

EFFICACY OF SAQ TRAINING ON EXPLOSIVE POWER AND AGILITY AMONG JUNIOR BADMINTON PLAYERS

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Abstract

Background and Aim: Badminton is a team sport that contains varied activities and various technical skills that a player must perform during the game. Badminton player required to perform combinations of speed, agility and jumping abilities to achieve the best performance. SAQ training is known as one of the most effective training methods to improve performance in team sports.

Materials and Methods: To achieve the purpose of the study, twenty (N=20) junior badminton players were randomly selected and their age ranged between 11 and 15 years. The subjects chosen for the study were divided into two equal groups and designated as one experimental groups and one control group each consisted of ten junior badminton players. The experimental group underwent SAQ training and control group were not having any special training programme. The SAQ training was applied for only 12 weeks training for 3 days per week one session 45- 90 minutes programme. The data were collected from explosive power was tested by using Vertical Jump and agility was tested by using T-Test prior and after the application of experimental training.

Results: The results revealed that SAQ training produce significant improvement on explosive power and agility among junior badminton players. The differences were found to be significant at 0.05 level. Thus, it was proved that SAQ training is the best training intervention for junior badminton players to enhance overall playing ability.

Conclusion: Based on the result of the study it is concluded that the 12 weeks SAQ training have been significantly improved explosive power and agility among junior badminton players. From the finding it is suggested that Speed, Agility and Quickness (SAQ) methods of training is suitable mode to bring out desirable change over explosive power and agility among junior badminton players.

Key Words: SAQ Training, Explosive Power and Agility

Introduction

Speed, Agility and Quickness (SAQ) training allows players to enhance their ability to accelerate, decelerate, and dynamically stabilize their entire body during higher-velocity acceleration and deceleration movements in all planes of motion (Brown, Ferrigno and Santana, 2000). The term speed is simply refers to the speed or velocity of distance covered divided by time. Agility refers to short bursts of movement that involve a change of movement direction, cadence, or speed. Quickness refers to the ability to react to a stimulus and appropriately change the motion of the body. "Speed, agility and quickness are a system of training aimed at the development of motor abilities and the

control of body movement through the development of the neuromuscular system” (Lennemann et al., 2013; Yap and Brown, 2000).

"The Game of Badminton is wonderful sport that requires eye-hand coordination, striking and quick movements and change of direction in pursuit of the shuttle cock. Badminton is a power game requiring quick and powerful movements to all directions to return the shuttle cock to the opponents' side of the court". Badminton is a highly explosive sport, involving unique movement technique over a relatively small court area (Hughes,1995).Speed, agility and quickness training has become a popular way to train players.Speed, agility and quickness training may be used to increase speed or strength, or the ability to exert maximal force during high-speed movements. Speed, agility and quickness training can cover the complete spectrum of training intensity, from low to high intensity. Every individual will come into a training program at a different level; thus training intensities must coincide with the individual's abilities.

Badminton is a net game with a net diving players' territory. While players constantly use directional shots to outscore opponents, they must also return the opponent's shots by running rapidly and repeatedly on court with change of direction to intercept the shuttlecock. Given the short shuttlecock flight time in a rally (Manrique& Gonzalez-Badillo, 2003; Chen, Pan & Chen, 2009), the player typically has less than one second to react and run to complete the interception. Therefore, badminton demands on-court agility that includes both physical and perceptual quickness, and having the ability to anticipate the shot will greatly ease the challenge to improve the on-court agility (Abernethy et al., 2012).A racquet sport player would need to develop higher levels of the basic physical qualities to be able to compete effectively against stronger opponents (Groppel and Roetert, 1992).

Agility can be understood as the skills and abilities needed to achieve explosive changes in movement direction, velocities or techniques in response to one or more stimuli (Sheppard, and Young, 2006).Quick, controlled changes in direction are needed for successful performance in individual activities as well as in team sports (Lacy, &Hastad, 2014). Power is the ability to exert a maximum amount of force in a minimum amount of time. It is often described in terms of explosive types of movements, such as the vertical jump. Power requires both strength and speed and therefore typically is greater in those

with greater muscle mass. Muscular power or explosive strength is one such element, and the ability to generate great amounts of power is recognized as a primary factor in athletic success (Beckenholdt and Mayhew, 1983). According to Omosegard (1996), an explosive player will typically be able to jump high, change direction quickly and will generally appear to be swift and mobile on the badminton court.

Badminton player must possess the necessary joint range of motion; inter muscular coordination and strength qualities throughout their lower limb kinetic chain in order to properly execute change of direction movements. In most sports, a player must be able to accelerate, decelerate and change directions rapidly with good body control in order to perform well and reduce their risk of injury. Therefore, the purpose of this study was to examine the effectiveness of using SAQ training on explosive power and agility among junior badminton players.

Materials and Methods

To achieve the purpose of the study, twenty (N=20) junior level badminton players were randomly selected from Chennai city and their age ranged between 11 and 15 years. The selected participants were divided into two groups which were experimental and control group. The experimental group underwent SAQ training for 12 weeks with three days per week. In which, the control group did not participate in SAQ training program. The data were collected from prior and immediately after training program on explosive power and agility. The dependent variable of explosive power was tested by using Vertical Jump and agility was tested by using T-Test. The data was analysed by applying Analysis of Covariance (ANCOVA) Technique to find out the effect of SAQ Training on explosive power and agility of junior level badminton players. The level of significance was set at 0.05. **Exercise Program:** The SAQ training program was performed 3 days/ week for 12 weeks. The SAQ training session lasted for 45 to 60 minutes, which included 10 minutes warm-up. Based on the principles of sports training, the intensity of training was gradually increased every three weeks. During the first three weeks, subjects performed 3-sets, 6-repetition, Work rest ratio: 1:3, with the intensity of 60 to 65%; in weeks 4 and 6: 3-sets, 8-repetition, Work rest ratio: 1:3, with the intensity of 65 to 70%; in weeks 7 and 9: 2-sets, 10-repetition, rest Work rest ratio: 1:4, with the

intensity of 70 to 75%, and ending with weeks 10 and 12 performing between 2-sets, 12-repetition, Work rest ratio: 1:4, with the intensity of 75 to 80%. The program began after the adaptation period and the initial and final ten minutes were always used to warm-up and cool-down respectively.

Table I: Speed, Agility and Quickness Training program (SAQ)

S. No	SAQ TRAINING EXERCISES	Week 1 to 3	Week 4 to 6	Week 7 to 9	Week 10 to 12
	SPEED	Vol:3set, 6rep, rest 1:3 No. of Exercise three from each motor fitness Variables	Vol:3 set, 8rep, rest 1:3 No. of Exercise three from each motor fitness Variables	Vol: 2 set, 10rep, rest 1:4 No. of Exercise three from each motor fitness Variables	Vol:2set, 12rep, rest 1:4 No. of Exercise three from each motor fitness Variables
1.	Gears				
2.	Bounding				
3.	A – Skips				
4.	Skip for Height				
5.	Harness pull				
	AGILITY				
6.	20-Yards Shuttle				
7.	Zigzag				
8.	Five-Cone Snake Drill				
9.	Cartwheel				
10.	Crossover Shuffle				
	QUICKNESS				
11.	Back Pedal				
12.	Wheel Barrow Drill				
13.	In Place Tuck Jump				
14.	One leg Hop				
15.	Barrier Jumps				

Results

The results presented in Table II proved that the experimental and control groups were well matched on the pre-training tests with no significant differences found on explosive power (62.90) and agility (63.90) variable between the two groups. The experimental group significantly improved their performance from pre- to post-training on explosive power (68.50) and agility (64.30). Further, it proved that the performance in the control group remained similar in both explosive power and agility. It was proved

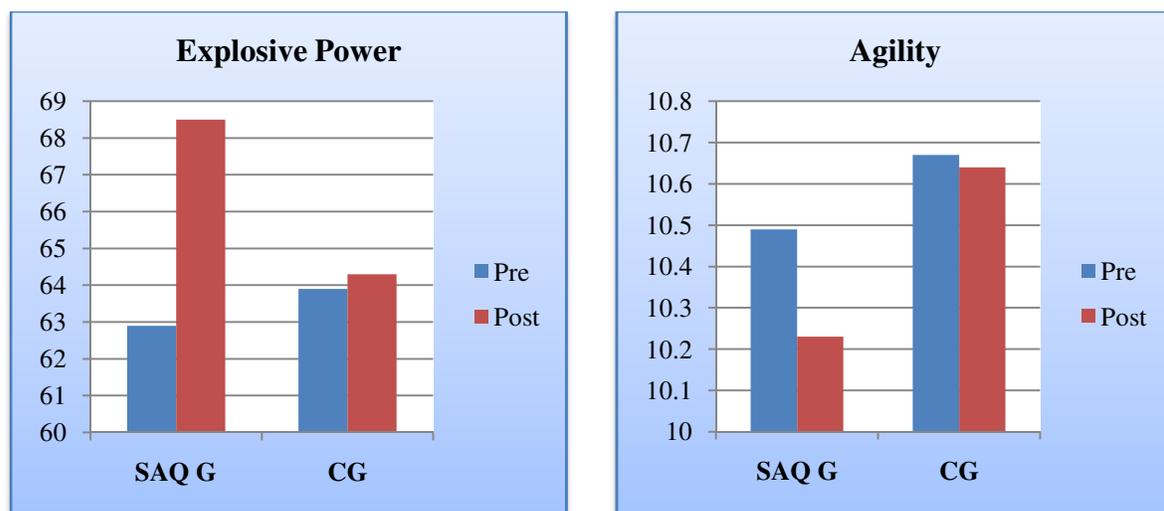
that 12 weeks of Speed, Agility and Quickness (SAQ) training had positive effects on explosive power and agility in junior badminton players.

Table II: Efficacy of Speed, Agility and Quickness Training on Explosive Power and Agility among Junior Badminton Players

		(Scores in centimeters)						
		SAQ G	CG	S V	SS	df	MS	Obtained F
Explosive Power	Pre Test	62.90	63.90	B	5.00	1	5.000	1.03
				W	87.80	18	4.88	
	Post Test	68.50	64.30	B	88.20	1	88.20	20.20*
				W	78.60	18	4.37	
	Adjusted	68.93	63.87	B	121.28	1	121.28	156.67*
				W	13.16	17	0.77	
Mean Gain		-5.60	-0.40					
		(Scores in seconds)						
Agility	Pre Test	10.49	10.67	B	0.16	1	0.162	1.48
				W	1.97	18	0.11	
	Post Test	10.23	10.64	B	0.84	1	0.84	8.48*
				W	1.79	18	0.10	
	Adjusted	10.31	10.56	B	0.28	1	0.28	41.51*
				W	0.11	17	0.01	
Mean Gain		0.26	0.03					

*Significant at 0.05 level of confidence

Figures: Pre and Post Test Mean scores on Explosive Power and Agility among Junior Badminton Players



Discussion

In the present study the Speed, Agility and Quickness (SAQ) training has improved the explosive power and agility over respectively by finding significant differences in comparison from baseline to post test. The results of this study indicated that selected Speed, Agility and Quickness (SAQ) is more efficient to bring out desirable changes over on explosive power and agility of junior badminton players, the finding of the present study had similarity with the finding of the investigator referred in this study Milanovic, et al., (2013) SAQ training plays a major role in enhancing agility, with and without the ball and can be considered for physical conditioning programmes. Further, Sudha, et al., (2012) proved that there is a substantial training enhancement was noticed in the speed, power and agility of handball players who performed SAQ training than the control group. The result also put forward that this training can be considered as an asset in the physical conditioning programs. Bloomfield, et al., (2007) determined that the SAQ training is an efficient method to improve dynamic balance and leg power and another study conducted by Jovanovic, et al., (2011) they found that eight weeks SAQ training was significantly improved in power performance due to the influence of SAQ training among soccer players. The results of this study agree with the study of Chandrakumar and Ramesh, (2015) who suggested that the SAQ training is very much effective for improving the speed and strength or capability for exerting optimum force during quick multi-directional movements. The results of the present study indicate that the Speed, Agility and Quickness (SAQ) methods of training is more appropriate training protocol to improve explosive power and agility of junior badminton players.

Conclusion

Based on the result of the study it is concluded that the 12 weeks SAQ training have been significantly improved explosive power and agility among junior badminton players. From the finding it is suggested that Speed, Agility and Quickness (SAQ) methods of training is suitable mode to bring out desirable change over explosive power and agility among junior badminton players.

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