



EFFECT OF SPEED AGILITY AND QUICKNESS TRAINING ON SELECTED ANTHROPOMETRIC AND MOTOR FITNESS VARIABLES OF FOOTBALL PLAYERS

Dr. P. Kumaravelu, Assistant Professor,
Department of Physical Education,
Tamil Nadu Physical Education and Sports University, Tamil Nadu

Abstract

The purpose of this study was to find out the effect of speed, agility and quickness training on selected anthropometric and motor fitness variables of football players. To achieve the purpose of the study 40 football players were selected on random bases from the colleges located at Chennai city who have represented at state level tournaments. The subjects were divided in to two equal groups of 20 each and designated as control and experimental groups. Their age ranged between 18 and 24 years. This study consisted of one independent variable namely SAQ training. Among the two groups selected, group-I was treated with SAQ training and group-II acted as control group. Both the groups were tested prior (pre-test) and after six weeks (post test) on height, thigh girth, calf girth, speed, agility, horizontal explosive power and strength endurance. The data were statically examined for significant difference, applying the Analysis of Covariance (ANCOVA). In all the cases .05 level of confidence was fixed at the level of confidence. The results revealed that there was a significant difference on selected anthropometric and motor fitness variables.

Keywords: SAQ Training, Anthropometric and Motor fitness.

Introduction

Sports performance is complex mixture of genetic make-up and environment influences like training etc. Performance in Football is determined by several factors namely skill, technique, tactics, fitness, training etc. Sports' training is the physical, technical, intellectual, psychological and moral preparation of an athlete by means of physical exercise. The main aim of training is to prepare the footballers for outstanding performance in competition. Physical fitness is the sum of numerous factors, which can vary from individual to individual. Different sports required different type of fitness emphasizing on a particular fitness factors. Similarly the training varied sports discipline to sports discipline. Skills training is a highly co-ordinate and well planned exercise. Generally in military this type of training is very common. In modern sports training the game-specific skills' training is gaining tremendous popularity, which focus on game-specific fitness as well as performance related skill factors.

Football is a game played by two teams on a rectangular field, with the object of driving the ball into the opponent's goal. The ball is controlled and advanced primarily by using the feet; only goalkeepers are allowed to handle the ball. Opposition players may try to regain control of the ball by intercepting a pass or through tackling the opponent who controls the ball. All that is needed to play is an area of



open space and a ball. Football is generally a free-flowing game with the ball in play at all times except when the ball has left the field of play by wholly crossing over a boundary line (either on the ground or in the air), or play has been stopped by the referee. When play has been stopped, it recommences with a specified restart. Football is played at a professional level all over the world, and millions of people regularly go to football stadium to follow their favorites team, whilst billions more avidly watch the game on television. A very large number of people also play football at an amateur level. According to a survey conducted by Federation International Football Association (FIFA), football's governing body, published in the spring of 2001, over 240 million people regularly play football in more than 200 countries in every part of the world. Its simple rules and minimal equipment requirements have no doubt aided its spread and growth in popularity.

Methodology

To achieve the purpose of the study 40 football players were selected on random bases from the colleges located at Chennai city who have represented at state level tournaments. The subjects were be divided in to two equal groups of 20 each and designated as control and experimental groups. Their age ranged between 18 and 24 years. The training was given to the experimental groups for six weeks, per week three days. The independent variables are SAQ training. The dependent variable was Anthropometric Variables and Motor Fitness Variables. The data has collected before and after six weeks of training period and statistically analyzed by using Analysis of Co-Variance (ANCOVA). All the statistical analysis

tests were computed significance at 0.05 level of significance.

Results

TABLE I
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUPS AND CONTROL GROUPS ON SPEED

Means	Control Group	Exp. Group	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre Test	7.08	7.06	Between	0.00	1	0.002	0.01
			Within	7.66	38	0.20	
Post Test	7.13	6.82	Between	0.97	1	0.97	4.39*
			Within	8.42	38	0.22	
Adj. Post Test	7.12	6.82	Between	0.89	1	0.89	63.96*
			Within	0.51	37	0.01	

*Significant at 0.05 level of significance.

The pre test mean for control group was 7.08, and experimental group was 7.06 and the obtained F value was 0.01, which was less than the required F value of 4.10 to be significant at 0.05 level. Hence, it was not significant and the groups were equal at initial stage. The post test mean for control group and experimental group was 7.13 and 6.82 respectively. The obtained F value 4.39 was greater than the table value. It denotes that it is significant at 0.05 level. The adjusted post test mean for control and experimental group was 7.12 and 6.82 respectively. The obtained F value 63.96 is significant at 0.05 level. It reveals that the experimental group has improved speed significantly as a result of SAQ training.

TABLE II
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUPS AND CONTROL GROUPS ON AGILITY

Means	Control Group	Exp. Group	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre Test	8.82	9.00	Between	0.33	1	0.329	2.56
			Within	4.89	38	0.13	
Post Test	8.84	8.38	Between	2.11	1	2.11	8.30*
			Within	9.65	38	0.25	
Adj. Post Test	8.93	8.29	Between	3.74	1	3.74	26.56*
			Within	5.21	37	0.14	

*Significant at 0.05 level of significance.

The pre test mean for control group was 8.82, and experimental group was 9.00 and the obtained F value was 2.56, which was less



than the required F value of 4.10 to be significant at 0.05 level. Hence, it was not significant and the groups were equal at initial stage. The post test mean for control group and experimental group was 8.84 and 8.38 respectively. The obtained F value 8.30 was greater than the table value. It denotes that it is significant at 0.05 level. The adjusted post test mean for control and experimental group was 8.93 and 8.29 respectively. The obtained F value 26.56 is significant at 0.05 level. It reveals that the experimental group has improved agility significantly as a result of SAQ training.

TABLE III
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUPS AND CONTROL GROUPS ON EXPLOSIVE POWER

Means	Control Group	Exp. Group	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre Test	249.10	253.20	Between	168.10	1	168.10	0.71
			Within	9001.00	38	236.87	
Post Test	248.20	257.45	Between	855.63	1	855.63	3.93
			Within	8278.15	38	217.85	
Adj. Post Test	250.14	255.51	Between	282.61	1	282.61	52.63*
			Within	198.67	37	5.37	

*Significant at 0.05 level of significance.

The pre test mean for control group was 249.10, and experimental group was 253.20 and the obtained F value was 0.71, which was less than the required F value of 4.10 to be significant at 0.05 level. Hence, it was not significant and the groups were equal at initial stage. The post test mean for control group and experimental group was 248.20 and 257.45 respectively. The obtained F value 3.93 was lesser than the table value. It denotes that it is not significant at 0.05 level. The adjusted post test mean for control and experimental group was 250.14 and 255.51 respectively. The obtained F value 52.63 is significant at 0.05 level. It reveals that the experimental group has improved Explosive power significantly as a result of SAQ training. The pre test, post test and adjusted post mean values of SAQ training group and control

group on flexibility are graphically represented in the Figure-3.

TABLE IV
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUPS AND CONTROL GROUPS ON STRENGTH ENDURANCE

Means	Control Group	Exp. Group	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre Test	39.60	39.30	Between	0.90	1	0.90	0.04
			Within	831.00	38	21.87	
Post Test	39.00	43.35	Between	189.22	1	189.22	8.34*
			Within	862.55	38	22.70	
Adj. Post Test	38.86	43.49	Between	214.95	1	214.95	85.90*
			Within	92.59	37	2.50	

*Significant at 0.05 level of significance.

The pre test mean for control group was 39.60, and experimental group was 39.30 and the obtained F value was 0.04, which was less than the required F value of 4.10 to be significant at 0.05 level. Hence, it was not significant and the groups were equal at initial stage. The post test mean for control group and experimental group was 39.00 and 43.35 respectively. The obtained F value 8.34 was greater than the table value. It denotes that it is significant at 0.05 level. The adjusted post test mean for control and experimental group was 38.86 and 43.49 respectively. The obtained F value 85.90 is significant at 0.05 level. It reveals that the experimental group has improved Strength endurance significantly as a result of SAQ training.

TABLE V
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUPS AND CONTROL GROUPS ON HEIGHT

Means	Control Group	Exp. Group	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre Test	171.55	172.40	Between	7.23	1	7.225	0.12
			Within	2215.75	38	58.31	
Post Test	171.65	172.70	Between	11.02	1	11.02	0.20
			Within	2120.75	38	55.81	
Adj. Post Test	172.07	172.28	Between	0.48	1	0.48	2.62
			Within	6.80	37	0.18	

*Significant at 0.05 level of significance.

The pre test mean for control group was 171.55, and experimental group was 172.40 and the obtained F value was 0.12, which was less than the required F value of 4.10 to be significant at 0.05 level. Hence, it was not



significant and the groups were equal at initial stage. The post test mean for control group and experimental group was 171.65 and 172.70 respectively. The obtained F value 0.20 was lesser than the table value. It denotes that it is not significant at 0.05 level. The adjusted post test mean for control and experimental group was 172.07 and 172.28 respectively. The obtained F value 2.62 is not significant at 0.05 level. It reveals that there is no change in the height of experimental group as a result of SAQ training.

TABLE VI
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUPS AND CONTROL GROUPS ON THIGH GIRTH

Means	Control Group	Exp. Group	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre Test	50.20	48.45	Between	30.63	1	30.625	1.41
			With in	828.15	38	21.79	
Post Test	50.30	50.10	Between	0.40	1	0.40	0.02
			With in	848.00	38	22.32	
Adj. Post Test	49.42	50.98	Between	23.53	1	23.53	104.78*
			With in	8.31	37	0.22	

*Significant at 0.05 level of significance.

The pre test mean for control group was 50.20, and experimental group was 48.45 and the obtained F value was 1.41, which was less than the required F value of 4.10 to be significant at 0.05 level. Hence, it was not significant and the groups were equal at initial stage. The post test mean for control group and experimental group was 50.30 and 50.10 respectively. The obtained F value 0.02 was lesser than the table value. It denotes that it is not significant at 0.05 level. The adjusted post test mean for control and experimental group was 49.42 and 50.98 respectively. The obtained F value 104.78 is significant at 0.05 level. It reveals that the experimental group has improved thigh girth significantly as a result of SAQ training.

TABLE VII
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUPS AND CONTROL GROUPS ON CALF GIRTH

Means	Control Group	Exp. Group	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre Test	35.45	36.25	Between	6.40	1	6.400	0.77
			With in	314.70	38	8.28	
Post Test	35.50	38.10	Between	67.60	1	67.60	7.72*
			With in	332.80	38	8.76	
Adj. Post Test	35.91	37.69	Between	31.37	1	31.37	122.94*
			With in	9.44	37	0.26	

*Significant at 0.05 level of significance.

The pre test mean for control group was 35.45, and experimental group was 36.25 and the obtained F value was 0.77, which was less than the required F value of 4.10 to be significant at 0.05 level. Hence, it was not significant and the groups were equal at initial stage. The post test mean for control group and experimental group was 35.50 and 38.10 respectively. The obtained F value 7.72 was greater than the table value. It denotes that it is significant at 0.05 level. The adjusted post test mean for control and experimental group was 35.91 and 37.69 respectively. The obtained F value 122.94 is significant at 0.05 level. It reveals that the experimental group has improved Calf Girth significantly as a result of SAQ training.

Discussion on Findings

The goal of the investigation is to find whether there is any effect on Speed, Agility, Explosive Power, Strength Endurance, Height, Thigh Girth and Calf Girth in the effect of SAQ training and further to find improvement on training group. The obtained 'f' ratio showed that there was significant difference between experimental group and control group in performance of Speed, Agility, Explosive Power, Strength Endurance, Height, Thigh Girth and Calf Girth. The SAQ training had shown a significant improvement on f Speed, Agility, Explosive Power, Strength Endurance, Height, Thigh Girth and Calf Girth among Football players.



Conclusions

- It was concluded that the SAQ training has significantly improved the speed of football players.
- It was concluded that the SAQ training has significantly improved the agility of football players.
- It was concluded that the SAQ training has significantly improved the strength endurance of football players.
- It was concluded that due to SAQ training have significantly increased the explosive power for football players.
- It was concluded that the SAQ training has not increased the height of football players significantly.
- It was concluded that the SAQ training has significantly increased the calf girth of football players.
- It was concluded that the SAQ training has significantly increased the thigh girth of football players.

Uppal, A.K (2001) Principles of Sports Training. Delhi: Friends publications.

Wttest A Deborah and Bucher A Charles (1992) Foundation of Physical Education and Sports, New Delhi: Janapath, BI Publication Pvt. Ltd.

References:

- Barry. L. Johnson and Jack. K. Nelson (1988) Practical Measurements for Evaluation in Physical Education, New Delhi: Surjeet Publications.
- Barrow, Harold and Rosemary Mchee (1929) A Practical Approach to Measurement in Physical Education, Philadelphia: Lea and Febiger.
- Frank W, Dick (1980) Sports Training Principles, London: A&C Black Publisher Ltd.
- Singh, Hardayal (1991) Science of Sports Training, New Delhi: Sujeet Publication.
- Joseph. A. Luxbacher (1995) Soccer Practice Games, United States of America: Human Kinetics.
- Joseph. A. Luxbacher (1996) Soccer Steps to Success, United States of America: Human Kinetics.
- Pearson and Alan (2002) Speed, Agility and Quickness for Soccer, London: SAQ: A&C Black Publisher.
- Tudor O, Bompa (1989) Periodization: Theory and Methodology of Training, Philadelphia: The C.V. Mosby Company Ltd.