Effect of Game Specific Training on Breath Holding Time and
Resting Heart Rate among Kabaddi Players

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Abstract

The aim of this study was to find out the effect of game specific training on breath holding time and resting heart rate among kabaddi players. To achieve the purpose of this study, twenty male kabaddi players were randomly from T.P.S. Boys Government higher secondary school and A.V. High school, Pavoorchatram, Tirunelveli, Tirunelveli, Tamil Nadu, India. Their age were ranged from 15 to 17 years. The selected participants were randomly divided into two groups such as Group 'I' underwent game specific training (n=12) and Group 'II' acted as control group (n=12). Group 'I' underwent game specific training for alternate three days and one session per day and each session lasted for an hour for six week periods. Group 'II' was not exposed to any specific training but they were participated in regular activities. The data on selected criterion variables on breath holding time was measured by nose clip method (seconds) and resting heart rate was measured by radial pulse method (counts). The pre and post-tests data were collected on selected criterion variables prior to and immediately after the game specific training. The pre and post-tests scores were statistically examined by the dependent 't' test and Analysis of Co-Variance (ANCOVA) for each and every selected variables separately. It was concluded that the game specific training group were improved criterion variables on breath holding time and resting heart rate when compared to the control group. However the control group had not shown any significant improvement on selected criterion variables.

Keywords: Game Specific Training, Breath Holding Time, Resting Heart Rate, Kabaddi Players

1. Introduction

Sports training are aim at improving the sports performance. The sports performance, as any other type of human performance is not the product of one single system or aspect of human personality. On the contrary, it is the product of the total personality of the sports person [1].

The training load should be increased in order to improve the performance load must be increased from time to time for improvement of the continuous performance. Training load can be increased gradually or step by step is result in strong and faster adaptation process and more effective reaction from the organism. Step by step of increase of load gives time to the organism to adapt to the increased demands. Beginning lesser load is greater improvement but latter higher load is necessary to produce even a small increase in performance [2].

The Specificity Principle simply states that training must go from highly general training to highly specific training. The principle of Specificity also implies that to become better at a particular exercise or skill, you must perform that exercise or skill. To be a good cyclist, you must cycle. The point to take away is that a runner should train by running [3].

Kabaddi is a combative team game, played with absolutely no equipment, in a rectangular court, either out doors of indoors with seven players on the ground in each side. Each side takes alternate chances at offense and defense. The basic idea of the game is to score points by raiding into the opponents' court and touching as many defense players as possible without getting caught on a single breath [4].

Kabaddi is a complete collective sporting modality, characterized by the great amount and variety in its movements, ball manipulations and interaction with other athletes. Looking for a better dynamic and objectivity, Kabaddi passed through several evolutionary processes that, consequently, started to demand from the athlete's larger physiological adaptations and other characteristics [5].

2. Purpose of the Study

The purpose of this study was to find out the effect of game specific training on breath holding time and resting heart rate among Kabaddi players

3. Methodology

The purpose of this study 24 male school Kabaddi players were selected as participants at randomly selected from T.P.S.Boys Government higher secondary school and A.V.High school, Pavoorchatram, Tirunelveli, Tamilnadu State and the participant's age were ranged from 15 to 17 years. Only those who represented their respective inter school Kabaddi tournament were taken as subjects and they were divided into two groups and each group twelve number of participants. Group I namely experimental group and group II as control group. Experimental group were participated the game specific training for a period of 6 weeks. The control group was not exposed any specific training apart from their regular curriculum.

The experimental design used in this study was pre and post test random group design involving 24 participants who were divided at random into two groups of twelve each. No attempt was made to equate the groups in any manner. Hence, to make adjustments for difference in the initial means and to test the adjusted post test means for significant differences among the groups, the analysis of covariance (ANCOVA) was used. In all the cases 0.05 level was fixed as significant level.

4. Result and Discussions

4.1 Breath Holding Time

The analysis of dependent 't' test on the data obtained for breath holding time of the pre-test and post-test means of experimental and control groups have been analyzed and presented in Table 1.

Table 1: Computation of 't' - Ratio between Pre and Post Test Means of Experimental and Control Groups on Breath Holding Time (Seconds)

Tests		Pre Test	Post Test	't' - Value
Experimental Group	Mean	32.51	40.86	**10.66***
	SD	3.24	2.03	
Control Group	Mean	31.86	33.29	0.94
	SD	4.12	4.08	

Significant at 0.05 level. The table value required for 0.05 level of significance with df 11 is 2.20.

The table 1 shows that the pre-test mean values of experimental and control groups are 32.51 and 31.86 respectively and the post test means are 40.86 and 33.29 respectively. The obtained dependent t-ratio values between the pre and post test means of experimental and control groups are 10.66 and 0.94 respectively. The table value required for significant difference with df 11 at 0.05 level is 2.20. Since, the obtained 't' ratio value of experimental group was greater than the table value, it was understood that experimental group had significantly improved on breath holding time. However, the control group has not improved significantly. The 'obtained t' value is less than the table value, as they were not participated to any specific training.

The analysis of covariance on breath holding time of experimental and control groups have been analyzed and presented in Table 2.

Table 2: Analysis of Covariance on Breath Holding Time of Experimental and Control Groups

Adjusted Post Test Means		Source of variance	Sum of squares	df	Mean square	F–ratio
Experimental Group	Control Group	Between	46.73	1	46.73	**16.93***
41.09	33.61	Within	57.96	21	2.76	

* Significant at 0.05 level. Table value for df 1, 21 was 4.32

Table 2 shows that the adjusted post test means values on breath holding time. The obtained f- ratio of 16.93 for adjusted post test mean is greater than the table value 4.32 with df 1 and 21 required for significance at 0.05 level of confidence. The results of the study indicate that there was a significant mean difference exist between the adjusted post test means of experimental and control groups on breath holding time. The pre, post and adjusted post test means values of experimental and control group on breath holding time were graphically represented in the figure 1.
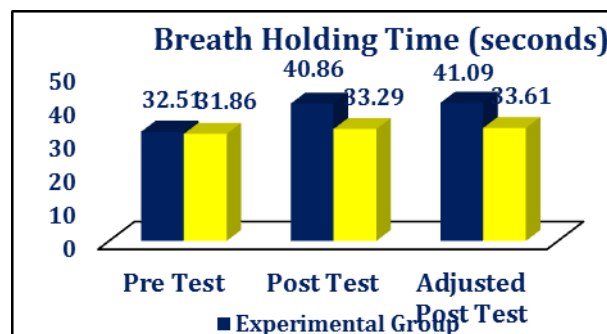

Figure 1: Pre, Post and Adjusted Post Test Means Values of Experimental and Control Group on Breath Holding Time

4.2 Resting Heart Rate

The analysis of dependent 't' test on the data obtained for resting heart rate of the pre-test and post-test means of experimental and control groups have been analyzed and presented in Table 3.

Table 3: Computation of 'T' - Ratio between Pre and Post Test Means of Experimental and Control Groups on Resting Heart Rate (Counts)

Tests		Pre Test	Post Test	't' - Value
Experimental Group	Mean	70.31	68.23	**5.89***
	SD	1.86	1.20	
Control Group	Mean	70.29	70.11	0.60
	SD	1.62	1.72	

*Significant at 0.05 level. The table value required for 0.05 level of significance with df 11 is 2.20.

The table 3 shows that the pre-test mean values of experimental and control groups are 70.31 and 70.29 respectively and the post test means are 68.23 and 70.11 respectively. The obtained dependent t-ratio values between the pre and post test means of experimental and control groups are 5.89 and 0.60 respectively. The table value required for significant difference with df 11 at 0.05 level is 2.20. Since, the obtained 't' ratio value of experimental group was greater than the table value, it was understood that experimental group had significantly improved on resting heart rate. However, the control group has not improved significantly. The 'obtained t' value is less than the table value, as they were not participated to any specific training.

The analysis of covariance on resting heart rate of experimental and control groups have been analyzed and presented in Table 4.

Table 4: Analysis of Covariance on Resting Heart Rate of Experimental and Control Groups

Adjusted Post Test Means		Source of variance	Sum of squares	df	Mean square	F–ratio
Experimental Group	Control Group	Between	65.66	1	65.66	**13.94***
68.21	70.12	Within	98.91	21	4.71	

* Significant at 0.05 level. Table value for df 1, 21 was 4.32

Table 4 shows that the adjusted post-test means values on resting heart rate. The obtained f- ratio of 13.94 for adjusted post-test mean is greater than the table value 4.32 with df 1 and 21 required for significance at 0.05 level of confidence. The results of the study indicate that there was a significant mean difference exist between the adjusted post-test means of experimental and control groups on resting heart rate.

The pre, post and adjusted post-test means values of experimental and control group on resting heart rate were graphically represented in the figure 2.
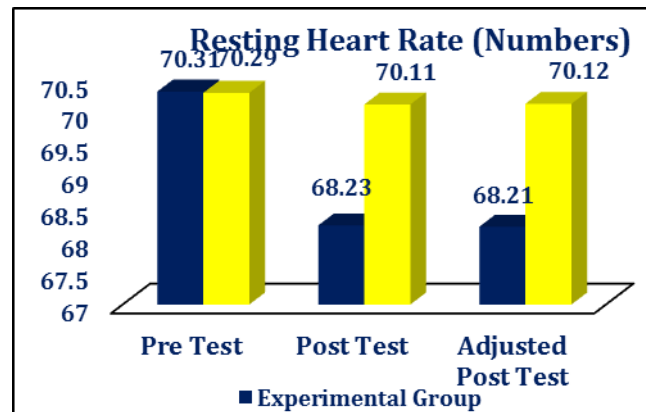
Figure 2: Pre, Post and Adjusted Post Test Means Values of Experimental and Control Group on Resting Heart Rate

5. Discussion on Findings

The results of the study indicates that the game specific training had registered significant level improvement in breath holding time and resting heart rate when compared to control group among the kabaddi players The following studies are supported to the result of this investigation such as Sivakumar, & Logeswaran, (2017), Bhowmik, (2018), Raman, & Nageswaran, (2013), Gururaj, S & Arumugam, S. (2017), Arumugam, S (2013) and Gabbett, Jenkins & Abernethy, (2009).

6. Conclusions

The present study was exposed that significant difference was found in the mean of selected breath holding time and resting heart rate among experimental and control groups. There was significant improvement on breath holding time and resting heart rate due to the effect of game specific training among kabaddi players. However the control group had not shown any significant improvement on breath holding time and resting heart rate.

7. References

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