



ORIGINAL RESEARCH PAPER

Physical Education

EFFECTS OF OWN BODY RESISTANCE TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG SCHOOL CHILDREN

KEY WORDS: Resistance Training, Speed, Agility, Explosive Power

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ABSTRACT

The purpose of the study was to investigate the effect of own body resistance training on selected physical fitness variables among school children. The subjects of this study were 30 boys between the age group of 13-16 years from Government Higher Secondary School, Meenchantha and Ramakrishna Mission High School, Kannanchery. The subject were randomly assigned to an experimental group (n_e=15) and a control group (n_c=15). The experimental group participated in own body resistance training program 3 days in a week on Monday, Wednesday and Friday for a period of 8 weeks. The control group did not participate in any sort of resistance training programme during the same period. All the subject were tested on the physical fitness variables such as speed, agility and explosive power before and after eight week of own body resistance training program. Speed was measured by 50 mtr dash. Agility was recorded as the time required completing 10X4 mts shuttle run and leg explosive power was measured by standing broad jump. The data pertaining to physical fitness variables were analyzed by paired 't' test to determine the difference between initial and final mean for experimental and control groups after eight weeks of resistance training programme. The level of significant chosen was 0.05 levels. All the subjects of the experimental groups had undergone eight weeks of own body resistance training for one hour in three days per a week. From the statistical analysis it is evident that in the case of physical fitness variable such as speed, agility and leg explosive power significant changes were noticed after two months of own body resistance training. However, No change was seen in none of the variables in the case of control group. Previous studies made by Ingle, L., Slep, M., & Tolfrey, K. (2006) & Vadivel, G.R (2016) support the results of the present study.

Introduction

Physical fitness may be defined, in general terms, as a set of abilities individual possesses to perform specific types of physical activity. The development of physical fitness an important concern of many professional organizations, including American Alliance of Health Physical Education, Recreation, and Dance (AAPHPERD), which has categorised fitness components into two different categories. In general these two categories may refer to as health related fitness and sports related fitness. Both types of fitness are influenced by exercises and nutrition.

In the present day, many people suffer premature aging, lifestyle diseases like diabetes, heart diseases, hypertension, etc. The main reasons behind this is imbalanced diet, stressful working atmosphere and most importantly lack of exercise. One cannot defy aging but one can surely postpone or rather slow down the aging process by resorting to proper exercises which the body is capable of accepting.

Resistance Training

Resistance training implies the use of some form of external resistance, be it a barbell or dumbbells (free weight), resistance training machines, bodyweight, elastic tubing, or other forms of resistance applied training like plyometrics, uphill running etc. (Fleck and kreamer,2004).

Resistance training is an exercise that causes the muscle to contract against an external resistance other than the weight of the body to develop specific areas of the body. The resistance training could be used in a wide range of training modalities in various forms like our own body weight, weight machine & weight training etc.

Resistance training can improve motor performance (eg., the ability to sprint throw an object etc.) which can lead to better performance in various sports and games.

Statement of the problem

The purpose of the study was to investigate the effect of own body resistance training on selected physical fitness variables among school children.

Significance of the study

1. The study helps to give an awareness about own body resistance training to the school children.

2. The study may help to improve the physical fitness variables; such as speed, agility and explosive power.
3. The result of this study was added to the area of general physical fitness and beneficial for sports persons and researcher for getting feedback.
4. The purpose of the study was to find out the best method used to develop physical fitness variables in a short period of time.

Methodology Participants

The subjects of this study were 30 boys between the age group of 13-16 years from Government Higher Secondary School, Meenchantha and Ramakrishna Mission High School, Kannanchery. The subject were randomly assigned to an experimental group (n_e=15) and a control group (n_c=15). The experimental group participated in own body resistance training program 3 days in a week on Monday, Wednesday and Friday for a period of 8 weeks. The control group did not participated in any sort of resistance training programme during the same period.

Variables and tests

All the subject were tested on the physical fitness variables such as speed, agility and explosive power before and after eight week of own body resistance training programme. Speed was measured by 50 mts dash. Agility was recorded as the time required completing 10X4 mts shuttle run and leg explosive power was measured by standing broad jump.

Statistical analysis

The data pertaining to physical fitness variables were analyzed by paired 't' test to determine the difference between initial and final mean for experimental and control groups after eight weeks of own body resistance training. The level of significant chosen was 0.05 levels.

Analysis of data and results of the study

Table 1. Mean comparison of pre test values of physical fitness variables

Group	n	Mean	SD	Mean difference	SE of Mean difference	Unpaired t-value	P value
Speed	Control	15	8.59	0.48	0.025	0.2	0.123
	Experimental	15	8.62	0.61			0.903

Agility	Control	15	16.82	1.00	0.074	0.49	0.15	0.882
	Experimental	15	16.75	1.64				
Leg explosive power	Control	15	1.44	0.20	0.001	0.06	0.023	0.982
	Experimental	15	1.44	0.11				

From the above table P values obtained for the three variables Speed, Agility and Leg explosive power are more than 0.05. It is concluded that the pre test values of control and experimental groups are not statistically significant. That is the values are homogeneous in the two groups Control and Experimental. The mean values of the variables among the two groups are shown in the figure below.

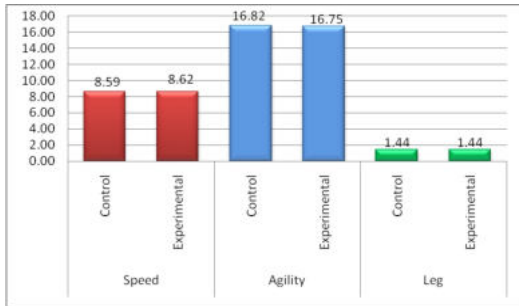


Figure 1 Pre test mean comparison of physical fitness variables

Table 2. Mean comparison of pre test and post test values of speed

Speed	N	Mean	SD	Mean difference	SE of Mean difference	Paired t-value	P value
Pre test	30	8.61	0.54	0.32	0.083	3.845	0.001*
Post test	30	8.29	0.69				

** Significant at 1% level of significance

Since the P value obtained is less than 0.01, it is concluded that the speed value is significantly improved in the post test.

Scatter diagram showing the correlation of pre test and post test values of speed

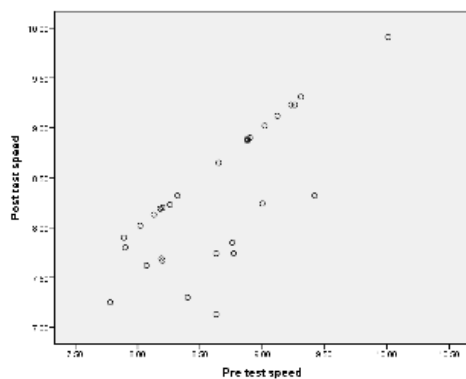


Figure 2 Comparison of pre test and post test values of speed

Table 3. Mean comparison of pre test and post test values of agility

Agility	N	Mean	Std. Deviation	Mean difference	SE of Mean difference	Paired t-value	P value
Pre test	30	8.61	0.54	0.32	0.083	3.845	0.001*
Post test	30	8.29	0.69				

** Significant at 1% level of significance

Since the P value obtained is less than 0.01, it is concluded that the agility value is significantly improved in the post test.

Scatter diagram showing the correlation of pre test and post test values of agility

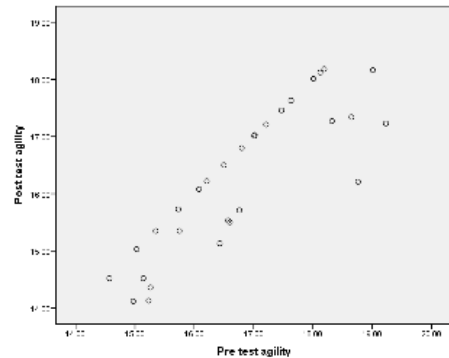


Figure 3 Comparison of pre test and post test values of agility

Table 4. Mean comparison of pre test and post test values of Leg explosive power

Leg explosive power	N	Mean	Std. Deviation	Mean difference	SE of Mean difference	Paired t-value	P value
Pre test	30	1.44	0.15	0.09	0.02	4.211	0.001*
Post test	30	1.53	0.18				

** Significant at 1% level of significance

Since the P value obtained is less than 0.01, it is concluded that the Leg explosive power is significantly improved in the post test.

Scatter diagram showing the correlation of pre test and post test values of leg

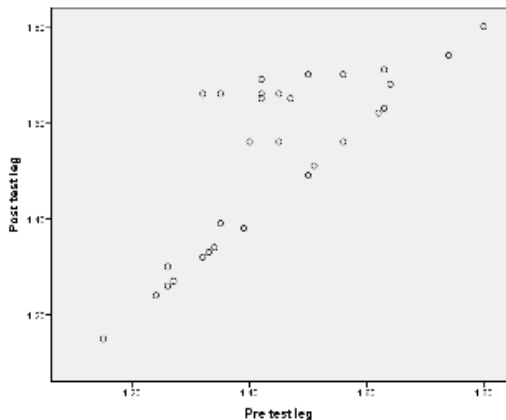


Figure 4 Comparison of pre test and post test values of Leg explosive power

Discussion on Findings

All the subjects of the experimental groups had undergone eight weeks of own body resistance training for one hour in three days per a week. From the statistical analysis it is evident that in the case of physical fitness variable such as speed, agility and leg explosive power significant changes were noticed after two months of own body resistance training. However, No change was seen in none of the variables in the case of control group. Previous studies made by Ingle, L., Sleep, M., &Tolfrey, K. (2006) & Vadivel,G.R (2016) support the results of the present study.

Conclusion

The results of the study permit the following conclusions;

- Significant difference in speed as a result of 8 week own body resistance training programme.
- Significant difference in agility as a result of 8 week own body resistance training programme.
- Significant difference in leg explosive power as a result of 8 week own body resistance training programme.

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