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EFFECTS OF STRENGTH, AGILITY AND QUICKNESS (SAQ) TRAINING ON SELECTED PERFORMANCE PARAMETERS AMONG FOOTBALL PLAYERS

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ABSTRACT

The main purpose of this study was to examine the health and skill related specific parameters of football players by utilizing the Strength, Agility and Quickness (S.A.Q) training program. This research was carried out during the preparation phase for intervarsity sports competition year 2021-22. The age of subjects was between 18 to 25 years with normal BMI range of healthy weight (18.5 to 24.9). After proper screening of the subjects with the help of Physical Activity Readiness Questionnaire (PAR-Q), they were divided into two equal groups. The Experimental Group (EG) and Control Group (CG) were comprised of 25 players. The SAQ training was given to experimental group for the duration of 12 week and the control group was untreated. The parameters of physical components were speed, agility, power while the component of kicking was assessed before and after the completion of 12 week from both groups. The result of the study explains that S.A.Q training program produced a significant improvement in selected parameters of football players. Therefore, it has been concluded that performance parameters such as speed, agility and power among football players can be improved through SAQ training.

INTRODUCTION

Football is a dynamic game, which need different to build both physical and skill related components (Lees, Barton & Robinson, 2010). Football involves a variety of physical and physiological demands, therefore it's crucial to adopt a training technique like SAQ to encourage an integrated impact and save time and energy (Milanović et al., 2013). The provision of programmed training protocol put great emphasized on the nature of training either it would be a random or controlled. Elite athletes need conditioning before going to perform epic level (Collins et al., 2018). Similarly, the parameters of physical and skill related are entirely depend on the well planned and organized training protocol which needs to modify the fundamental motor skills into highly positional specific movement patterns. A sequence of logical learning process is necessary for the development of neural structure for the preparation of elite athletes (Ericsson, 2006).

Body transformation is much more challengeable for elite athletes. They manipulate their body without altering the program related to their health. Speed, balance, strength and control of the body are necessary for football player to perform consistently without undue fatigue. Therefore, to perform faster within stipulated time the energy of muscle power is necessary (Reilly, 2006; Jovanovic et al., 2011; França et al., 2022).

Variety of football specific exercises is used in the SAQ training. As the name implies the variety of strength, agility, balance, coordination and speed related exercises include in SAQ training program (França et al., 2022). Previous research has carried out using the best biomechanical movement structures, which results in energy and time savings (Stetter et al., 2019). In addition to key skills, power performance requires optimum joint mobility and dynamic among other things, equilibrium, a suitable locomotor system, and energy generation. Although it is commonly known that football players seldom ever reach their top speed while playing, the early starting phase and the acceleration phase are more important to a player's overall performance. Also, as compared to the overall distance travelled throughout a game, elite soccer

players run at higher intensities for longer periods of time (Dalen et al., 2021). Football players must be nimble in order to succeed. They employ it not just to outclass the opposition but also to assist avoid injury.

According to Pearson, there are four components of agility: balance, coordination, planned agility, and random agility. These components are all employed on the SAQ continuum at the right volume and intensity depending on the age and motor readiness of the athletes. In line with prior research, the goal of this study was to ascertain the degree to which top football players' power performance metrics are genuinely influenced by SAQ training. In order to be effective in sports that call for speed, agility, and quickness, SAQ Training focuses on good running form and explosive movement patterns. In order to assess a sportsperson's agility, the Illinois test has been accepted as a reliable test. The outcome of the agility test is also influenced by increased leg strength and quickness.

MATERIALS AND METHOD

The main purpose of this study was to investigate the health and skill related specific parameters of football players by utilizing the Strength, Agility and Quickness (S.A.Q) training program at Gomal University, a public sector university from the province of Khyber Pakhtunkhwa, Pakistan. To achieve the purpose of the study, subjects (n=50) were divided into two equal groups. Experimental group consisted of n= (25) with age group of 21 ± 2.62 years and control group having an equal number of participants i.e., n= (25) having age group of 22 ± 1.89 years. However, the Body Mass Index (BMI) of an experimental group was measured as 20.9 ± 0.67 and 21.2 ± 0.34 measured for the control group.

Table 1 Subject Characteristics (Mean and Standard Deviation)

Characteristics	Experimental Group	Control Group
Age	21 ± 2.62	22 ± 1.89
Height	183 ± 0.09	179 ± 0.37
Weight	70 ± 0.34	68 ± 0.45

The above table shows mean and standard deviation of age, height and weight of the participants.

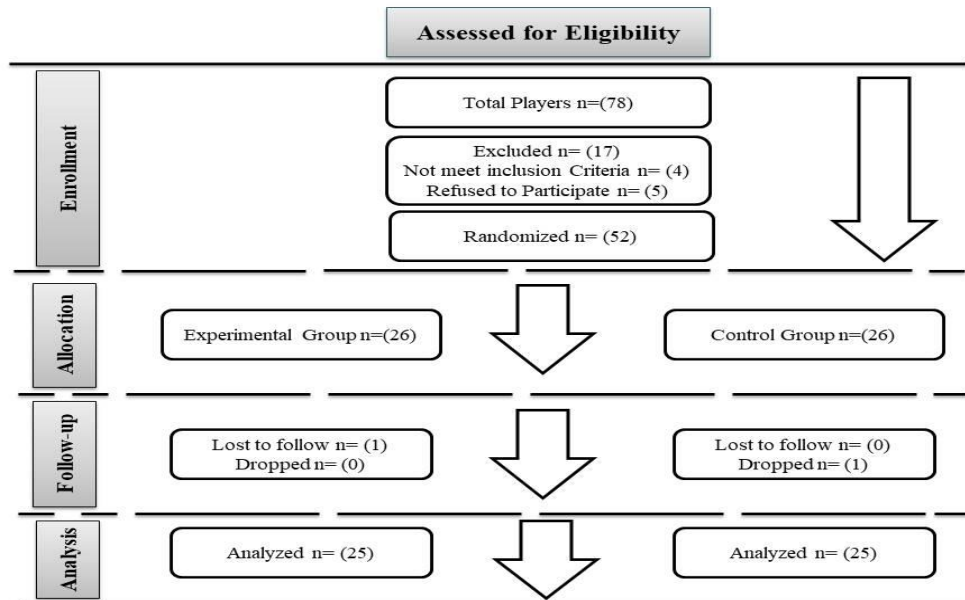


Figure 1 flow of the participants at each stage

An informed consent was taken from all the subjects before the commencement of the study. The subjects were scrutinized through screening test of Physical Activity Readiness Questionnaire (PAR-Q) and then distributed equally on random basis in two groups but the data was obtained from those subjects who participated throughout the entire duration voluntarily (Figure 1).

The SAQ training program was implemented on the experimental group for the duration of twelve weeks with different sets and repetitions, while no exercise was given to the control group. A detail description is discussed below in figure 2.

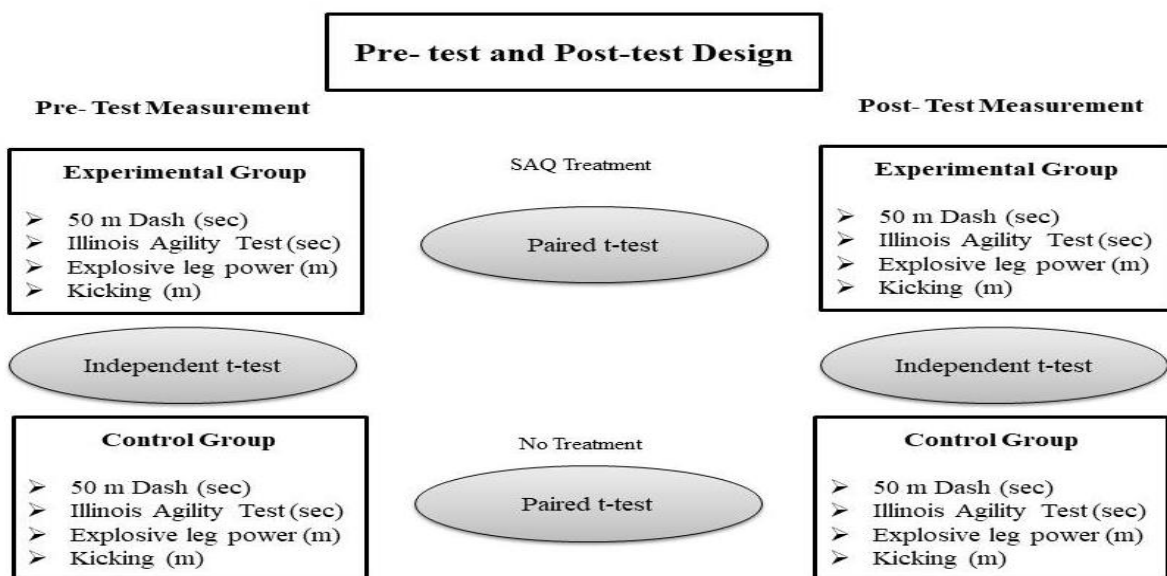


Figure 2 Pre-test and post-test research design

A pre-test post-test experimental research design was carried out in this research; therefore, the SAQ training program was implemented only on the experimental group. The physical parameter of speed was measured through 50m dash (seconds), agility was measured through Illinois agility test (seconds), while the explosive leg power was measured through standing broad jump (m). The skill related component of football was kicking which was measured through Warner soccer test (m), discussed in **table 2**.

Table 2 criterion measures

Variable	Test items	Measurement (Units)
Physical (Speed)	50m dash	In seconds
Physical (Agility)	Illinois Agility Test (10X4 shuttle run)	In seconds
Physical (Explosive leg power)	Standing Broad Jump	In meters
Skill (Kicking)	Warners soccer test	In meters

Table 3 Content of the 12 week training program

Phase	Exercises	
Week 1 to 12 (Monday, Wednesday, Friday)	Straight Leg Run	High Knee Running
	Single Leg Hop (Left and Right)	High Knee Running
	Double Leg Hop	High Knee Running Side ways

The SAQ exercise training program was observed throughout the twelve week duration of study. 10 minutes of warm-up and 10 minute of warm-down exercise was necessary for each subject before and after the completion of 40 minutes of exercise mention in the above **table 3**. Each two weeks 5% load was increased from 65% to 85% at end of the completion of training program.

RESULTS AND DISCUSSION

Table 4 t-test results

Variable	N	Pre-test	Post-test	Df	t	Sig.
SAQ Experimental Group						
50m dash	20	7.29±0.50	7.12±0.27	19	11.21	.031
Illinois Agility Test (10X4 shuttle run)	20	16.42±0.51	16.25±0.13	19	18.34	.000
Standing Broad Jump	20	1.92±15.34	1.97±25.15	19	- 16.56	.013
Warners soccer test	20	54.41±5.72	56.87±5.22	19	32.34	.001
Control Group						
50m dash	20	7.35±0.44	7.36±0.19	19	9.13	.110

Illinois Agility Test (10X4 shuttle run)	20	17.49±0.39	18.31±0.40	19	19.52	.543
Standing Broad Jump	20	1.92±17.45	1.92±22.15	19	- 19.41	.211
Warners soccer test	20	53.87±5.31	54.96±5.33	19	29.22	.067

Alpha=0.05

The above table shows the pre and post result of physical parameters and football soccer skill test. Speed, agility, strength, and kicking ability was measured from both experimental and controlled groups. There is a statistically significant difference was observed in the data of SAQ experimental group in which speed ($.031 < 0.05$), agility ($.000 < 0.05$), Strength ($.013 < 0.05$), and kicking ability ($.001 < 0.05$). The values are under the cutoff value 0.05. Therefore, no significant change was observed in measured parameters of control group which was untreated and all the values are over the cutoff value (0.05).

DISCUSSION ON FINDINGS

The present study was 12 week experimental with treatment protocol of SAQ training program, which showed a statistically significant improvement in the selected parameters of football. It is clearly observed that SAQ training produced more significant and reliable results through the proper implementation of training protocol in the parameters of speed, agility, strength and kicking ability. University football players' kicking performance improved through the improvement of lower limb power, sprinting speed, and standing broad jump were shown to be strongly correlated with SAQ training. According to Wisliff et al (2004) a speedier athlete gets a higher test result for power performance characteristics like the squat leap and countermovement jump. According to Cronin and Hansen (2005) explosive leg power of the jumpers can play a vital role in strengthening the hamstring muscle of the leg. In collegiate athletes, Paule et al (2000), found a strong relationship between agility and sprinting speed. The improvement in jump performance can be somewhat correlated with the increase in speed evaluated by the 50-meter sprint test (Fletcher & Anness, 2007). In our investigation, an increase in lower limb power may have led to faster generation of high forces in the lower limb muscles and decreased contact time of the feet on the running surface.

CONCLUSIONS

1. Based on the findings of the study the SAQ play an important role in the development of physical and skill related parameters of football players at university level.
2. The leg power of the players improves by doing speed, agility and leg explosive power drills for the duration of 12 weeks as a result the kicking ability improves in the university players.
3. In this study only selected parameters were kept under treatment of SAQ training, so these parameters are improve significantly especially for the players of football at university level.

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