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Influence of Own Body Exercise on Selected Physical Fitness Variable among Hockey Players

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Abstract

This study was designed to determine effect of own body exercise on physical fitness variables among male hockey players. To achieve the purpose of the study twenty school male hockey players were selected from various schools in and around Chennai, Tamilnadu. Their age ranged between 15 and 17 years. The selected subjects were divided into two groups. Group I underwent own body exercise training and Group II acted as control. The experimental group was given own body exercise training for three days a week, for a period of 12 weeks. Before and after the training all the subjects were measured on cardiovascular endurance, Sprinting ability and agility. Cardiovascular endurance was measured by cooper test, sprinting performance was measured by 50 meters sprinting test and agility was measured by shuttle run. The data collected from the subjects were statistically analyzed with 'ANCOVA' to find out significant improvement at 0.05 level of confidence. The results reveal that the 12 weeks own body exercise training programme significantly improved the cardiovascular endurance, sprinting ability and agility of male hockey players.

Keywords: Cardiovascular endurance, Sprint, Agility.

Introduction

Sports training is the total process of preparation of a sportsman, through different means and forms for better performance. The Sports performance is the result and expression of the total personality of the sportsman. The educational aspect of sports training is unfortunately overlooked by coaches and physical education teacher in India (Hardayal Singh 1984). Sports performance is the result and expression of the total personality of the sportsmen. Physical fitness, techniques and tactics along are not enough. In addition to that, the sportsman must possess certain cognitive, volitional and perceptual activities, certain personality traits, habits and above all positive beliefs, values, attitude, and interest of training and competition. Therefore sports training also aim at better education of the sportsman. The educational aspect of sports training is unfortunately after overlooked by the coaches and physical education teachers in India. Performance improvement is stressed more at the cost of education of sportsman. The pedagogical aspect of sports training comes into sharp systematic training in almost all the sports has to start in childhood. Therefore, it becomes all the more important to educate the child and youth along with improving their performance through sports training (Clayne and Garth, 1970)

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In resistance training the sports man uses additional weights as resistance to strengthen the muscles. However, the strength training programme can be administered with our own body weight too. Own body weight exercises are strength training exercises that do not require any weights; the practitioner's own weight provides the resistance for the movement. Movements such as the push-up, the pull-up, and the sit-up are some of the most common bodyweight exercises (Yamauchi J, Nakayama S, Ishii N., (2009).

Methodology

To achieve the purpose of the study twenty school male hockey players were selected from various schools in and around Chennai, Tamilnadu. Their age ranged between 15 and 17 years. The selected subjects were divided into two groups. Group I underwent own body exercise training and Group II acted as control. The experimental group was given own body exercise training for three days a week, for a period of 12 weeks. Before and after the training all the subjects were measured on cardiovascular endurance, sprinting ability and agility. Cardiovascular endurance was measured by cooper test. Sprinting performance was measured by 50 meters sprinting test and agility was measured by shuttle run. The data collected from the subjects were statistically analyzed with 'ANCOVA' to find out significant improvement at 0.05 level of confidence. The results reveal that the 12 weeks own body exercise training programme significantly improved the cardiovascular endurance, sprinting ability and agility

performance of male hockey players.

Results

Table I. Computation of mean and analysis of covariance of cardiovascular endurance of experimental and control groups

Test	Control group	Experimental group	Sum of squares	df	Mean square	F ratio
Pre test mean SD (±)	1910 261.19	2105 202	190125	1	190125	3.48
			981250	18	54513.88	
Post test mean SD (±)	1829 194.04	2230 166.99	804005	1	804005	24.53*
			589890	18	32771.66	
Adjusted mean	1889.87	2169.13	326642.26	1	326642.26	26.76*
			207440.30	17	12202.37	

* Significant at 0.05 level
(Table value for df 1 and 18 was 4.41, Table value for df 1 and 17 was 4.45)

The above table indicates that the adjusted mean value of cardiovascular endurance of control and experimental groups were 1889.87 and 2169.13 respectively. The obtained F-ratio of 26.76 for adjusted mean was greater than the table value 4.45 for the degree of freedom 1 and 17 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference between experimental and control group on cardiovascular endurance. The above table also indicates that both pre and post test of control and experimental groups have significant difference.

Figure I. The graph showing the pre, post and adjusted mean values of cardiovascular endurance of both control and experimental groups

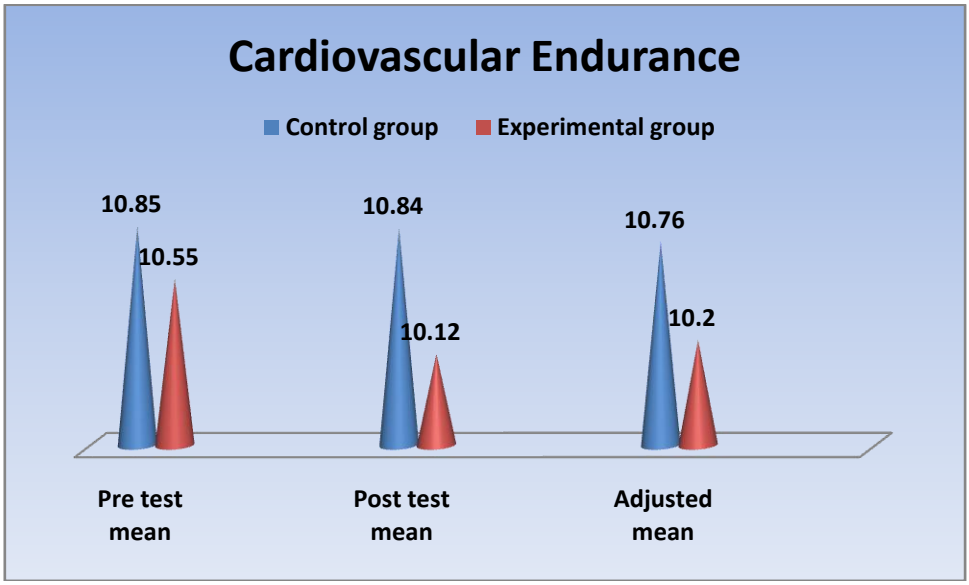


Table II. Computation of mean and analysis of covariance of speed of experimental and control groups

Test	Control group	Experimental group	Sum of squares	df	Mean square	F ratio
Pre test mean SD (±)	7.58 0.19	7.40 0.16	0.16	1	0.17	4.10
			0.59	18	0.03	
Post test mean SD (±)	7.58 0.14	7.29 0.23	0.41	1	0.41	10.48*
			0.71	18	0.04	
Adjusted mean	7.49	7.37	0.06	1	0.07	4.59*
			0.23	17	0.02	

* Significant at 0.05 level
(Table value for df 1 and 18 was 4.41, Table value for df 1 and 17 was 4.45)

The above table indicates the adjusted mean value of speed of control and experimental groups were 7.49 and 7.37 respectively. The obtained F-ratio of 4.59 for adjusted mean was greater than the table value 4.45 for the degree of freedom 1 and 17 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference between experimental and control group on speed. The above table also indicates that both pre and post test of control and experimental groups have significant difference.

Figure II. The graph showing the pre, post and adjusted mean values of speed of both control and experimental groups

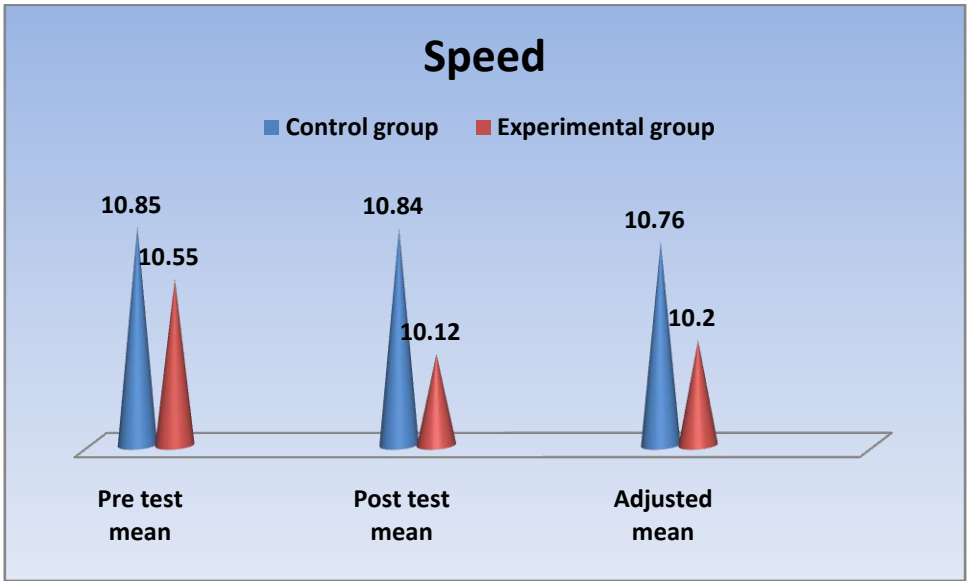


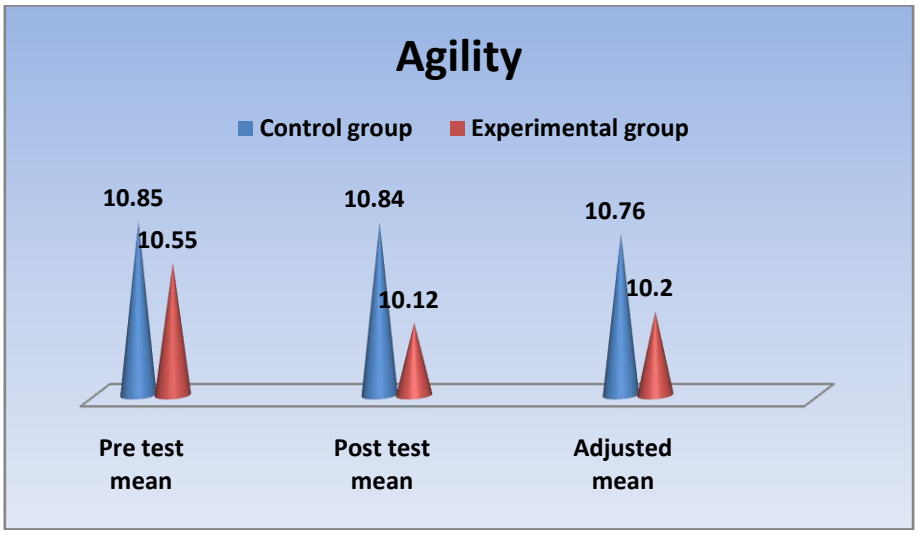
Table III. Computation of mean and analysis of covariance of agility of experimental and control groups

Test	Control group	Experimental group	Sum of squares	df	Mean square	F ratio
Pre test mean SD (±)	10.85 0.455	10.55 0.46	0.45	1	0.45	2.14
			3.77	18	0.20	
Post test mean SD (±)	10.84 0.60	10.12 0.152	2.53	1	2.53	13.21*
			3.45	18	0.19	
Adjusted mean	10.76	10.20	1.36	1	1.36	9.69*
			2.39	17	0.14	

*Significant at 0.05 level
(Table value for df 1 and 18 was 4.41, Table value for df 1 and 17 was 4.45)

The above table indicates the adjusted mean value of agility of control and experimental groups were 10.76 and 10.20 respectively. The obtained F-ratio of 9.69 for adjusted mean was greater than the table value 4.45 for the degree of freedom 1 and 17 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference between experimental and control group on agility. The above table also indicates that both pre and post test of control and experimental groups have significant difference.

Figure III. The graph showing the pre, post and adjusted mean values of agility of both control and experimental groups



Discussion

Many simple bodyweight movements can be accomplished on this equipment and according to Peurala et al (2005) this can be an effective option for rehabilitation, even or those with significant impairments. Bodyweight exercises are safe for any person regardless of experience, age, or fitness level.

Shiraev and Barclay (2012) mention by adding extra repetitions, performing the exercises faster or slow, and right form are a few ways to make even the simplest exercise more challenging.

Conclusions

The experimental group school hockey players improved significantly in all the selected variables namely cardiovascular endurance, speed and agility. The control group did not improve significantly in all the selected parameters.

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