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EXTENDED ABSTRACT

Effect of FIFA 11+ Warm-Up Level 3 on Flexibility Among Amateur Football Players

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I. Introduction

Soccer is a physically demanding sport that calls on strength, agility, flexibility, and endurance. Players are susceptible to injuries because of the strenuous nature of sprinting, jumping, and quick direction changes, particularly amateurs who might not adhere to appropriate conditioning regimens [1].

FIFA 11+ and other warm-up programs have been created to address this. The FIFA 11+ is a regimented practice designed to enhance performance and lower injury rates, especially in young and amateur athletes [10]. Its Level 3 version concentrates on more complex exercises, such as plyometrics, balance, and flexibility training, all of which are essential for movements unique to soccer [2][5].

In order to avoid muscle strains and increase movement efficiency, flexibility is crucial [3]. Although dynamic stretching is a feature of FIFA 11+, little is known about how it specifically affects flexibility in male amateur players between the ages of 18 and 25 [1].

The purpose of this study is to determine whether Level 3 of the FIFA 11+ program, specifically at Universiti Teknologi MARA (UiTM), can increase flexibility in this population. The results may benefit trainers and coaches in creating more effective warm-up routines to improve performance and lower the risk of injury in amateur soccer situations.

II. Methods

A. Subjects

In this study, 22 amateur football players from the UiTM Negeri Sembilan Football Club participated in the study. Two intervention groups (N =11) were randomly assigned to the participants. A FIFA 11+ level 3 warm-up will be performed by the experimental groups, while a standard warm-up will be performed by the other group.

Male football players who were registered with the UITM Negeri Sembilan Football Club squad were required to meet the inclusion criteria. Other requirements for admittance included playing soccer regularly for at least six months and not having suffered any musculoskeletal ailments in the preceding six months. Every participant had to be in good physical health, free of musculoskeletal injuries, and any chronic disease.

B. Instrumentation

Pre-tests were carried out to determine baseline measurements for flexibility measured by the Sit and Reach Test. To evaluate the benefits right away [1], participants took post-tests after finishing the designated warm-up procedures and again using the sit and reach test.

C. Procedure

The experimental group, which conducted the FIFA 11+ Level 3 protocol, and the control group, which performed a conventional warm-up routine, were assigned at random to the participants. Eleven participants in each group met the criteria for participation in playing football regularly for at least six months and not suffering from any musculoskeletal injuries during that time. Both groups will complete the pre-test and post-test on different days. The participant will use the sit-and-reach test to gauge their level of flexibility on the pre-test day.

On the post-test day, the sit and reach test was used to measure flexibility just after the warm-up. Strength and balance workouts, deceleration activities, and structured running drills were all part of the FIFA 11+ Level 3 routine. The traditional warm-up, on the other hand, included static stretching, dynamic stretching, and light running.

D. Statistical Analysis

To determine how the FIFA 11+ Level 3 warm-up affected the flexibility of male amateur football players between the ages of 18 and 25, a randomized experimental design was used. 22 A total of 22 participants made up the sample, and they were split equally into two groups: one that completed the FIFA 11+ protocol and the other that did a traditional warm-up. Those who had been regularly practicing football for at least six months and had not suffered any musculoskeletal issues during that time were eligible to participate.

In order to analyze short-term improvements, flexibility was assessed using the Sit and Reach Test both prior to and right after the warm-up procedures. To maintain consistency, the dataset was cleaned and checked for missing values before statistical tests were performed. Version 2.3.28 of Jamovi was used for the analyses. Pre- and post-test scores were subjected

to paired-sample t-tests to investigate within-group improvements. When comparing the post-intervention flexibility outcomes between the FIFA 11+ and control groups, independent-sample t-tests were used to evaluate between-group differences.

III. Results and Discussion

A. To Determine the Effect of FIFA 11+ Warm-Up Regimes on Flexibility Among Amateur Soccer Players

Table 1 shows that, FIFA 11+ Level 3 warm-up significantly improved flexibility from a mean score of 27.1 to 33.4 ($p < 0.001$), highlighting its effectiveness in enhancing mobility. The structured nature of the program likely contributed to improved neuromuscular activation and range of motion among amateur players.

B. To Determine the Effect of the Traditional Warm-Up Regime on Flexibility

Furthermore, what can be shown in Table 2 is that the traditional warm-up produced only a modest increase in flexibility, rising from 29.5 to 30.7 ($p = 0.181$), which was not statistically significant. This suggests traditional routines may lack the specificity and progression needed to meaningfully enhance flexibility in short-term interventions.

C. To Compare the Effect of FIFA 11+ Warm-Up Regimes and Traditional Warm-Up Regimes on Flexibility Among Amateur Soccer Players

Next, in Table 3, an independent-samples t-test showed no significant difference between the FIFA 11+ and traditional warm-up groups ($t(20) = 1.05$, $p = 0.307$). However, the FIFA 11+ group had a higher average flexibility score ($M = 33.4$) compared to the general warm-up group ($M = 30.7$), with a moderate effect size (*Cohen's d* = 0.447). This suggests the FIFA 11+ may offer practical benefits despite the statistical result. The FIFA group also showed more consistent improvement, likely due to its structured, dynamic approach targeting joint mobility.

TABLE I
PAIRED T-TEST RESULTS (FIFA 11+)

Measure	Mean	SD	Mean Difference	p-value	Effect Size (Cohen's d)
Pre-Test	27.1	4.78			
Post-Test	33.4	5.52	−6.27	< .001	−1.89

TABLE II
PAIRED T-TEST RESULTS GROUP TRADITIONAL

Measure	Mean	SD	Mean Difference	p-value	Effect Size (Cohen's d)
Pre-Test	29.5	6.44			
Post-Test	30.7	6.26	−1.27	0.18	−0.434

TABLE III
INDEPENDENT T-TEST RESULT (FIFA 11+ AND TRADITIONAL GROUP)

Group	Mean	SD	Mean Difference	p-value	Effect Sizen (Cohen's d)
FIFA 11+ level 3	33.4	5.52			
Traditional Warm-Up	30.7	6.26	−2.64	0.307	−0.447

IV. Discussion

The purpose of this study was to compare the FIFA 11+ Level 3 warm-up program to a conventional warm-up in order to assess how well it improved flexibility in amateur football players. Using the Sit and Reach Test, flexibility was evaluated both before and after the intervention. Paired-sample t-tests and independent-sample t-tests were all used in the data analysis. The results showed that while both groups saw improvements in their post-test scores, the FIFA 11+ group showed larger improvements in flexibility performance.

The FIFA 11+ group showed a greater increase, suggesting it may be a more effective intervention. This improvement is likely due to the inclusion of dynamic stretching, strength, balance, and neuromuscular exercises within the FIFA 11+ program, which enhance muscle function and joint mobility [6]. Studies have also shown that dynamic movements increase stretch tolerance, raise tissue temperature, and reduce passive stiffness, contributing to improved range of motion [7][8].

The traditional warm-up showed modest flexibility gains, with scores rising slightly and a small drop in variability. This suggests consistent but limited improvement, likely due to increased muscle temperature and neuromuscular activation [9][12]. However, the lack of structured, progressive exercises may have limited its effectiveness. Supporting this, [11] reported that combining static and dynamic stretches can increase muscle stiffness, reducing the flexibility benefits.

Overall, the results support the use of structured warm-up interventions, such as FIFA 11+, as a more effective approach for enhancing flexibility acutely [6][13]. This has practical implications for coaches and practitioners seeking efficient and evidence-based methods to prepare athletes for performance.

IV. Conclusions

The FIFA 11+ Level 3 warm-up effectively improved flexibility in amateur soccer players, outperforming traditional warm-ups. In a similar vein, [14] discovered that after playing FIFA 11+, young football players significantly improved their sit and reach and functional movement, highlighting the need for consistent, organized training. While the between-group difference was not statistically significant [1], the structured nature of FIFA 11+ suggests valuable practical benefits for long-term training and injury prevention strategies [2].

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