Publisher
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E-ISSN:2319-3050

International Journal of Research Pedagogy and Technology in Education and Movement Sciences

2023 Volume 12 Number 03 JUL-SEP

Research Article

Sports Training and Fitness

An investigation between recovery interventions of systolic blood pressure

Ahirvar MK[1*], Pathak M[2]

DOI:https://doi.org/10.55968/ijems.v12i03.438

[1*] Manoj Kumar Ahirvar, Research Scholar, Department of Physical Education, Sri Satya Sai University of Technology and Medical Sciences, Sehore, MP, India.

[2] Minakshi Pathak, Professor, Department of Physical Education, Sri Satya Sai University of Technology and Medical Sciences, Sehore, Madhya Pradesh, India.

The presented study was to identify the recovery treatment difference of active recovery, passive recovery and assisted recovery on systolic blood pressure. In this study there are total 58 subjects were taken (20 active recovery, 18 passive recovery and assisted recovery 20 male) all were national player of middle distance runners from Bhopal SAI centre. Their age ranging from 18 to 25 years. The data were assessed through blood pressure monitor. The collected data was analysed by computing the descriptive statistics to find out standard deviation and mean among active, passive and assisted recovery on systolic blood pressure, one way -ANOVA and the Multiple ComparisonsScheffe post hoc. Test. For testing the hypothesis, the degree of significance was set at 0.05. Statistical analysis was conducted by using statistical packages for social science (IBM SPSS 20 Version). As a result the findings state that the value of f-statistics is having significant difference among active and assisted recovery (3.932, $p<0.05$) because P value is smaller than 0.05. Thus the null hypothesis is fail to accept and the study concluded that there is no significant difference among active and passive recovery due to p-value is greater than 0.05 but there is a significant difference between active recovery and assisted recovery. Which interpret that active and passive recovery does not have significant difference and there is a slight difference between active and assisted recovery in regard of systolic blood pressure so, assisted recovery helps to down the systolic blood pressure after an exercise or workout.

Keywords: Systolic Blood Pressure, Active Recovery, Passive Recovery, Assisted Recovery

Corresponding Author

Manoj Kumar Ahirvar, Research Scholar, Department of Physical Education, Sri Satya Sai University of Technology and Medical Sciences, Sehore, MP, India.
Email: manojkumar.nis@gmail.com

How to Cite this Article

Ahirvar MK, Pathak M. An investigation between recovery interventions of systolic blood pressure. IJEMS. 2023;12(03):147-151.
Available From
https://ijems.net/index.php/ijem/article/view/438

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2023-05-02	2023-05-24	2023-06-07	2023-06-21	2023-06-30

Conflict of Interest	Funding	Ethical Approval	Plagiarism X-checker	Note
Nil	None	Yes	7	

INTRODUCTION

Your blood pressure indicates how hard your blood has to work to flow through your arteries. Your heart uses force to push blood that is high in oxygen into your arteries. They transport it to your body's tissues and cells. Health issues could result from blood pressure that is too high. The only way to determine your blood pressure is to take a measurement. Your heartbeat's pressure in your arteries is tracked by your systolic blood pressure. The second figure used to measure blood pressure is diastolic blood pressure, which gauges the pressure in your arteries in between heartbeats. Your blood pressure indicates the force or pressure of blood within your arteries. With every beat, your heart pumps blood into the arteries that provide blood to every part of your body. This happens 60–100 times every minute, all year long. Arteries carry nutrients and oxygen that your body needs to function.

Blood pressure (BP) is the force of blood flowing through arteries against their walls. This pressure is largely caused by the heart's work of pumping blood via the circulatory system. When the term "blood pressure" is used without qualifier, it refers to the pressure in the brachial artery, where it is most usually measured.Blood pressure is commonly expressed as the difference between the minimum and maximum pressure experienced during a cardiac cycle. Systolic pressure, or the highest pressure encountered during a single pulse, is one way to express blood pressure.The unit of measurement is either millibars of mercury (mmHg) or kilopascals (kPa) above the surrounding air pressure. While pulse pressure is the difference between the systolic and diastolic pressures, mean arterial pressure is the average pressure recorded over a cardiac cycle.Low-intensity exercise is a component of an active rehabilitation program following a strenuous workout. Among these include walking, yoga, and swimming. Its common knowledge that active recovery is preferable to sitting, complete rest, or inactivity. After intense activity; it can help rebuild and recuperate muscles by preserving blood flow.

During passive recovery, the body is kept completely still. It could involve sitting or being inactive. Passive recovery is important and beneficial if you are injured or in pain.Passive recuperation may also be necessary if you are Particularly weary after working out, both mentally and physically.

If none of these scenarios apply to you and you're just generally sore, active recuperation is seen to be the better option. Complete rest combined with complete cessation of exercise is known as passive recovery.The amount of passive recovery your body needs relies on a number of factors, such as how fit you are right now and how hard you work out, whereas assisted recovery is provided with professional help, such as massage, therapy, etc.In order to determine which type of recovery intervention is best for controlling systolic blood pressure and bringing it down to the homeostatic level, we compare and examine active, passive, and assisted recovery of systolic blood pressure in this study.

PROCEDURE AND METHODOLOGY

There were a total of 58 participants included in this investigation. (20 active recovery, 18 passive recovery and assisted recovery 20 male) all were national player of middle-distance runners from Bhopal SAI centre. They are between the ages of 18 and 25. Every participant was informed of the goal of the study.Prior to taking part in the testing procedures, each individual gave their consent.Based on the feasibility criteria, expert and researcher comprehension, and correspondence, the study chose the recovery interventions for analysis: active recovery and passive recovery on systolic blood pressure. The data were assessed through the equipment blood pressure monitor.

In order to determine the standard deviation and mean among the collected data, descriptive statistics and one-way ANOVA were computedactive recovery, passive recovery and assisted recovery of systolic blood pressure male middle distance runners. The degree of significance was fixed at 0.05 to test the hypothesis.The statistical analysis was carried out using IBM SPSS 20 Version, one of the statistical tools for social science.Tables 1, 2, and 3 summarize the results, while Figure 1 shows a graphical representation of the standard deviation and mean value.

RESULT AND INTERPRETATION

Table 1 indicated the score of mean and standard deviation recovery intervention for active recovery, passive recovery and assisted

Recovery male middle distance runners are exhibited in table 1. The mean score of active recovery 127.850±7.9291, mean score of passive recovery is 127.278±7.6374, and the mean score of assisted recovery is 122.200±5.0638 are shown respectively.

Table 1- Descriptive statistics for recovery intervention of systolic blood pressure

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Active recovery	20	127.850	7.9291	1.7730	124.139	131.561	108.0	142.0
Passive Recovery	18	127.278	7.6374	1.8002	123.480	131.076	108.0	138.0
AssistedRecovery	20	122.200	5.0638	1.1323	119.830	124.570	115.0	134.0
Total	58	125.724	7.3217	.9614	123.799	127.649	108.0	142.0

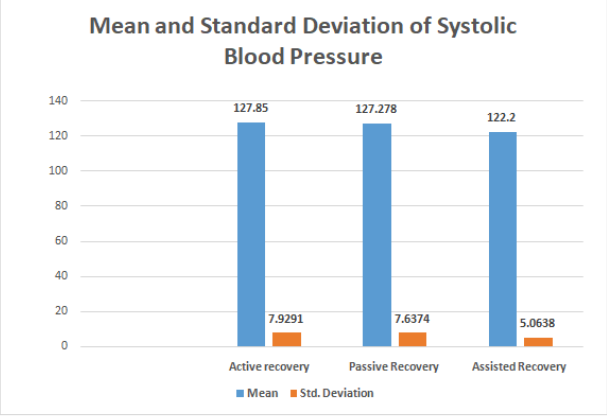

Figure 1- Graphical Representation of active recovery and passive recovery and assisted recovery Mean score and Std. Deviation of systolic blood pressure

Table 2- The ANOVA table for recovery intervention of systolic blood pressure

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	382.225	2	191.113	3.932	.025
Within Groups	2673.361	55	48.607		

Table 2 indicated that recovery treatment within different type of recovery F (2,55) = 3.932, p<0.05. It means the recovery treatments of 3 different types significantly differ so, interaction of recovery treatments with sessions does influence the recovery methods in case of systolic blood pressure.

As f value is significant test of simple effect

In syntax of SPSS was further computed to test the interaction of the trails within different recovery treatment and result are shown below.

Table 3- Pairwise Comparisons of SBP on different type of recovery intervention

(I) Recovery intervention	(J) Recovery intervention	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Active recovery	passive rec.	.5722	2.2651	.969	-5.127	6.271
	assit. rec.	5.6500*	2.2047	.045	.103	11.197
Passive recovery	active rec.	-.5722	2.2651	.969	-6.271	5.127
	assit. rec.	5.0778	2.2651	.090	-.621	10.777
Assisted Recovery	active rec.	-5.6500*	2.2047	.045	-11.197	-.103
	passive rec.	-5.0778	2.2651	.090	-10.777	.621

*The mean difference is significant at the 0.05 level.

Table 3 shows the difference between mean among 3 different recovery treatment in systolic blood pressure were displayed. As per the table the significant difference found in active recovery with assisted recovery and vice-versa. And no significant difference found among active and passive recovery.

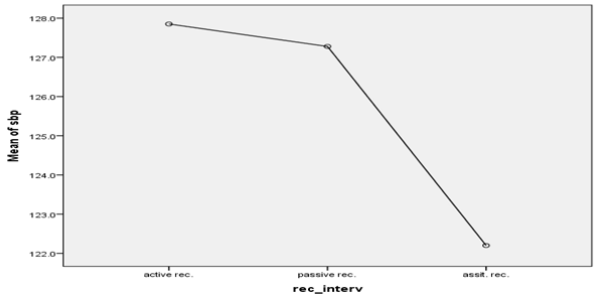

Figure 2- Graphical Representation of Lenear Trend During active recovery and passive recovery and assisted recovery of systolic blood pressure.

DISSCUSION AND CONCLUSION

The study's findings indicate that it means the recovery treatments of 3 different types significantly differ so, interaction of recovery treatments with sessions does influence the recovery methods in case of systolic blood pressure where the significant difference found in active recovery and assisted recovery with slight difference.Stanley P. Brown et. al. (1994) state that the following either the cycling or resistance training treatments, there were no discernible variations in recovery

Blood pressures, according to an analysis of variance using several evaluations. After two minutes of recovery, the average systolic blood pressure was higher than the previously established baseline values (115 ± 2 mmHg, P < 0.0001), and the average diastolic blood pressure was lower (48 ± 3 mmHg, P < 0.0001). After 60 minutes of recuperation, the diastolic blood pressure at 15 minutes and the systolic blood pressure at 5 minutes after the activity did not differ substantially from the resting baseline values. It was determined that blood pressure fluctuations during recovery from varying resistance training intensities were roughly equivalent to those caused by cycling.Keith Ellis MD(2004) They come to the conclusion in their analysis that, in this low-risk population, abnormal systolic blood pressure recovery during exercise was not independently predictive of death after controlling for changes in baseline and activity parameters.Pandey Gayatri and others (2015) the data's conclusion showed that among hockey players, there was no discernible variation in blood pressure, heart rate, or respiratory rate between active and passive recovery.

Because the p-value for the study was more than 0.05, it was determined that while there is a significant difference between assisted recovery and active recovery, there is no significant difference between the two types of recovery. Which interpret that active and passive recovery does not have significant difference and there is a slight difference between active and assisted recovery in regard of systolic blood pressure so, assisted recovery helps to down the systolic blood pressure after an exercise or workout.

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