Publisher
www.theuniversityacademics.com

E-ISSN:2319-3050

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

2023 Volume 12 Number 03 JUL-SEP

Research Article

Sports Training

EFFECT OF WEIGHT TRAINING ON RESTING PULSE RATE AMONG MIDDLE DISTANCE AND LONG DISTANCE RUNNERS OF OSMANIA UNIVERSITY

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DOI: https://doi.org/10.55968/ijems.v12i03.390

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The purpose of the study was to explore the effect of Weight training on Resting Pulse Rate among Middle Distance and Long-Distance runners of Osmania University. Total 90 male athletes of Middle Distance and Long-Distance runners were randomly selected as subjects from Degree & PG colleges which are affiliated to Osmania University, Hyderabad, Telangana and their age ranged between 18-22 years. The study was formulated as pre and post-test random group design, in which N=45 male athletes of Middle-Distance runners and Long-Distance runners divided into three equal groups as Group 1 (n = 15) Middle Distance Runners Group, Group 2 (n = 15) Long Distance Runners Group, Group 3 (n = 15) Control group. The experimental groups 1 & 2 underwent 12 weeks of Weight training i.e., 3 days/week and Control groups did not go for any specific training. Pre and Posttest was administrated prior and after training period on Resting Pulse Rate for the three groups respectively. The statistical tests Mean, Standard Deviation, 't' test, ANCOVA and Scheffe's Post Hoc test was carried out with the help of the software package of social science (SPSS 20.0 version). With the effect of 12 weeks of Weight training, it was found that there was a significant difference on Resting Pulse Rate between Experimental groups and Control group.

Keywords: Weight Training, Resting Pulse Rate, Middle Distance Runners, Long Distance Runners

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How to Cite this Article

Tagulla Venkanna, L. B. Laxmikanth Rathod, EFFECT OF WEIGHT TRAINING ON RESTING PULSE RATE AMONG MIDDLE DISTANCE AND LONG DISTANCE RUNNERS OF OSMANIA UNIVERSITY . IJEMS. 2023;12(03):1-5.

Available From

https://ijems.net/index.php/ijem/article/view/390

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2023-03-15	2023-04-11	2023-05-23	2023-06-20	2023-07-31

Conflict of Interest	Funding	Ethical Approval	Plagiarism X-checker	Note
NIL	NO	YES	7	

Introduction

Ideal strength and conditioning sessions invite an athlete to build supporting muscles, rectify muscle imbalances, increase mobility, improve posture, stabilize joints, learn new movement patterns, improve coordination and peripheral skills, and do so much more to attain highest performance.

Statement of the Problem

The purpose of the study was to examine the result of Weight Training on Resting Pulse Rate among middle distance and long-distance runners of Osmania University.

Significance of the Study

The study is significant in the following ways:

01. To find out whether there was any significant difference with the effect of Weight Training on Resting Pulse Rate in experimental groups.

Delimitations & Limitations

Delimitations

01. The study was confined to male middle distance and long-distance runners of Osmania University who were between 18-22 years age.
02. The training period was delimited to 12 weeks (3 days/week).

Limitations

01. Elements which are not controlled and not identified of the subjects living style, food habits and environmental conditions during the Research and testing period was considered as Limitations of the study.
02. Specific motivational techniques and tactics were not employed during the Research and testing period to accomplish subjects peak performance.

Hypothesis

It was hypothesized that there would be a significant difference in Resting Pulse Rate after 12 weeks of Weight Training among experimental groups.

Methodology

Selection of Subjects

Total 90 male athletes of Middle Distance and Long-Distance runners were randomly selected as subjects from Degree and PG colleges which are affiliated to Osmania University, Hyderabad, Telangana and their age ranged between 18-21 years. The study was formulated as pre and post-test random group design, in which N=45 male athletes of Middle-Distance runners and Long-Distance runners divided into three equal groups as Group 1 (n = 15) Middle Distance Runners Group, Group 2 (n = 15) Long Distance Runners Group, Group 3 (n = 15) Control group.

Experimental Design

The experimental groups 1 & 2 underwent 12 weeks of Weight training i.e., 3 days/week and Control groups did not go for any specific training. Pre and Posttest was administrated prior and after training period on Resting Pulse Rate for the three groups respectively. The statistical tests Mean, Standard Deviation, 't' test, ANCOVA and Scheffe's Post Hoc test was carried out with the help of the software package of social science (SPSS 20.0 version).

Results and Analysis

Figure – 1: CHART SHOWING THE RESTING PULSE RATE MEAN VALUES OF MIDDLE DISTANCE, LONG DISTANCE & CONTROL GROUPS

Enclosed as Annexure 01

Table – 1: COMPUTATION OF 't' VALUE OF RESTING PULSE RATE

Enclosed as Annexure 02

Table-1 indicates that the Resting Pulse Rate pretest and posttest mean values of Middle-Distance Running Group (MDRG), Long Distance Running Group (LDRG) and Control Group (CG) were 69.20, 67.06 and 68.53, 66.47 and 68.93, 69.13 respectively. It was found that there is no significant difference in Control group as the obtained 't' value of Resting Pulse Rate were 0.82 which was less than the required 't' value 1.761 at significance level 0.05 with df (14). It was found that there was a significant difference between the pre and posttest means of MDRG and LDRG, as the obtained 't' values of Resting Pulse Rate were 6.35 and 7.75 respectively which are greater than the required 't' value 1.761 at 0.05 level of significance with df (14). Hence the effect of Weight training was visible in MDRG and LDRG.

Table – 2: ANALYSIS OF CO-VARIANCE OF RESTING PULSE RATE

Enclosed as Annexure 03

In distinction to over the table, despite MDRG, LDRG and CG had respective Pre-test mean values of 69.20, 68.53 and 68.93. Thus, the acquired F-ratio 0.55 was lesser than requisite F-ratio 3.22 for df (2,42) at 0.05 sig. level. Therefore, Pre-test mean values within the three groups was witnessed insignificant change.

Despite MDRG, LDRG and CG had respective Post-test mean values of 67.06, 66.47 and 69.13. Thus, the acquired F-ratio 9.17 was greater than requisite F-ratio 3.22 for df (2,42) at 0.05 sig. level. Therefore, Post-test mean values within the three groups was witnessed significant change.

MDRG, LDRG and CG had respective Adjusted Post-test mean values of 66.81, 66.76 and 69.09. Thus, the acquired F-ratio 23.19 was greater than requisite F-ratio 3.23 for df (2,41) at 0.05 sig. level. Therefore, Adjusted Post-test mean values within the three groups was witnessed significant change.

As it witnessed a significant change, to identify the significance between paired adjusted mean values of MDRG, LDRG and CG on Resting Pulse Rate, Scheffe's Post Hoc Test was exercised. The mean difference within the three groups and the data were illustrated in seconds.

Table-3: SCHEFFE'S PHT (POST HOC TEST) FOR RESTING PULSE RATE

Enclosed as Annexure 04

01. Middle Distance and Long-Distance Groups difference value of mean 0.05 was lesser than the CI value 0.98. Eventually, it was evidenced that the difference within the two groups adjusted post-test mean was insignificant.
02. Middle Distance and Control Groups difference value of mean 2.28 was higher than the CI value 0.98. Eventually, it was evidenced that the difference within the two groups adjusted post-test mean was significant.
03. Long Distance and Control Groups difference value of mean 2.33 was higher than the CI value 0.98. Eventually, it was evidenced that the difference within the two groups adjusted post-test mean was significant.

It was accomplished that with the impact of Weight Training, performance of Middle Distance and Long-Distance Groups were enhanced compared to Control Group. Within the experimental groups, Long-Distance Group performance was slight better than the Middle-Distance Group.

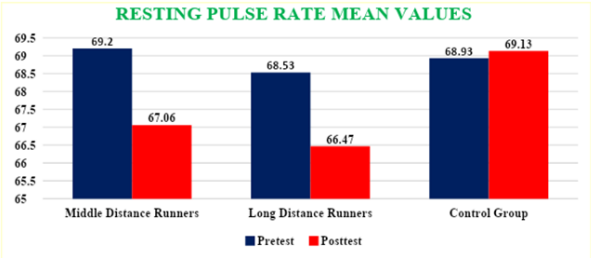
Conclusion

In this study, 12 weeks of Weight training exercises pointedly boosted the power, strengthened leg muscles, which allows them to grip the huge force throughout a long-distance run, reduce the strain on the joints and curtail the probabilities of injuries and extremely training had showed a significant impact on Resting Pulse Rate in Middle Distance Runners and Long-Distance Runners Groups who are between 18-21 years age. It was observed that, 12 weeks training helps in ideal reduction of the pulse rate in experimental groups during rest period of an athlete which is an essential ingredient helps middle and long-distance runners in enhancing their performance.

Annexure

Annexure 01

Figure – 1: CHART SHOWING THE RESTING PULSE RATE MEAN VALUES OF MIDDLE DISTANCE, LONG DISTANCE & CONTROL GROUPS



Annexure 02

Table – 1: COMPUTATION OF 't' VALUE OF RESTING PULSE RATE

S. No	Group	Mean		Standard Deviation		Obtained 't' Value	Sig. (2-tailed)	Req. 't' (0.05 level)
		Pre	Post	Pre	Post			
1.	MIDDLE DISTANCE	69.20	67.06	1.66	1.67	6.35*	0.000	1.761
2.	LONG DISTANCE	68.53	66.47	1.60	1.88	7.75*	0.000	
3.	CONTROL	68.93	69.13	1.98	1.81	0.82	0.424	

* Significant at 0.05 level Degrees of Freedom = 14 Req. = Required

Annexure 03

Table – 2: ANALYSIS OF CO-VARIANCE OF RESTING PULSE RATE

Test	Means			Sum of Squares (SS)	DF	Mean Square (MS)	Acq. F-Ratio	Req. F-Ratio (0.05 level)
	Middle Distance	Long Distance	Control					
Pre-test	69.20	68.53	68.93	B: 3.38	2	1.69	0.55	3.22
				W: 129.07	42	3.07		
Post-test	67.06	66.47	69.13	B: 58.71	2	29.36	9.17*	
				W: 134.40	42	3.20		
Adjusted post-test	66.81	66.76	69.09	B: 53.32	2	26.66	23.19*	3.23
				W: 47.13	41	1.15		

*Sig (0.05 level), B: Between the Group, W: Within the Group, DF= Degree of Freedom, Acq. = Acquired, Req. = Required

Annexure 04

Table-3: SCHEFFE'S PHT (POST HOC TEST) FOR RESTING PULSE RATE

Middle Distance	Long Distance	Control	Mean Diff.	Sig.	Confidence Interval (CI) At 0.05 Level
66.81	66.76		0.05	0.900	0.98
66.81		69.09	2.28*	0.000	
	66.76	69.09	2.33*	0.000	

CI: Confidence Interval, Mean Diff. = Mean Difference

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