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EFFECTS OF RESISTANCE TRAINING ON SPORTS PERFORMANCE COMPONENTS WITH RESPECT TO REACTION TIME AMONG PHYSICAL EDUCATION STUDENTS

Dr. Prashant B. Chavan [1]

[1] Director of Physical Education and Sports, Shahid Bhagatsingh Maha. Killari, India

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Corresponding Author

Dr. Prashant B. Chavan,
chavanprashant82@gmail.com

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ABSTRACT

The purpose of the research was to affect resistance training to improve sports performance -related Physical fitness components among different age groups physical education students with respect to Reaction Time Performance. The 40 newly admitted male physical education students consider as experimental group who was doing M. P. Ed. from School of educational science, S.R.T.M. University, Nanded were selected as subject for present study. Their age ranged between 21-30 years and divided in 3 age Group (21-23, 24-26 and 27-30). Training was given to only experimental groups. The mean age of the experiment was 25.42 & 24.5; Height was 171.25 & 171.27cm and weight were 65.10 & 66.27kg. The Resistance Training was planned as 12 weeks 5 days a week and 90min. Study was conducted at S.R.T.M University Nanded. : For data analysis responses were expressed as Analysis of Covariance was performed for pre and post-test and Scheffe's Post Hoc Test, that level of significant in the study should set up at 0.5 level. There was Significance effects of resistance training on performance-related physical fitness components with respect to Foot Reaction time in pre and post-test of physical education students. The training reveals that there was an improvement in Foot Reaction Time in 24-26 age groups. and Foot Reaction time in pre and post-test of 24-26 and 27-30 age group. The training reveals that there was improvement of Foot Reaction time in this age group physical education students.

1. INTRODUCTION

Resistance to muscular contraction is used in resistance training, also known as strength training or weight training, to increase the size, strength, and anaerobic endurance of skeletal muscles. The basis of resistance training is the idea that when the body's muscles are forced to overcome a resistant force, they will do so. Your muscles get stronger when you practice resistance training on a regular basis. Strength training to increase bone density, joint function, muscle, tendon, and ligament strength, aerobic exercise to increase heart and lung fitness, flexibility, and balancing exercises are all components of a well-rounded fitness program. especially because of its ability to enhance muscular strength, power, and speed, as well as motor function, balance, coordination, hypertrophy, and local muscular endurance motor performance, balance, and coordination. (Aaberg, 1999; Starkey1996). For resistance training to be successful at any

age or fitness level, an effective program design is necessary. Program design includes proper exercise instruction, goal setting, a method to evaluate training progress towards training objectives, the proper prescription of acute program variables, and the use of specific progression techniques that target different areas of muscular fitness.

Although the term skill related fitness is most often used synonymously which physical fitness by the coaches but there is basic difference between motor fitness and physical fitness. physical fitness is used to denote only the five basic fitness components (muscular strength, muscular endurance, cardiovascular endurance flexibility and body composition) whereas motor fitness is a more comprehensive term which includes all the ten fitness components including additional five sports performance components (power, speed, agility, balance and reaction time) important mainly for success in sports in other words motor fitness refers to the efficiency of basic movement in addition to the physical fitness. (DevinderK.Kansal, 1996).

Sports performance components are power, agility, speed, balance and reaction time. Physical fitness combined with motor performance has been described as motor fitness. With enhanced status of sports in society the provision of sports training has become very important although the need for competent training has long been recognized over 300 years ago the Greeks saw the need to provide effective and efficient training for the athletics taking part in the Olympic games earlier one has only to look towards "eastern bloc" countries to see the value placed on success in sports. Quite god amount of money has been expensed on facilities and sports persons. But without provision at effective sports training any sports person's potential will never be fulfilled. Comprehensive sports training programme is the key factor in producing the skill full high performances. (Ajmer Singh et. al., 2004)

Objectives of the Study: The Primary objective of this study was effects of resistance training to improvement of sports performance- related Physical fitness components with respect to reaction time among different age groups physical education students.

Research Hypotheses: There would be significant effects of Resistance training to the improvement of sports performance-related physical fitness components with respect to Reaction-time among different age groups physical educational students.

2. METHODOLOGY

- **Target population:** The forty newly admitted male physical education students consider as experimental group who was doing M. P. Ed. from School of educational science, S.R.T.M. University, Nanded were selected as subject for present study. Their age ranged between 21-30years and divided in 3 age Group (21-23, 24-56 and 27-30). Training was given to only experimental groups.
- **Demographic Information:** The data was collected through respondents in the form of different experimental tests. The demographic information about Gender, age, daily smoking, drug use, etc. was obtained before seeking responses.
- **Administration of the test:** Pre & post-test was applying on students to measure performance related physical fitness components. Reaction time measured by administrating the Nelson Hand and Foot Reaction - Time test.

3. TRAINING PROGRAMME

The exercise session should consist of the following

1) **A warm-up period of approximately 10 minutes** this should combine calisthenics' type stretching exercises and progressive aerobic activity that should increase the heart rate close to the prescribed heart rate for the session.
2) **A cool-down period of 5-10 minutes.** Training program would be planned as 12 weeks 5 days a week and 90min. Day the level of training intensity is increased from initial 40% to 70% during twelve weeks students were trained according to protocol of three sets, 8-12 repeat and 3-5 minutes break between each set training programs were created in the frame of these criteria.
3) **Selection of Exercises: -** Squat Jump, bent knee sit ups, Squat thrust, Straddle thrust, Bench press, Leg Press, pull ups and Depth jump etc.

4) **Collection of data:** Data was collected from the 40 physical education students as a experimental group of Swami Ramanand Teerth Marathwada University similarly Pre and Post Test was taken Resistances training was given to the experimental group.

5) **Data Analysis:** For data analysis responses were expressed as Analysis of Covariance was performed for pre and post-test and Scheffe's Post Hoc Test The method described here is given by scheffe which uses the criteria, that level of significant in the study should set up at 0.5 level.

4. RESULTS OF THE STUDY

One-way Analysis of variance to effects of resistance training on sports performance related Physical fitness components with respect to Hand Reaction Time among different age group physical education students.

Table 1

Source of variance	df	Sum of Square	Mean Square	F-ratio
Between the Group	5	0.015	0.0031	**6.23***
Within the Group	74	0.036	0.0004	

*Significant at .05 level of Confidence = (6.23, P < 0.05).

As table, reveals that effects of resistance training of pre and post-test of sports performance-related Physical fitness components with respect to Hand Reaction time through Nelson Reaction time test among different (21-23 24-26 and 27-30) age group physical education students was found as above observed in F-ratio was 6.23 which is required to be 2.35 at 5, 74 df. At .05 significant level of Confidence.

In locate to find out the significant effects of resistance training to improve performance related physical fitness components. Scheffe's post hoc test was used to difference of different age group with respect to Hand Reaction time among physical fitness components in table.

Scheffe's post hoc Statistical comparison means differences of pre and post-test of Hand Reaction Time among different age group physical education students.

Table 2

Mean Scores							
Pre 21-23	Pre 24-26	Pre 27-30	Post 21-23	Post 24-26	Post 27-30	M.D.	C.D.at 5% level
0.235			0.220			**0.015**	**0.020**
	0.246			0.214		**0.032**	**0.020***
		0.249			0.224	**0.025**	**0.028**

* Significant at .05 level of Confidence.

As per Table, shows that the Scheffe's post hoc Statistical comparison means difference of Hand Reaction time pre and post-test of three age groups among physical education students.

Table reveals, 1) There was no significant effects of resistance training on performance-related physical fitness components with respect to Hand Reaction Time on pre and post-test of 21-23 age group physical education students. 2) There were significant effects of resistance training on performance-related physical fitness components with respect to Hand Reaction Time on pre and post-test of 24-26 age groups physical education students. The training reveals that there was significant improvement of Hand Reaction Time in 24-26 age group physical education students 3) There were no significant effects of resistance training on performance-related physical fitness components with respect to Hand Reaction Time on pre and post-test of 27-30 age group physical education students.

One way Analysis of variance to effects of resistance training on sports performance related Physical fitness components with respect to Foot Reaction Time among different age group physical education students.

Table 3

Source of variance	df	Sum of Square	Mean Square	F-ratio
Between the Group	5	0.022	0.0044	**7**.54*
Within the Group	74	0.043	0.0005	

*Significant at .05 level of Confidence F = (7.54, P < 0.05).

As table, reveals that effects of resistance training of pre and post-test of sports performance related Physical fitness components with respect to Foot Reaction Time through Nelson Reaction time test among different (21-23, 24-26 and 27-30) age group physical education students as was found above observed in F-ratio was 7.54 which is required to be 2.35 at 5, 74 d. f. at .05 level of Confidence.

In locate to find out the significant effects of resistance training to improve performance related physical fitness components. Scheffe's post hoc test was used to difference of different age group with respect to Foot Reaction time among physical fitness components in table.

Scheffe's post hoc Statistical comparison means differences of pre and post-test of Foot Reaction Time different age group physical education students.

Table 4

Mean Scores							
Pre 21-23	Pre 24-26	Pre 27-30	Post 21-23	Post 24-26	Post 27-30	M. D.	C.D. at 5% level
0.287			0.262			0.025	0.037
	0.287			0.255		0.032	0.023*
		0.295			0.255	0.040	0.032*

* Significant at .05 level. Of Confidence,

As per Table, shows that the Scheffe's post hoc Statistical comparison means difference of Foot Reaction Time pre and post-test of three age groups physical education students.

Table reveals 1) There was no significant effects of resistance training on performance-related physical fitness components with respect to Foot Reaction Time on pre and post-test of 21-23 age group physical education students. 2) There were significant effects of resistance training on performance-related physical fitness components with respect to Foot Reaction time on pre and post-test of 24-26age groups physical education students. 3) There were significant effects of resistance training on performance-related physical fitness components with respect to Foot Reaction Time on pre and post-test of 27-30 age group physical education students. The training reveals that there was significant improvement of Foot Reaction Time in 24-26 and 27-30 age group physical education students.

5. CONCLUSION

There was Significance effects of resistance training on performance-related physical fitness components with respect to Foot Reaction time in pre and post-test of physical education students. The training reveals that there was improvement of Foot Reaction Time in 24-26 age group. and Foot Reaction time in pre and post-test of 24-26 and 27-30 age group. The training reveals that there was improvement of Foot Reaction time in this age group physical education students.

CONFLICT OF INTERESTS

None.

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