

EFFECT OF VARIOUS SURFACE MEDICINE BALL EXERCISES ON SELECTED PHYSIOLOGICAL VARIABLE AMONG KABADDI PLAYERS

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ABSTRACT

The study was to investigate the impact of various surface medicine ball exercises on selected physiological variables among kabaddi players. Total N=60(sixty (N=60) kabaddi troupes at the school level were picked in a random manner from Z.P.H.S Palak Onda, located in the Srikulam District of Andhra Pradesh. The recruited kabaddi players was randomly allotted into three groups each group n=20 kabaddi players i.e. empirical groups I kabaddi players underwent Sand based medicine ball training, empirical group II kabaddi players underwent Aqua based medicine ball training), and control group kabaddi players. Control group kabaddi were practiced only their daily physical activities. The sand based medicine ball training and Aqua based medicine ball training period was practically applied for 12- week's duration and three sessions in a week. The physical measurement of resting heart rate quantity scores was collected through Stethoscope test (In number) before and after the completion of training period. The collected quantity scores were analyzed through ANCOVA and level of significant was restricted at 0.05 levels. The study found that influence of 12-weeks specific sand based medicine ball training and Aqua based medicine ball training protocol resulted significant improvement impact in resting pulse rate scores of experimental group I and experimental group II kabaddi players comparative to control group.

Keywords: – Sand, Aqua, Medicine, Exercises, Ball, Blood pressure and Kabaddi

Introduction:

Sport training seeks to improve sport competitive performance. Sports training are based on systematic facts and concepts and are carried out systematically and on a planned basis to achieve high performance. Firstly, there must be a system that is best ideal for achieving high performance, on which sports training is planned. The sports training of a coach, a sports instructor or another individual is always assessed, planned, coordinated and developed. Sports training aims to uncover hidden reserves and make athletes aware of them. It also intends to collect development of the reserves. A sportsman can arrange his or her everyday routine so that he or she can practice highly once or twice a day. Sport training is primarily an experience of learning. It therefore seeks to develop all facets of personality. It is an ongoing process in which to perfect, improve and develop tools and strategies to improve sports performance and performance.

Exercise working is the technical examination of how the human body performs in different types of workout, both short-term and long-term. These effects are notable in both brief, intense exercise and in protracted, demanding exercise such as that performed in endurance sports like marathons, ultra marathons, and road bicycle races. During exercise, the liver produces additional glucose, while heightened circulatory activity by

the heart and higher breathing by the lungs deliver an augmented oxygen supply. Prolonged and vigorous exercise can lead to a decrease in blood glucose levels.

Statement of the Research Problem:

To analyze the “Impact of various surface medicine ball exercises on selected physiological variable among kabaddi players”.

Objectives of this research study

1. The primary objective of this research study is to evaluate the 12-weeks influence of sand based medicine ball training and Aqua based medicine ball training on resting pulse rate among kabaddi players.
2. The secondary objective of this research are
 - To compare the applied training methods between sand based medicine ball training and Aqua based medicine ball training on resting pulse rate among kabaddi players.
 - To judge the best suitable training protocol among sand based medicine ball training and Aqua based medicine ball training for improvement changes in resting pulse rate among kabaddi players.

Research Hypothesis:

- There will be a significant improvement in score of resting pulse rate level of empirical group’s among kabaddi players after the twelve weeks impact of sand based medicine ball training and Aqua based medicine ball training when compared with control group kabaddi players.
- The sand based medicine ball training and Aqua based medicine ball training will be equally effective for achieving improvement in resting pulse rate scores of treatment groups.

Methodology:

The study was to investigate the impact of various surface medicine ball exercises on selected physiological variables among kabaddi players. Total N=60(sixty (N=60) kabaddi troupes at the school level were picked in a random manner from Z.P.H.S Palak Onda, located in the Srikakulam District of Andhra Pradesh. The recruited kabaddi players was randomly allotted into three groups each group n=20 kabaddi players i.e. empirical groups I kabaddi players underwent Sand based medicine ball training, empirical group II kabaddi players underwent Aqua based medicine ball training), and control group kabaddi players. Control group kabaddi were practiced only their daily physical activities. The sand based medicine ball training and Aqua based medicine ball training period was practically applied for 12- week’s duration and three sessions in a week. The physical measurement of resting heart rate quantity scores was collected through Stethoscope test (In number) before and after the completion of training period. The collected quantity scores were analyzed through ANCOVA and level of significant was restricted at 0.05 levels.

Table 1: compares the heart rate means of training groups with control groups among school level kabaddi players.

Means	SBMBTG- I	ABMBTG- II	CG	SV	SS	DF	MS	F ratio	P value
Pre test	76.70	76.50	77.85	B	21.233	2	10.617	1.34	0.27
SD	2.92	2.37	3.58	W	451.750	57	7.925		
Post test	76.35	75.40	77.50	B	46.433	2	23.217	3.07	0.06
SD	2.20	1.98	3.72	W	430.300	57	7.549		
Adjusted post test	75.58	76.64	76.77	B	9.098	2	4.549	6.63*	0.000
				W	38.423	56	.686		

*Significant at 0.05 level

Pre-test means for the medicine ball training groups in the sand, the water, and the O control group were 76.70, 76.50, and 77.85, respectively. F ratio 1.34 ($p > 0.05$) in the group pre-test averages did not indicate a difference. The means of the categories did not differ much at first.

The aqua-based medicine ball training group's mean heart rate was 75.40, the control group's mean heart rate was 77.5, and the (Ctrl)-4 medicine ball training group's mean heart rate was 76.35. None were evident in the post-test mean F ratio of 3.07 ($p > 0.05$). The groups' post-test means did not differ appreciably.

The pre and **posttest** means were used to compute corrected **posttest** means and perform an analysis of covariance. The control group's corrected mean heart rate was 76.77, group II's was 76.64, and group I's was 75.88. The resulting F value (66) $p > 0.05$ on corrected averages was significant at the 0.05 level. Thus, it was shown that the groups' corrected post-test average heart rates showed substantial differences.

Table 2: Post Hoc Test on Heart Rate

SBMBTG-I	ABMBTG-II	CG	MD	P value
76.45	75.88	-	0.57	0.21
76.45	-	76.77	0.32	0.12
-	75.88	76.77	0.89	0.03

The paired mean comparisons below were 0.05 significant.

- (MD:0.89) (p<0.05) ABMBTG-II (Aqua Based Medicine ball) Vs CG

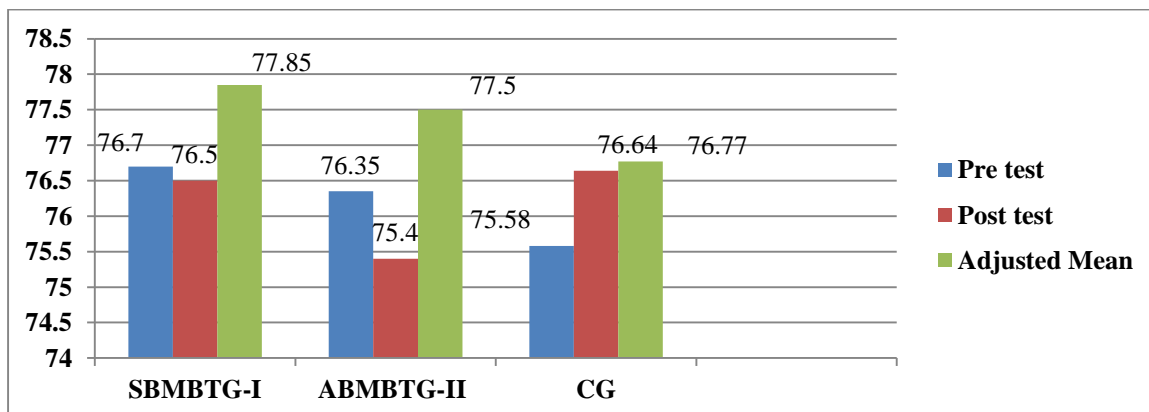
The following paired mean comparisons were not significant at 0.05 level.

- (MD: 0.32) (p>0.00) SBMBTG-I (Sand Based Medicine ball) Vs CG
- (MD: 0.57) (p>0.05) SBMBTG-I (Sand Based Medicine ball) Vs ABMBTG-II (Aqua

Based Medicine ball)

The prior, final and adjusted post scores results mean of the SBMBTG-I, ABMBTG-II and CG Kabaddi players groups for resting heart rate – Stethoscope test (In number) performance clearly represented in bar diagram figure: 1.

FIGURE: 1 THE RESTING HEART RATE – STETHOSCOPE TEST (IN NUMBER) PRE POST AND ADJUSTED POST TEST MEAN NUMBERS OF SBMBTG-I, ABMBTG-II AND CG KABADDI PLAYERS GROUPS PRESENTED IN BAR GRAPH



SBMBTG-I : Sand Based Medicine ball training group.
ABMBTG-II : Aqua based medicine ball training group.
CG : Control group

Discussion on Hypothesis:

- There will be a significant improvement in score of resting pulse rate level of empirical group's kabaddi players after the twelve weeks impact of sand based and aqua based medicine ball training when compared with control group kabaddi players. The statistical analysis proved that sand base and aqua based medicine ball training program significantly improved the resting pulse rate score of kabaddi. Hence research first hypothesis accepted.
- The sand based and aqua based medicine ball training will be equally effective for achieving improvement in resting pulse rate scores of treatment groups. The statistical analysis proved that sand based and aqua based medicine ball training is equally effective. Hence research second hypothesis accepted.

Discussion and Findings:

The applied 12-weeks sand based and aqua based medicine ball training are constructive for improvement of resting pulse rate score performance level of kabaddi players. The scientific experimental studies results in connect with endurance parameters referred Aditya Kumar Das (2014) found that effect of complex training with core exercises program significantly decrease resting pulse rate number of players. Rajeswari (2024) found that single 30-minute yoga session significantly reduces resting HR and BP. Adamos Vrachimis (2016) study concluded that six weeks circuit training decrease the risk for development of CVD by reducing arterial blood pressure and by improving body composition, aerobic capacity, muscular endurance and strength. Manish and Priyanshu (2025) The findings confirm that both HIIT and FCT are effective in decreasing resting heart rate. Mikko et al., (2003) study confirmed that aerobic training resulted significant improvement of decreasing in resting pulse rate of sedentary subjects. Fanny Thresia Yunus et al., (2023) confirmed that intervention of adding aerobic exercise can reduce resting heart rate in post-stroke patients with chronic phase.

Conclusions:

Tester determined that impact of 12 weeks sand based and aqua based medicine ball training program are effective for improvement of resting pulse rate of kabaddi player's scores comparative with control group kabaddi players. Finally, sand based and aqua based medicine ball training program are equally beneficial for improvement of resting pulse rate level of kabaddi player's.

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