Effects of Saq Training and Small Sided Games on Selected Fitness Parameters among Junior Soccer Players

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Abstract

The study was designed to investigate the "Effects of SAQ training and small sided games on selected fitness parameters among junior soccer players" For this 45 school boys junior soccer players were selected randomly from different schools in Karaikudi, Tamilnadu as subjects. Their age ranged from 15 to 17 years. They were divided into three equal groups namely Experimental Group I, II and control group. In a week five days the Experimental Group I underwent SAQ Training, Experimental Group II underwent small sided game practice and control group was not given any specific training. The following criterion variables were chosen namely Explosive power and power endurance. They assessed before and after the training period of 12 weeks. The analysis of covariance was used to determine of any significant difference was present among the three groups of the dependent variables. The study revealed that the selected fitness variables were significantly improved due to the influence of SAQ training and small sided game practice among junior soccer players.

Key words: SAQ training small sided games Explosive power, power endurance ANCOVA

Introduction

The SAQ programme for soccer is the first ever soccer specific programme designed to develop these key skills. The programme also has other significant benefits such as improving eye hand and foot co-ordination, strength and explosive power, as well as being full of variety and great fun. The end result is the development of multi-directional, explosive speed specifically for soccer. According to Brukner and Khan (2001), power is the equivalent of explosive strength. Young and Bilby (1993) have used the term "speed strength" synonymous with power. Paavolaienen et.al (1999) have suggested that muscle power is the ability of neuromuscular system to produce power during maximal exercise when glycolytic and oxidative energy production is high and muscle contractility may be limited. In this study an attempt is made to find out the "Effects of SAQ training and small sided game practice on selected fitness parameters among junior soccer players".

Methodology - Training Programme

The training session includes warming up and limbering down. Every day the workout lasted for 60 to 90 min approximately. For experimental group I designed SAQ training Dynamic Flex Warm-up : 20 min, mechanics 15min, Soccer Specific conditioning, Innervations (Soccer related movement drills: agility, speed, multi directional (25 min), explosion (resisted random agility and assisted drills. To develop multi directional speed. Ratio : mechanics. 70% explosive 30%. Active recovery. Soccer Specific Endurance (Sprint endurance work. Example :10x80 m. 8x60m. 6x40m*. Timed. active recovery. (20 min) Cool - Down / Static Stretching (10 min). For experimental group II underwent Small sided game practice, Dynamic Flex Warm-up: 20 min (Field practice : 15x10m,

20x10m and 15x30m, 60 min). Cool - Down / Static Stretching (10 min). For Group III designed as a control group did not practice any specific training programme. The following criterion variables were chosen namely explosive power (standing broad jump) and power endurance (push ups). They assessed before and after the training period of 12 weeks. The analysis of covariance was used to determine of any significant difference was present among the three groups of the dependent variables.

Result and Discussion

Table-I
Analysis of Covariance of the Data on Explosive Power of Pre and Post Tests Scores of Saq Training, Small Sided Game Practice and Control Group

Test	Group I	Group II	Group III	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pretest								
Mean	1.69	1.65	1.69	Between	0.02	3	0.01	0.23
S.D.	0.16	0.17	0.14	Within	1.17	42	0.03	
Post test								
Mean	2.06	1.73	1.70	Between	1.23	3	0.41	15.12*
S.D.	0.11	0.21	0.14	Within	1.14	42	0.03	
Adjusted Post test								
Mean	2.05	1.75	1.69	Between	1.12	2	0.56	59.69*
				Within	0.39	41	0.01	

* Significant at .05 level of confidence. (The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.23 respectively).

The table I shows that the pre-test mean values on Explosive Power of SAQ Training group, small sided game practice and control group are 1.69, 1.65 and 1.69 respectively. The obtained 'F' ratio of 0.23 for pre test scores is less than the table values of 3.22 for df 2 and 42 required for significance at .05 level of confidence on Explosive Power. The post-test mean values on Explosive Power of SAQ Training group, Small sided game practice and Control Group are 2.06, 1.73 and 1.70 respectively. The obtained "F" ratio of 15.12 for post test scores is more than the table value of 3.22 for df 2 and 42 required for significance at .05 level of confidence on Explosive Power. The adjusted post-test means of Explosive Power, SAQ training group, small sided game practice and control group are 2.05, 1.75 and 1.69 respectively on Explosive Power the obtained 'F' ratio of 59.69 for adjusted post-test means is more than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence on Explosive Power. The results of the study indicated that there was a significant difference between the adjusted post-test means of SAQ training group, small sided game practice and control group on Explosive Power. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table I(a).

Table-I (a)
The Scheffe's Test for the Differences between Paired Means on Leg Explosive Power

SAQ Training	small sided games training	Control Group	Mean Differences	Confidence Interval Value
2.05	1.75	-	0.30*	0.05
2.05	-	1.69	0.36*	0.05
-	1.75	1.69	0.06*	0.05

* Significant at .05 level of confidence.

The table I (a) shows that the mean difference values between SAQ training group, small sided game practice and control group on Explosive Power 0.30, 0.36 and 0.06 which greater than the confidence interval value 0.05 required for significance at .05 level of confidence. The results of this study showed that there was a significant difference exist between SAQ training group, small sided game practice, SAQ training group and Control group and small sided game practice and control group on Explosive Power.

Table–II
Analysis of Covariance of The Data on Power Endurance of Pre and Post Tests Scores of Saq Training, Small Sided Game Practice and Control Group

Test	Group I	Group II	Group III	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pretest								
Mean	12.67	14.73	11.73	Between	70.71	3	23.57	2.87
S.D.	2.75	3.40	1.98	Within	345.20	42	8.22	
Post test								
Mean	18.60	17.67	11.87	Between	399.24	3	133.08	20.50*
S.D.	2.12	3.13	1.96	Within	272.67	42	6.49	
Adjusted Post test								
Mean	18.92	16.22	12.99	Between	196.95	2	98.47	49.99*
				Within	80.76	41	1.97	

* Significant at .05 level of confidence.
(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.23 respectively).

The table II shows that the pre-test mean values on Power Endurance of SAQ training group, small sided game practice and control group are 12.67, 14.73 and 11.73 respectively. The obtained 'F' ratio of 2.87 for pre test scores is less than the table values of 3.22 for df 2 and 42 required for significance at .05 level of confidence on Power Endurance. The post-test mean values on Power Endurance of SAQ training group, small sided game practice and Control Group are 18.60, 17.67 and 11.87 respectively. The obtained "F" ratio of 20.50 for post test scores is more than the table value of 3.22 for df 2 and 42 required for significance at .05 level of confidence on Power Endurance. The adjusted post-test means of Power Endurance, SAQ training group and small sided game

practice and control group are 18.92, 16.22 and 12.99 respectively on Power Endurance the obtained 'F' ratio of 49.99 for adjusted post-test means is more than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence on Power Endurance. The results of the study indicated that there was a significant difference between the adjusted post-test means of SAQ training group, small sided game practice and control group on Power Endurance. Since, three groups were compared, whenever the obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in Table II(a).

Table-II (a)
The Scheffe's Test for the Differences between Paired Means on Power Endurance

SAQ Training	small sided games training	Control Group	Mean Differences	Confidence Interval Value
18.92	16.22	-	2.70*	1.30
18.92	-	12.99	5.93*	1.30
-	16.22	12.99	3.23*	1.30

* Significant at .05 level of confidence.

The table II(a) shows that the mean difference values between SAQ training group, small sided game practice and control group on Power Endurance 2.70, 5.93 and 3.23 and 0.06 which greater than the confidence interval value 1.30 required for significance at .05 level of confidence. The results of this study showed that there was a significant difference exist between SAQ training group, small sided game practice, SAQ training group and Control group and small sided game practice and control group on Power Endurance.

Discussion on Findings

Maximal velocity of shortening has a significant influence on power output. It is dependent on intrinsic speed of the muscle contraction. The proportion of the muscle fibre type and length of the muscle determine the maximal velocity. Type-I muscle fibres generate less power than type-II. Muscle shorter in length has few sarcomeres in series and hence, generates less power. Maximal velocity can not be changed by training. Maximal isometric strength is directly proportional to power output. Determination of appropriate external resistance for maximum power can be used to establish adequate training stimulus to train muscle power. There is controversy 80 in the literature as to maximum external resistance against which muscle power can be generated. According to **Thomas et.al (1997)**, training to improve maximal power output should be done at 56-78% of the maximum dynamic strength. Although there is no agreement for the various training protocols to achieve this objective but cross sectional area and neural adaptations of muscles in response to training must be addressed. Muscle strength and power are inseparable variables and have direct confluence on physical performance. According to **Sale (1991)**, muscle strength is the peak

force developed during a maximal voluntary contraction under a given set of conditions. These conditions comprise of speed of movement, posture, and patterns and mode of contraction. The role of different modes of muscle contraction like isometric, isotonic and isokinetic, and their relation with power has not been accounted for and is beyond the scope of this debate. Neuromuscular characteristics as a determinant of power and hence, physical performance was interpellated by **Paavolainen et.al (1999)**. They found that force-time characteristics differed with different muscle fibre types. Force output of muscle contraction was reported to depend on the rate and force of myofibril cross-bridge cycle activity, and effective storage and release of elastic energy during stretch-shortening cycle. Anaerobic characteristics have also been reported to impair muscle contraction on the inchoation of fatigue which results in increased H^+ ion concentration and increased blood lactate concentration thereby impeding muscles' physiological process. The above findings of the study supported to the present study.

Conclusion

1. In the light of the study undertaken certain limitations imposed by the experimental conditions, the following conclusions were arrived. Power endurance and explosive power were significantly improved due to the influnce of SAQ training group and small sided game practice among junior soccer players.
2. The SAQ training group would significantly improved power endurance and explosive power greater than that of small sided game practice and control group among junior soccer players.
3. The small sided game practice would significantly improved power endur ance and explosive power greater than that of control group.

References

Polman R, Bloomfield J, Edwards A.(2009) Effects of SAQ training and small-sided games on neuromuscular functioning in untrained subjects. Int *Journal of Sports Physiol Perform*;4(4):494-505.

Brukner P and Khan K (2001) Clinical Sports Medicine. (2nd ed.) McGraw – Hill Book Co. Sydney.

Paavolainen LM, Numella AT and Rusko HK (1999) Neuromuscular characteristics and muscle power as determinants of 5km running performance. Medicine and Science in Sports and Exercise 31 :124-130.

Sale D (1991) Testing strength an d power. In J. MacDougall, H Wegner and H. Green (eds), Physiological Testing of the High Performance Athlete (2nd ed.) (pp 21-106). Champaign: Human Kinetics Publishers.

Schmidtbleicher D (1992) Training for power events. In P. Komi (Ed.) Strength and Power in Sport, Vol.3, IOC Medical Commission Publication.

Young WB and Bilby GE (1993) The effect of voluntary effort to infleucne speed of contraction on strength, muscular power and hypertrophy development. Journal of Strength Conditioning 7:172-172.

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