

RESEARCH ARTICLE

EFFECTS OF FIFA 11+ PROGRAM ON SPEED, AGILITY, POWER AND QUALITY OF LIFE AMONG CRICKET PLAYERS

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ABSTRACT

Background: The FIFA 11+ program is established protocol in the training of football players. Speed agility and power are also the crucial component of cricket performance. FIFA 11+ program may be the choice of training among cricketers. **Objective:** To determine the effects of FIFA 11+ program on speed, agility, power and quality of life among cricket players. **Methods:** A single blinded randomized controlled trial was conducted on n= 50 cricket players were recruited through non-probability convenient sampling technique from Pakistan sports board and coaching centre Lahore. The inclusion criteria were cricketers having age between 14 to 35 years and those never participated in FIFA 11+ program was enrolled in study. The participants were randomly allocated to two groups receiving six (6) sessions of Injury prevention program FIFA 11+ (Group A) and conventional stretching (Group B) respectively. The outcome measures were 30m sprint test for speed, T-drill test for agility, 5 jumps test for power and athlete Life Quality Scale. As the data was not normally distributed non-parametric tests were applied for with-in and between the group comparisons. **Results:** The mean age of participants was 20.19 ± 2.796 years. Both groups showed statistically significant improvement ($p < 0.001$) in speed, agility, power, and quality of life. While comparing the groups, there was no significant difference ($p = 0.264$) was observed in speed. But FIFA 11+ program showed more significant improvement in agility, power and quality of life as compare to conventional dynamic stretching group ($p < 0.05$) after 3 weeks of intervention. **Conclusion:** FIFA 11+ program can be recommended as an effective approach towards improving the agility, power, and quality of life of in cricket players.

Key words: Agility, Dynamic stretching program, FIFA 11+, Power, Speed, athlete, cricket.

INTRODUCTION

The cricket provides great opportunity for mixing individual initiative and skill with team effort. In this era, the cricket is experiencing the continuous change and development that is re-evaluation of coaching techniques, tactics, and methods. There are some factors that determine the performance in Cricket including tactics, training, fitness, and skill. Physical and mental fitness together determines the level of performance.¹ The main performance skills for professional athletes consists of tactical, technical, mental and physical skills.² Speed may be defined as the ability of the person to perform continuous movements of the same form at a fast rate.^{1,2}

The cricket includes different important performance related skills like agility, flexibility and speed in cricket is more focused in important match circumstances, for example, running between the wickets for batsmen and delivery during quick bowling. In this way, speed is normally crucial for fielder.³ Therefore, the players should be expert in different fielding positions, cricket includes different important performance related skills like agility and flexibility, the infield positions

requires more agility as the reaction time is lesser due to close position to the batsmen whereas the outfield positions requires more powerful throws of ball back to the infield.³ A meta-analysis shows that FIFA 11+ is the important program for Injury prevention programs with an efficacy revealed that the dangers caused by damages can be lowered by 35%.⁴ Additionally, In fast bowlers the conditioning of the musculature to withstand high joint loading and prevent injury is done through improving core and back extensor strength.^{5,6}

Football Association along with Medical and Research Centre (F-MARC), FIFA 11, and FIFA 11+ injury prevention programs were developed by The Federation International Football Association (FIFA), along with Medical and Research Centre (F-MARC) together with Oslo Sports Trauma Research Centre (OSTRC) and the Santa Monica Orthopedic and Sports Medicine Research Foundation (SMSMF).^{7,8} The ultimate purpose of this training is to improve stability, coordination, agility, reactive neuromuscular control and strength of the leg and core muscles. The success of the FIFA 11+ training has been studied in a number of countries, including Canada,⁹ Germany,¹⁰ Nigeria,⁸ Norway

and the USA.^{11, 12} Injury prevention programs reduce injury risk by improving neuromuscular strength, agility and limb coordination with a combination of strength, plyometric and balance exercises.¹³

The FIFA 11+ program is used extensively to increase the athletic performance of soccer players but in cricket players there is lack of evidence in the literature. It was hypothesized that this program significantly improves physical fitness in cricketers. So the objective of the study was to find effects of FIFA 11+ in improving their speed, agility, power and quality of life in cricketers.

METHODOLOGY

A single blinded randomized clinical trial was conducted on n=48 cricket players from Pakistan

sports board and coaching centre Lahore with permission to proceed for data collection, on behalf of Research and Ethics Committee (REC) is to inform that the submitted research proposal has been reviewed and conforms to the REC guidelines, IRB reference no REC/RCR & AHS/20/0408. The participants were selected through non-probability convenient sampling. A sample size of n=44 was calculated from epitoools.¹⁴ Attrition rate of 10% was supposed so the final Sample size was n=48, and n=50 participants were randomly allocated in injury prevention program (FIFA 11+) Group Stretching exercises group, through fish bowl method a total of n=48 participants were analysed as the n=2 participants declined to continue their follow up. (Figure 1)

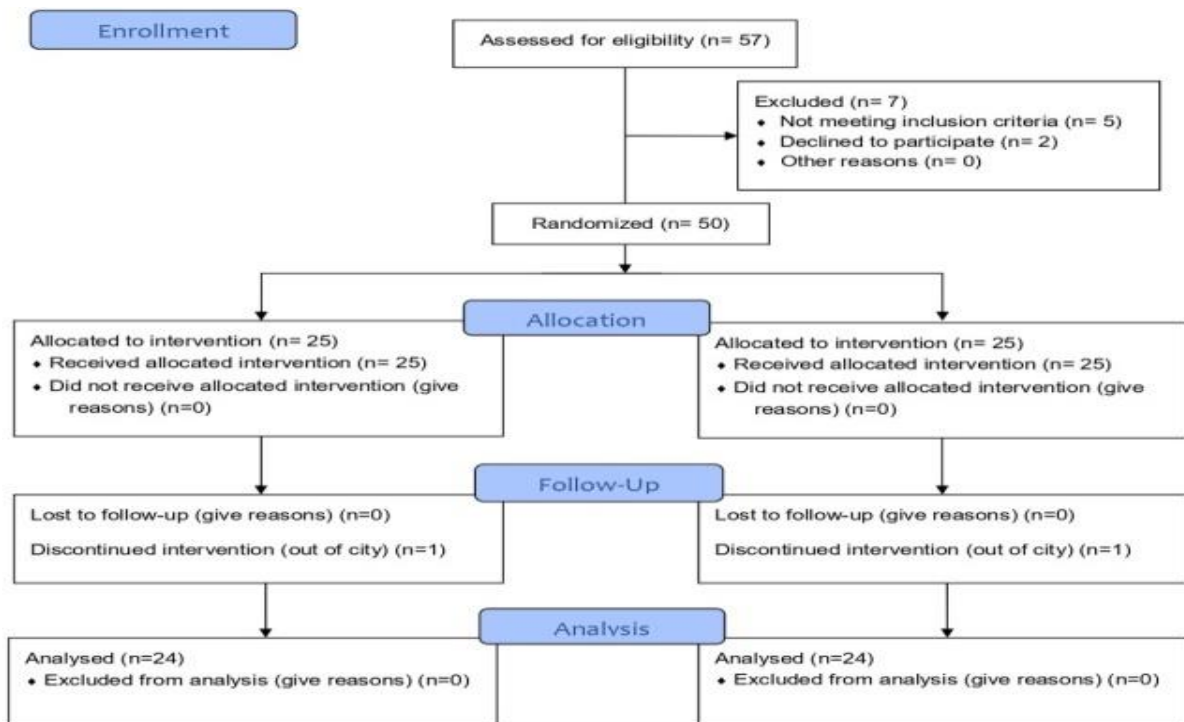


Figure 1: CONSORT diagram

The participants were selected through specific inclusion criteria which were domestic male cricket players between 14 to 35 years of age; those never participated in any injury prevention program. Participants having any previous fractures and surgery, any cardiovascular pathology, history of any lower limb pathology (prior 1 year) were excluded from the study. A written Informed consent was taken from the participants ensuring participants about confidentiality of the data. The data was collected by administering 30 m Sprint

Test for Speed ($r=0.77$ to 0.98)¹⁵, T-Drill Test for Agility ($r=0.63$ to 0.98)¹⁵, 5 Jump Test for Power ($r=0.73$ to 0.86)¹⁶ and Athlete Life Quality Scale ($r=0.83$)¹⁷. Group A received pre-training exercises the FIFA 11+ program for 20 minutes before training sessions and for 10 minutes as post-training exercises after training sessions, two times per week for 3 weeks. The program consists of 15 exercises focusing on core stability, strength training, balance exercises and plyometric, includes Jogging and active stretching of the muscles

actively, abdominal, and lower extremity resistance exercises and high-speed twisting practice are the three key components of this program.¹⁸

The group B received conventional static stretching protocol followed by a dynamic stretching protocol. Each protocol consisted of 15 minutes each. The static stretching and dynamic stretching exercises were repeated 2 times on each leg. These exercises were performed for duration of 30 seconds with 10-second recovery period among each exercise. The targeted muscles were plantar flexors, adductors, hamstrings, hip extensors and quadriceps.

In both groups, as a baseline intervention, subjects performed at least a 5-minute self-paced general warm-up comprising of low intensity to moderate intensity aerobic exercise including 3 minutes of forwarding jogging, 1 minute of side stepping, and 1 minute of jogging backwards. The assessment was done at the baseline and after three weeks. As the data was not normally distributed, non-parametric tests including Wilcoxon Signed Ranked test for

with-in group changes and Mann Whitney U-test for between groups comparison was used. The correlation was used to determine the effect size. The data was analysed on Statistical Package of Social Sciences (SPSS) Version 21.0. The level of significance was set at $p < 0.05$.

RESULTS

The mean age of participants was 20.19 ± 2.796 years. The age range was 15-26 years. The with-in group changes showed that Both groups improved significantly with large effect size in FIFA 11+ Program and Dynamic Stretching Protocol respectively, regarding speed ($z = -4.031$, $p < 0.001$, $r = 0.58$ and $z = -3.74$, $p < 0.001$, $r = 0.53$), agility ($z = 4.30$, $p = 0.001$, $r = 0.62$ and $z = -4.22$, $p < 0.001$, $r = 0.61$), power ($z = -4.28$, $p < 0.001$, $r = 0.61$ and $z = 4.19$, $p < 0.001$, $r = 0.60$) and quality of life ($z = -4.292$, $p < 0.001$, $r = 0.62$ and $z = -4.296$, $p < 0.001$, $r = 0.62$). (table 1)

Table 1: with in group changes in both groups

Study variables	Groups	Baseline	After 3 rd week	p-value
		Median(IQR)	Median(IQR)	
SPEED	FIFA 11+ Program	3.15	3.00	0.000***
	Dynamic Stretching Protocol	3.05	3.00	0.000***
AGILITY	FIFA 11+ Program	11.00	10.30	0.000***
	Dynamic Stretching Protocol	11.05	10.90	0.000***
POWER	FIFA 11+ Program	12.32	12.77	0.000***
	Dynamic Stretching Protocol	12.32	12.45	0.000***
AQOL	FIFA 11+ Program	38.00	55.50	0.000***
	Dynamic Stretching Protocol	37.50	48.00	0.000***

Significance level: $p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***

When comparing the both group it was observed that the group received FIFA 11+ program showed more improvement with large effect size in agility ($U = 67.5$, $p < 0.001$, $r = 0.65$), power ($U = 94.0$, $p < 0.001$, size $r = 0.57$) and quality of life ($U = 94.5$,

$p < 0.001$, $r = 0.56$) as compare to group received dynamic stretching protocol. While no significant difference between the groups regarding speed ($U = 234.5$, $p = 0.264$) after 3rd week of training. (table 2)

Table 2: Group A (FIFA 11+ Program) Vers. B (Dynamic Stretching Protocol) for speed, agility, power, AQOL

Study variables	Groups	Baseline		After 3 rd 2week	
		Median(IQR)	p-value	Median(IQR)	p-value
SPEED	FIFA 11+ Program	3.15	0.466	3.00	0.264
	Dynamic Stretching Protocol	3.05		3.00	
AGILITY	FIFA 11+ Program	11.00	0.418	10.30	0.00***
	Dynamic Stretching Protocol	11.05		10.90	
POWER	FIFA 11+ Program	12.32	0.992	12.77	0.00***
	Dynamic Stretching Protocol	12.32		12.45	
AQOL	FIFA 11+ Program	38.00	0.820	55.50	0.00***
	Dynamic Stretching Protocol	37.50		48.00	

Significance level: $p < 0.05$ *, $p < 0.01$ **, $p < 0.001$ ***

DISCUSSION

The study objective was to determine the effect of injury prevention program (FIFA 11+) on speed, agility, power and athlete quality of life (QOL). The result of the study rejected the null hypothesis for agility, power and athlete QOL, while accepted for the speed. According to the results of the study both groups showed significant improvement in speed, agility, power and quality of life among cricket players. However, between the group comparison showed significant difference in both groups except speed which was equally improved in both groups. Agility, power and quality of life were more improved in the group received injury prevention program FIFA 11+.

Nawed, Alvina, et al. enlightened that their trial provides the insight suggesting that vertical jump and sprint speed were significantly improved in the FIFA 11+ program group compared to the control group ($p < 0.05$).¹⁹ No statistically significant difference in agility parameters ($p > 0.05$) was found between the groups. The results of above-mentioned study conflicts with the present study as improves agility, power and quality of life among cricket players p -value (< 0.005) and doesn't show any significant changes in speed as p -value 0.264.

Sahin, N. E. Ş. E., et al. concluded that their study on FIFA 11+ program shows comprehensive improvement in specific performance such as agility.²⁰ The agility pre-test result was found $6,358 \pm 0,27$ seconds and post-test was found $6,121 \pm 0,34$ seconds. A significant difference was found between agility test values ($p < 0,05$). The FIFA 11+ is a comprehensive warm-up program is an appropriate and effective program for improving performance such as agility in young basketball players.² Authors proved that FIFA 11+ was able to improve dynamic balance and agility.³

Chaouachi, Anis, et al. elaborated that their current study did not show noteworthy impairments in sprint time linked with preceding static stretching or dynamic stretching.²¹ Static stretching following a dynamic warm-up in team sports does not lead to significant decreases in performance in explosive measures of sprint, agility and jumping performance.⁵ The above-mentioned study coincided with this study as there was no significant improvement in the speed among cricket players associated to dynamic stretching

protocol as p -value 0.264. Many researches shows that static stretching can impair power, strength and speed^{22,23}. The findings of current study contradict with this as there was a significant improvement in speed, agility, power and quality of life following stretching program as p value is < 0.001 . Sarika, S et al. has made an effort to evaluate the acute effects of combined stretching methods on flexibility, Speed, & agility in cricket players.³ The current finding displayed noteworthy improvement after combined stretching method than conventional stretching. It determined that combined stretching methods i.e., combined static dynamic and combined dynamic static together improve flexibility, speed & agility than conventional stretching throughout the warm up sessions. The current study coincides with the above-mentioned study as there was significant improvement in speed, agility and power using dynamic stretching protocol as p value is < 0.001 .

Due to the present pandemic situation across the country some limitations occurred to this study as FIFA 11+ could not be implemented for a complete training session (6 months) as described in many studies to have a better efficacy and results. Other variables like weight, height, BMI was not recorded which may affect the results. Also, owing to the athlete's unfamiliarity with practicing cool down and thus a potential propensity, especially when stressed, to not participate properly on every event, proper supervision of the program following training was required.

CONCLUSION

This study found that FIFA 11+ program implication has a significant impact on the improving Agility, Power and quality of life of cricket players. while the effects of this intervention may not be limited to cricket, they may indicate the need for and importance of developing similar programs for other sports like Rugby, Hockey and Basketball etc. that neglect IPPs. Further studies should be conducted on participants with all age groups, with different sports especially including speed as a performance factor to have a better understanding about its improvement.

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