IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Analysis On The Effect Of Different Running Modules On Agility Among Football Players

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Abstract: The purpose of this study was to analyze the effect of different running training modules—interval training, sand training, and SAQ training on agility performance among intercollegiate football players. A total of 120 male football players aged 17–21 years from Kurnool District, Andhra Pradesh, were randomly assigned to four groups (n=30 each): Interval Training (Group I), Sand Training (Group II), SAQ Training (Group III), and a Control Group. The training period lasted twelve weeks, during which experimental groups followed their respective training protocols, while the control group did not participate in any special training. Agility was measured using the 4×10 meter shuttle run test before and after the training period.

The results revealed significant differences among the groups ($F(3,116)=428.52$, $p<0.001$) after controlling for pre-test scores. Post-test mean values showed improvements in agility across all training modules: Interval Training (11.81±0.078 to 11.38±0.067 s; 3.64% improvement), Sand Training (11.80±0.079 to 11.37±0.070 s; 3.64% improvement), and SAQ Training (11.79±0.077 to 11.06±0.068 s; 6.19% improvement), while the Control Group showed negligible change (0.08%). The effect size ($\eta^2 = 0.917$) indicated that 91.7% of the variance in agility performance was attributed to the training interventions. Post hoc analysis confirmed that SAQ training produced significantly greater gains in agility compared to other groups ($p<0.001$).

In conclusion, all three training methods significantly enhanced agility among football players; however, SAQ training was the most effective in improving change-of-direction speed. Coaches and trainers are therefore encouraged to incorporate SAQ drills into football conditioning programs to optimize agility and performance outcomes.

Keywords: Agility, SAQ Training, Interval Training, Sand Training and Football Players

1. INTRODUCTION

The game of football is any of several similar team sports, of similar origins which involve, to varying degrees, kicking a ball with the foot in an attempt to score a goal. The most popular of these sports worldwide is association football, more commonly known as just "football" or "soccer". Unqualified, the word football applies to whichever form of football is the most popular in the regional context in which the word appears, including American football, Australian rules football, Canadian football, Gaelic football, rugby league, rugby union and other related games. These variations are known as "codes." (Reilly, Thomas; Gilbourne, D. (2003)

Football is one of India's popular sports, and is said to be ranked second only to cricket in popularity in states like West Bengal, Goa, Kerala and the entire North-East India, especially Manipur, Meghalaya, Mizoram and Sikkim. Football is played in almost all schools in India.

Having been Asian champions twice, the standard of Indian football has degraded due to a lack of investment and proper planning. While standards of other Asian nations in which football is the most popular sport improved, Indian football was largely neglected in preference to cricket in which the national team is among the top three countries in the world. In September 2006, India and Brazil signed an agreement formalising a scheme to train Indian footballers and coaches.

2. METHODOLOGY

2.1 SELECTION OF SUBJECTS

Randomly selected football athletes selected from the different colleges from Adoni. Kurnool District, Andhra Pradesh, and the age ranged from 17 to 21 years were considered for this study. Inter collegiate level players were selected. And the number of players selected were 120.

They were randomly assigned into four groups, namely, experimental group I, experimental group II, experimental group III and control group, consisting of 30 subjects in each group.

2.2 SELECTION OF VARIABLES

Dependent Variables

1. Agility

Independent Variable

1. Twelve weeks interval training

2. Twelve weeks sand training

3.Twelve weeks SAQ training.

3. RESEARCH DESIGN

A pre test-pos ttest randomized group design was used for this study. The randomly selected 120 intercollegiate level men football players were divided into four groups randomly consisting of thirty players in each group. Before the training pre test was taken for all the groups on agility. Experimental group I underwent twelve weeks interval training, experimental group II underwent twelve weeks sand training experimental group III underwent twelve weeks SAQ training and the control group did not undergo any type of training. At the end of twelve weeks experimental, the post test was conducted on selected variables. The obtained data were subjected to statistical treatment using ANCOVA.

3.1 RESULT ON AGILITY

Agility is the ability to accelerate, pick up speed, then switch direction, and resume pace again, and it is an extremely important skill that a football player ought to have since he/she is required to make a multi directional movement on the field of play. Shuttle run test, which is a 4×10 meter test, measures the speed of change of direction, where the shorter the completion time, the better the agility performance. Table 8 provides a summary of the descriptive statistics and improvements of all groups.

TABLE I

Descriptive Statistics for Agility (4×10 Meter Shuttle Run) Performance (in seconds)

Group	Pre-test M (SD)	Post-test M (SD)	Mean Diff	% Improvement
Interval Training	11.81 (0.078)	11.38 (0.067)	0.43	3.64%
Sand Training	11.80 (0.079)	11.37 (0.070)	0.43	3.64%
SAQ Training	11.79 (0.077)	11.06 (0.068)	0.73	6.19%
Control	11.80 (0.077)	11.79 (0.020)	0.01	0.08%

When ANCOVA summary was used, the differences between the groups were significant with a value of F(3, 116) = 428.52, p <.001, and pre-test scores being the covariate. The SAQ Training group obtained the highest percentage of improvement (0.73 seconds, 6.19%), which was very high compared to the Interval Training and Sand Training groups (improved by 0.43 seconds, 3.64% respectively). According to the post hoc comparisons placed by Scheffe, those in SAQ Training group had better performance compared to all other groups (p < .001), and Interval Training and Sand Training had also significantly better performance as compared to Control group (p < .001).

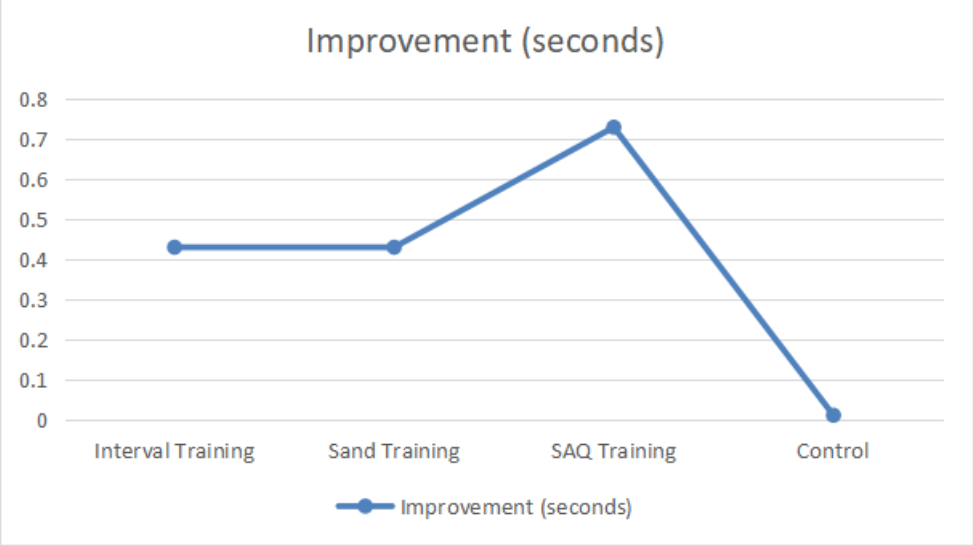
TABLE II

Analysis of Covariance (ANCOVA) for Agility

Source	Sum of Squares	df	Mean Square	F	p	η^2
Pre-test (Covariate)	3.124	1	3.124	521.45	<.001	.818
Group	7.712	3	2.571	428.52	<.001	.917
Error	0.696	116	0.006			
Total	11.532	120				

Effect size analysis using eta-squared (η^2) analysis provided a value of 0.917, which indicated that the membership of the training group explained about 91.7 per cent of the variance in the post-test agility scores. This has a very huge impact based on the recommendations of Cohen (1988). The highly effective nature of SAQ training in agility improvement corresponds to empirical data that established that 12 weeks of SAQ programming can result in a substantial change of direction performance in soccer players (Milanović et al., 2013). The fact that a sport-specific SAQ drills approximates the multidirectional movements typical of football is likely one factor that has led to higher transfer effects of the same in this group (Sun et al., 2025).

Figure 1: Magnitude of Improvement in Agility Performance (4×10 Meter Shuttle Run)



3. CONCLUSIONS

The present study demonstrated that all three training modules—interval training, sand training, and SAQ (Speed, Agility, and Quickness) training—had a significant positive impact on agility among intercollegiate football players. However, the SAQ training group showed the greatest improvement (6.19%) compared to the interval and sand training groups (3.64% each), indicating its superior effectiveness in enhancing agility. The findings suggest that incorporating sport-specific SAQ drills, which mimic the multidirectional demands of football, can produce substantial gains in change-of-direction speed and overall agility performance. Therefore, coaches and trainers are encouraged to integrate structured SAQ training programs into football conditioning schedules to optimize players' agility and game performance.

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