

The Effect of Using Coordination Abilities on Some Physical and Skill Variables of Soccer Beginners in Palestine

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ABSTRACT

Purpose: The purpose of the study was to determine the effect of height weeks of coordination training program on performance of young soccer players. **Methods:** Subjects were divided into two groups: experimental group (coordination training) and a control group (regular training). The coordination training group performed in height week coordination training program and the control group did not perform any coordination training techniques. **Results:** Significant increase of physical performance after Coordination training program: improvement of Speed ($\Delta 9.11\%$), and Fitness ($\Delta 9.33\%$), and flexibility ($\Delta 104.17\%$), and endurance ($\Delta 10.37\%$), and scrolling ($\Delta 125.79\%$), ball feeling ($\Delta 36.820\%$), running with the ball ($\Delta 6.53\%$), and the accuracy of the scoring ($\Delta 95.47\%$), and hitting the ball with the head for the farthest distance ($\Delta 37.17\%$). Also, results showed a significant increase on physical performance during regular training program less than coordination training program: Speed ($\Delta 4.04\%$), Fitness ($\Delta 2.27\%$), flexibility ($\Delta 37.19\%$), endurance ($\Delta 2.44\%$), and scrolling ($\Delta 60.01\%$), ball feeling ($\Delta 4.98\%$), running with the ball ($\Delta 0.352\%$), the accuracy of scoring ($\Delta 35.31\%$), and hitting the ball with head for the farthest distance ($\Delta 8.98\%$). **Conclusion:** The results of this study show that coordination training program can be more improvement than regular training for the youngest soccer players.

Keywords: Coordination abilities program, physical performance, skill Soccer

INTRODUCTION

The most popular game of the planet, soccer is performed by males, females, children, and adults at various levels of participation. Football performance depends on multilateral elements including technical, tactical, physiological, and psychological components. It is also of an intermittent nature which changes every

3-5 seconds. It is also physically demanding since there are many short and intense actions ranging from jumps and turns to processing and high-speed jogging and fast running (Oberacker, 2012). Researchers have probed into the professional football players' motor skills, while the motor skills of young non-professional players have not received equal attention (Gil SM, 2007). In soccer, motor skills depend on aerobic and anaerobic abilities, speed, agility, and muscle strength (Bangsbo J, 2006).

Motor skills such as acceleration, deceleration, and the ability to shift direction while the maximum effort is being used are deemed necessary (Kutlu M, 2012 & Spinks CD, 2007). The reason is this sport calls for frequent and quick movements to leave behind the opposing players and to forward the ball during

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offenses and defenses (Valente-Dos-Santos J, 2012). Athletic performance in soccer is a function of aerobic and anaerobic fitness, speed, muscle strength, and agility (Stolen et al. 2005). Nowadays, it also applies to the soccer training that is carried out with balls in small 2-on-2 games. Previous studies suggested that regular short and fast trainings help accelerate the development (Michailidis et al. 2013).

Skill is defined as a level of performance in any given task that can be achieved only by practice. Regarding the motor performance, experts' skills are usually different from those of beginners' in that the formers' are faster, more accurate, more efficient, and more cost-effective than the latter's (Yarrow, Brown & Krakauer, 2009). Human brain is capable of integrating, interpreting, and coordinating information using multiple sensory modalities and several muscles and joints in order to produce the most efficient motor procedure at a certain time (Jantzen et al. 2008). Accurate integration of acoustic motors is an inseparable component of synchronizing movements with external audio signals (Repp & Su, 2013). Thus, it can be inferred from the abovementioned that the coordination of effectors for optimal performance in a given environment (with various restrictions) is not only about the temporal spatial coordination of motor performance, but it also necessitates the timely coordination and integration of sensory inputs from different methods, and how they relate to evolving movement(s). In other words, it involves the synchronization of perception and action.

The success of a player depends on their ability to control the ball and aim it accurately. Such skills rely heavily on precise multi-point control for accurate timing and transferring of energy between different parts (Reilly T, 2001; Egan CD, 2007; Dorge H, 1999; Chow JY, 2007). Football players proved to be more efficient under the pressure of time than stable individuals in maintaining more normal (i.e., directional) and more difficult (i.e., non-directional) coordination patterns (Cortis C et al. 2009). Therefore, this suggests that long-term football training enhances the executive function in those players who rely heavily on precise control of their

feet to overcome movement restrictions. Researchers designed certain tests to increase the ecological validity of football coordination tests. They include activities similar to those during the game such as time-bound dribbling (Taskin H et al. 2009; Rösch D et al. 2000).

Researchers also believe that the physical and skill variables in football are those the coach can influence more, and can enhance and develop on a scientific basis. Such a stage is considered to be one of the most important phases of building players, discovering talents, and preparing them to be the core of adult teams, which plays a key role in achieving the best results in the future. The researchers opted for this study to examine the importance of exercises using coordination abilities to improve the skills and physical level of the youth since the pair are of the gravest significance to the level of achievement among young footballers. They are considered as a prelude to the use of coordination abilities in improving the performance of the participants. To the best of our knowledge, no studies have examined the effect of coordination training program on physical and technical indices of young soccer players.

The aim of this study is therefore to examine the effect of height weeks of coordination training program on performance of young soccer players.

METHODS

Subjects

The sample of the study consisted of 24 young football players from STEPS Foundation in Tulkarm Governorate, whose ages ranged from 7- 9 years in the sports season of 2014. They were randomly distributed between the two equal groups: the first one experimental and the other control, with 12 young people in each (Table 1).

None of the players reported any current or ongoing neuromuscular diseases or musculoskeletal injuries, and none of them were taking any dietary or performance

Table 1: Anthropometric measurement

Variables	Experimental group	Control group	T-value	Signification
Age (years)	7.83±0.83	7.66±0.77	0.50	0.61
Height (cm)	131.1±1.74	130±1.31	1.71	0.10
Weight (kg)	35.25±1.35	35.08±1.44	0.29	0.77

supplements that might be expected to affect performance during the training program. The study was conducted according to the Declaration of Helsinki and the protocol was fully approved by the Ethic Committee of the University before the commencement of the assessments. No significant change of anthropometric measurement between the experimental and control groups.

Design of the Training Program

The proposed program for the improvement of coordination abilities was developed after a comprehensive survey of scientific studies and previous and related studies was carried out in order to find out the most important exercises that help to improve such abilities. The training program based on sets of circuit training covering endurance, flexibility, agility, and speed areas, which were extracted from previous references and studies such as the study of Abu Bshara, (2010). The training program was based on recommendations of intensity and volume from Piper and Erdmann, 1998, using similar drills, sets, and repetitions.

Statistical Analysis

All analyses were carried out using SPSS 16 for Windows (SPSS, version 16 for Windows. Inc., Chicago, IL, USA). Values were expressed as mean and standard deviation (SD). Normality of all dependent variables was assessed using the Kolmogorov-Smirnov test. The anthropometric measurement were evaluated using the independent Student's T-test. Two-way repeated measures ANOVA (2 groups * 2 periods) were used to compare the physical and technical indices between groups across periods. The level of significance was set at $p \leq 0.05$.

RESULTS

Table 2 represented the effect of two training programs during 8 weeks on physical and technical indices of soccer players. The results showed a significant increase of all physical and technical indices for the experimental and control groups. Also, a significant increase of all physicals and technics indices between the experimental and control groups after programs training. However, no significant change of all physical and technics indices between the experimental and control groups before programs training.

DISCUSSION

The researchers believe that this improvement in the study variables in the posttest of the experimental group and its superiority over the control group is due to the implementation of the proposed training program which was based on scientific principles and followed the principles of modern scientific training for the development of physical abilities and basic skills (Eisa, (2016); Moraru, (2014); Abu Bshara, (2010); Jamal, (2008); Farid, (2007); Agha, (2014); Hassan, (2005); Jadach, (2005); Chow, (2007); Witkowski, (2005); Luxbacher, (2003); Hirtz and Starosta, (2002); Tkozki et al. (2001)).

In addition. such a program increases the motivation of young players where they have no previous experience. Shakir, (2007) quotes Meacrolle, (1986) as pointing out that participants can make progress. and the possibility of progress is greater for the beginners and intermediate-level players than that of advanced players.

Table 2: Physical and technical indices of soccer players before and after 8 weeks in different training programs

Variables	Experimental group			Control group			T-value	Signification
	Pre	Post	Δ (%)	Pre	Post	Δ (%)		
Pace (sec)	6.42±0.21	5.84±0.10*	9.11	6.51±0.24	6.25±0.23	4.04	5.49	0.0001 [¥]
Fitness (sec)	27.57±1.1	25.00±0.91*	9.33	28.18±1.18	27.54±1.25	2.27	5.67	0.0001 [¥]
Flexibility (cm)	6±2.81	12.25±2.92*	104.17	5.55±4.01	7.62±3.98	37.19	3.24	0.0001 [¥]
General endurance (cm)	78±0.01	60.06±0.02*	10.37	78±0.02	75±0.01	2.44	9.81	0.0001 [¥]
Push kick (time)	3.08±2.15	6.91±0.9*	125.79	2.08±1.08	3.33±0.77	60.01	10.42	0.0001 [¥]
Ball feeling (time)	59.75±3.01	81.75±6.81*	36.82	58.58±2.74	61.50±2.64	4.98	9.60	0.0001 [¥]
Running with ball (sec)	32.40±3.31	30.28±3.22*	6.53	34.89±3.39	34.77±3.39	0.35	3.31	0.0001 [¥]
Accuracy of aiming (time)	1.83±0.57	3.58±0.51*	95.47	1.41±0.66	1.91±0.66	35.31	6.84	0.0001 [¥]
Headshots (cm)	3.53±0.37	4.84±0.53	37.17	3.32±0.27	3.62±0.22	8.98	3.30	0.0001 [¥]

[¥]Significantly interaction difference between groups before and after training programs; *significantly different between the two groups after training programs; the value of (T) (2.07); degrees of freedom (22).

The researchers attribute the existence of statistically significant differences in favor of the posttest to the proposed training program. Where it encompasses exercises for coordination abilities, which includes the linking of physical characteristics related to the nature of performance through the speed and accuracy of these performances and the accompanying movements and sudden change in multiple directions.

CONCLUSIONS

The results from our study are very encouraging and demonstrate the benefits of coordination training that can have on physical performance like transition speed, agility, flexibility, and general endurance of young soccer players. Not only players can use coordination to break the monotony of training, but also, they can improve.

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