility and focus. The ability to balance is the ability to maintain the correct body position or the good performance of sporting skills. It depends on the ability to communicate and the dynamic mixture of cognitive and psychological influences.

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