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Effects of 6-week strength training on badminton player of under the age group of 12 years

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Abstract

This pilot study investigated the effects of 6-week Strength training on badminton players under the age group of 12 years. Twenty badminton players (Boys Only) from sports authority of India, Bangalore whose ages ranged from 11 to 12 years were included in the study. The subjects were randomly divided in to two groups of 10 subjects in each. Training group I (Strength training) and a controlled group. The training groups performed 4 days a week for 6 consecutive weeks. Strength training, was assessed using a 30meter sprint test, vertical jump test and skill performance were assessed using anaerobic field test and short service test, and game performance were assessed through the coach rated basis. All the subjects performed the tests before and after the training program. Data were analysed using a depended mean value and in-depended mean value. A confidence level of .05 was considered significant. The results presented that the Strength training and game performance of the subjects was significantly improved in the training group. Significant not found in controlled group. There were also statistically significant differences identified between the 2 groups after training program. The training group had higher Strength compared to controlled group. This study provides support to the fact that 6-week Strength training can be used as an effective training program to improve Strength in badminton players.

Keywords: Strength training, male badminton players

Introduction

Badminton sport is characterized variety of actions of short duration and high intensity coupled with a short resting time. The number of different shots used during a game can vary a lot by allowing numerous tactical choices. This sport has requiring a specific preparation in terms of patience, control and motor actions. Coordinative factors such as reaction time, foot stepping and balances are essential motor characteristics in this sport. During game, rally start with a service and a control service often dictated who will be won the rally. The three most popular strokes are the smash, the clear and the drop, however,

Badminton is a popular sport in India. It is the second most played sports in India after Cricket. The world's second fastest racket sport. The degree of changing is increasing. Badminton's debut as on Olympic Game has manifestly boosted interest internationally. Badminton is a relatively new Olympic Game sport. After being a demonstration sport in Munich in 1972, badminton becomes an Olympic sport in Barcelona in 1992 with the singles and doubles disciplines introduced for the first time in the Olympic Games.

Badminton is a game in which you struggle hard to get stamina better than a football player hands stronger than a volleyball smasher, core strength more than a basketball player, wrist stronger than a squash player & agility higher than a table tennis player. It is one of the fastest game no one can easily get into the game to higher position. Continuous back and forth bends improve spine strength, side changes of legs is too beneficial for toes, heels and thighs. Warm and cool strength, side changes of legs is too beneficial for toes and thighs. Warm and cool down of game makes your body breath from each part, sweating and breathing improves blood circulation.

Criterion Measures

By glancing the literature and in consulting with professional experts the following measures were applied to collect data on the selected criterion and predictor variables.

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Table 1: Shows the Test and Test Criterion

S. No	Variables	Test	Criterion
1	Strength	30 MTR Sprint Test	Acceleration, Speed and Reaction Lower limb power, Thigh muscles, calf muscles power, explosive Strength and solder reach
		Vertical Jump Test	
2.	Skill	French Short service	Directing a shuttle towards a particular area of opposite court, to determine the effects of changing the distance through, which serve must pass on scores made. Wrist power and for arm power.
		4 point anaerobic field test	To find the For hand smash, back hand smash, receive the net drop, Net smash, striking ability
3	Game performance	The performance of badminton game was measured by coaches rated scale.	Badminton techniques ability(short service ability, long service ability, fore hand clear ability, back hand clear ability, hand movement and wrist movement ability), or Badminton game performance of the players was measured out of ten points by a panel of three qualified coaches during actual competition and the average of three scores was considered as game performance of the badminton players

Analysis of Data

The statistical analysis on significance of the mean gains or losses made in the scores in the performance variables, skill performance variables and game performance of badminton players of strength training (STG) are presented, Control group (CG) are presented.

Results of Individualized Treatment Effects

The result of individualized effects of Strength training group (STG), Game performance and Control group (CG) on performance variables of Strength, upper body strength, lower body strength, cardio respiratory endurance, leg explosive power and skill performance variables of and overall playing

ability are presented below;

Hypothesis-1 (STG) It was hypothesized that Strength training group would significantly improve the performance variables of strength, upper body strength, leg explosive power and skill performance of short service ability, long service ability, fore hand clear ability, back hand clear ability, hand movement and wrist movement ability, From baseline to post test of sports authority of India, Bangalore badminton players in order to test above hypothesis the collected data were analysed by using dependent 't' test between the pre and post-test mean on performance variables and skill performance of male badminton players. the analysed data are presented in the below table.

Table 2: Shows the significance of mean gains / losses between pre and post-test of strength training group (stg) on selected performance variables, skill performance and game performance of badminton players under the age group of 12 years.

Variables	Pre-test Mean± SD	Post-test Mean± SD	M.D	Std. Error mean	't'-value	df	sig
A Performance variables							
30M sprint speed in seconds	7.38±0.59	5.18±0.81	2.19	.20	10.57	9	.000
Vertical Jump explosive strength in Centimetre	23.9±6.6	42.8±4.96	18.9	1.656	11.411	9	.000
Skill Performance Variables							
Anaerobic Field Test(in seconds)	12.47±.630	9.98±.378	2.49	0.167	14.88	9	.000
Short service test (in points)	5.20±1.22	13.00±.99	7.80	0.34	22.70	9	.000
Game Performance Test							
Game performance	3.23±.72	5.40±.604	2.167	.20638	10.498	9	.000

*Significant at 0.05 level, Table value-2.262

Table-2 shows the mean value from pre to post-test in the performance and skill performance variables were: 2.197sec and 18.9 Centimetre's (Strength), 2.491sec and 7.80points (Skill performance), 2.167(Game performance) Overall playing ability test. Badminton game performance of the players was measured out of ten points by a panel of three qualified coaches during actual competition and the average of three scores was considered as game performance of the badminton players.

Table also shows the obtained 't' values of pre to post-test mean differences on performance, skill performance and game performance variables were: 10.575 sec 11.411

Centimetres(strength), 14.887, 22.70 (Skill performance), 10.498 (Game performance) Overall playing ability test.

The obtained 't' values were tested at 0.05 level of significance. Since the calculated 't' values were greater than the table 't' value at 0.05 level for degrees of freedom 9. (Null hypothesis) was rejected at 0.05 levels of significance and formulated research hypothesis was accepted. Thus it was concluded that six weeks of strength training program showed significant improvement in strength, skills and overall playing ability, as the study the above remark can be given at 95% confidence.

Table 3: Shows The Significance of Mean Gains / Losses Between Pre and Post-Test of Agility Controlled Group (Cg) On Selected Performance Variables, Skill Performance and Game Performance of Badminton Players Under the Age Group of 12 Years.

Variables	Pre-test Mean± sd	Post-test Mean± sd	M.D	Std. Error Mean	't'-Value	df	Sig
Performance Variables							
30M sprint speed in seconds	6.66±0.74	6.17±0.68	.487	.22	1.21	9	.111
Vertical Jump explosive strength in Centimetre	26.9±3.87	26.7±2.496	0.2	1.10	.181	9	.841
Skill Performance Variables							
Anaerobic Field Test (in seconds)	11.178±0.75	11.00±0.80	1.77	.31	0.29	9	.219
Short service test (in points)	4.6±1.34	4.6±0.96	0.00	.47	0.5	9	1.00
Game Performance Test							
Game performance	1.7±0.67	1.6±0.51	0.10	.23	.429	9	.678

*Significant at 0.05 level, Table value-2.262

Table-3 shows the mean value from pre to post-test in the performance and skill performance variables were: 0.487sec and 0.20Centimetre's (Strength), 0.304sec and 0.331sec(Agility), 1.77sec and 0.0 points (Skill performance), 0.10 (Game performance) Overall playing ability test. Badminton game performance of the players was measured out of ten points by a panel of three qualified coaches during actual competition and the average of three scores was considered as game performance of the badminton players.

Table also shows the obtained 't' values of pre to post-test mean differences on performance, skill performance and game performance variables were: 1.212sec 0.181Centimetres(strength),0., 0.291 sec, 0.50 in points (Skill performance), 0.429 coach rated points (Game performance) Overall playing ability test.

The obtained 't' values were tested at 0.05 level of significance. Since the calculated 't' values were lesser than the table 't' value at 0.05 level for degrees of freedom 9. Null hypothesis was rejected at 0.05 levels of significance and formulated research hypothesis was accepted. Thus it was concluded that six weeks of controlled group program showed no significant improvement in strength, agility, skills and overall playing ability (Game performance), as the study the above remark can be given at 95% confidence.

Results

After 6 weeks of training the training group showed significance improvements in all the variables while those in the controlled group remained unchanged (table-1).

When comparing post-test result between the training group and the controlled group, it was found that strength and game performance in the training group were significantly greater than those in the controlled group.

Discussion

The purpose of this study was to demonstrate the efforts of short term strength training, Agility training, and combined training on badminton player of age group of under-12years of badminton players who is playing for state ranking tournaments. The result in this study showed that 6 weeks of strength training agility training could significantly improve the game performance in the badminton players. These findings support several previous studies which have suggested that strength training, agility training and combined training can enhance badminton playing ability.

Suggestions

1. The proposed Strength training program should be a part of the physical preparation for badminton players because of its significant effectiveness in improving the skill of the Badminton players.
2. The present study was a pilot study so significant differences in leg muscle power were found and quick movement of Forward, lateral and backward movement were found. A research should include more volunteers which may result in a better sample and possibly a significant difference in game performance between the training groups and controlled group.

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