2024, Retos, 61, 1596-1600
© Copyright: Federación Española de Asociaciones de Docentes de Educación Física (FEADEF) ISSN: Edición impresa: 1579-1726. Edición Web: 1988-2041 (https://recyt.fecyt.es/index.php/retos/index)

The effect of basic strength training on developing some physical variables in football for beginners

El efecto del entrenamiento de fuerza básico en el desarrollo de algunas variables físicas en el fútbol para principiantes

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Abstract. Skillful performances require strength in a fundamental way, and its importance, role, and structure emerge from one activity to another according to the requirements set by the situations of this activity to reach the higher levels. The purpose of this paper is to establishing basic strength training exercises to developing some physical variables for beginners and to identify the effect of the exercises. A sample of (36) beginners, from the football school in Wasit Governorate, (age = 10.5 ± 1.5 years, height = 142.32 ± 3.87 cm, mass 38.95 ± 3.71 kg) participated in the study. The participants in the experimental group (n=36) completed pre-tests and post-tests.The results of the experimental sample show that there was a significant improvement in the mean scores for basic strength on the post-test compared to the pre-test. The mean score Sprint 30 m from (5.95 to 5.08, $p<0.005$), the mean score for the Bend the torso forward and down from standing from (1.41 to 3.91, $p<0.005$), (Agility from (10.55 to 8.57, $p<0.005$), and the mean score for (measuring eye-leg coordination) from (13.49 to 9.93, $p<0.005$). The most important conclusions are that the exercises have a clear impact on the players' abilities and in a positive direction. It has become clear to distinguish the differences between the two research groups in terms of the external appearance of the muscles and the positive impact on the psychological state.
Keywords: Basic strength, Physical variables, Football, Beginners.

Resumen. Las actuaciones hábiles requieren fuerza de manera fundamental, y su importancia, papel y estructura emergen de una actividad a otra según los requisitos establecidos por las situaciones de esta actividad para alcanzar niveles superiores. El propósito de este documento es establecer ejercicios básicos de entrenamiento de fuerza para desarrollar algunas variables físicas para principiantes e identificar el efecto de los ejercicios. Una muestra de (36) principiantes, de la escuela de fútbol en la Gobernación de Wasit, (edad = 10.5 ± 1.5 años, altura = 142.32 ± 3.87 cm, masa 38.95 ± 3.71 kg) participó en el estudio. Los participantes en el grupo experimental (n=36) completaron pruebas previas y posteriores.Los resultados de la muestra experimental muestran que hubo una mejora significativa en las puntuaciones medias para la fuerza básica en la prueba posterior en comparación con la prueba previa. La puntuación media en el sprint de 30 m pasó de (5.95 a 5.08, $p<0.005$), la puntuación media para inclinar el torso hacia adelante y hacia abajo desde la posición de pie pasó de (1.41 a 3.91, $p<0.005$), (agilidad de (10.55 a 8.57, $p<0.005$), y la puntuación media para (medir la coordinación ojo-pierna) de (13.49 a 9.93, $p<0.005$). Las conclusiones más importantes son que los ejercicios tienen un impacto claro en las habilidades de los jugadores y en una dirección positiva. Se ha hecho evidente distinguir las diferencias entre los dos grupos de investigación en términos de la apariencia externa de los músculos y el impacto positivo en el estado psicológico.
Palabras clave: Fuerza básica, Variables físicas, Fútbol, Principiantes

Fecha recepción: 01-09-24. Fecha de aceptación: 04-10-24
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Introduction

The sport of football is growing rapidly everywhere in the world every day. This is because professionals in the sector have chosen to follow the scientific method in all of its branches, including management, training, physical therapy, and medicine, or any other area that aids in improving player and team performance.

Achieving peak performance in sports necessitates athletes having a high level of physical fitness. Among the key physical components, both overall fitness and movement fitness play significant roles in competitive sports, particularly those involving muscles. Football, a globally popular sport, demands explosive movements like kicking, tackling, jumping, sprinting, and rapid changes in direction. (Firmansyah et al., 2023)

Achieving high achievement in football begins with children and young people playing this game. Therefore, the civilized and developed world began to pay attention to age groups and work to pay attention to specialized schools. There are even countries that paid attention and worked to develop programs for specialized schools in football, in which children attend at very early ages, as there are those who begin at the age of From (5-6) years, classes and hours are devoted to the field of football, which is theoretical and specializes in the nature of the game, its history, its foundations, its laws, the rules and foundations of learning it, and in recognition of a process that aims primarily at coexistence with football and learning about its paths through free play (Sabr, Lasam, 2009).

In modern football, skillful play is crucial to the team's ability to win and directly impacts the team's ability to master and succeed in its style of play, which confuses the opposition and makes it difficult for them to manage the play and performance. In order for a football player to perform at the top levels, skill preparation attempts to teach him the fundamental abilities he will need to master and solidify during games and competitions (Abo Abdo, 2013).

Skillful performances require strength in a fundamental way, and its importance, role, and structure emerge from one activity to another according to the requirements set by the situations of this activity to reach the higher levels. Football falls under the activity that has a positive mutual influence between players, and in which skillful performances are directed to how the player uses each... Powers with economy, speed and accuracy of performance in different

circumstances of changing match situations, as the success of the player's performance during the match depends on his mastery of these skills, no matter how the circumstances change and the diversity of these performances he has (Abdel-Khaleq, 2005) (Hasan & Matty, 2024).

It is during the training period that aims to prepare the player or team physically, which works at the same time to develop his movements and skills. This type of training is performed throughout the training year (the sports season) and includes all training programs and courses. In fact, the backbone of the daily training unit is Basic strength training, although training methods differ according to the goal set by the trainer (M. S. Ahmed et al., 2024).

The movements of a soccer player require strength, as jumping to head the ball, shooting at the goal, or fighting to regain possession of the ball demands strong muscular effort and driving force. When training for basic age groups. It should be noted that young players strength, it should be distinctive and suitable for different should not exaggerate their strength; training for the youth should align with their actual strength, otherwise, it could lead to injuries that .The effectiveness of core strength training is crucial to achieving success in football matches, and there are many studies that confirm its importance. Therefore, the researchers decided to conduct this experiment locally in order to obtain results that support their hypothesis and generalize it in the local research community. may harm the player's athletic future based on the researcher's experience as a former player in the Iraqi Premier League in football, a coach of the Wasit University football team, and his work as an assistant coach for one of the Iraqi Premier League clubs, most football players neglect basic strength training for young age groups, which reflects poorly on this segment, especially when Transitioning to a new age stage where deficiencies are evident in the aspects of strength, as is clearly visible through the levels in local championships at the league level and other tournaments.

This is what prompted the researcher to address this problem to identify the effect of basic strength to developing and develop some motor abilities with the aim of developing basic strength exercises to developing some motor variables for beginners. Therefore the study aims to identify the basic strength training exercises to develop some physical variables for beginners.

Materials and methods

Experimental Design

This study was based on a one-group pretest/post-test experimental design with repeated measures. Their age, weight, height, BMI levels, and information about their age were recorded. Then, information was given about the core exercise practices to be applied for (6) weeks.

Participants

The research sample included 36 beginners from the football school in Wasit Governorate, between the ages of 9 and 11 years. They were chosen randomly. The basic study was conducted on 22 beginners, while the exploratory study was conducted on 14 beginners. Table No. (1) Shows the moderation of the basic research sample and its number (22) beginners players. This study was approved by the University Ethics Committee No. 32/174 and dated 20/02/2023 and was accepted with the research code number and was carried out in accordance with the recommendations of the Declaration of Helsinki.

Table (1) shows the statistical description of the research sample data regarding the basic initial variables before the experiment for football beginners aged 9-11 years.

Table 1.
Group characteristics

Variables	Measuring unit	Mean	Std. Deviations	Median	Skewness
Length	Cm	142.3	143	4.79	0.47
Mass	Kg	38.95	38.5	4.34	0.19
Age	Year	10.30	10.5	0.66	0.28-
Bend the torso forward and down from standing	cm	1.41	1.5	0.97	0.28
Barrow's Test (Agility)	sec	10.55	9	4.95	4.94
Numbered circles test (measuring eye-leg coordination	sec	13.49	14	3.99	0.383
Running 30m	sec	5.95	6	1.25	0.12

It is clear from Table (1), which concerns the homogeneity of the research sample data in the basic preliminary measurements, that the skewness coefficients range between (-0.28 to 0.47), which indicates that the extracted measurements are close to moderation, as the values of the moderate skewness coefficient range between ±3 and very close to zero.

Data Collection Tools

Form for each player to record the sequence measurements

After conducting some personal interviews with experts and specialists, in addition to documenting the opinions of most of them in questionnaire forms about the validity of the tests used, the experts and specialists confirmed that these tests are valid, as the percentage of answers was valid (90%).

1- Sprint 30 m. (transitional speed) (Mohr et al., 2012)

2- Bend the torso forward and down from standing (flexibility of the back and posterior muscles of the legs) (Hassanein, 1987)

3- Barrow's Slalom Running Test (Agility) (Bidaurrazaga-Letona et al., 2015)

4- Numbered circles test (measuring eye-leg coordination) (Hassanein, 1987)

Experimental Design

Participants were familiar with all testing and exercise protocols before starting the study.

Pre-test

On October 20, 2023, the researcher administered the pre-test to the basic research sample, which consisted of twenty-two beginners. It comprised a series of physical examinations on the school football field that were codified scientifically by examining the reliability and validity of the chosen examinations.

Exercises that are employed

The researcher created the training program by defining the following, drawing from the previously specified scientific sources and references:

- Establish how long it will take to put the training program's contents into practice.
- The training course ran from December 10, 2023, to August 12, 2023.
- Establish how many weeks will it take to implement the training program?
- The eight weeks of the training program are when the training modules are implemented, as chosen by the researcher.
- Ascertain how many training units are offered each week: The three training units that the researcher designated for the week were (Saturday - Monday - Wednesday). The training duration for each training unit was fixed by the researcher at 20 minutes.
- Choose the components of the training course: The training program's components were determined by the researcher and dispersed over several weeks:

• Age-appropriate physical activity for the research sample.
• Weekly training unit total: three units.
• The training course lasts for eight weeks.
• A total of twenty-four training units are available.
• A period of low intensity.

Post-test

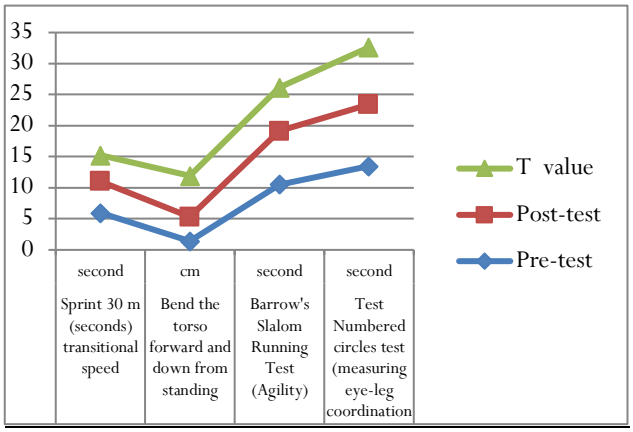
The post-test was conducted after the completion of applying the training program to the main study sample, which was on 10/12/2023. All tests were conducted as were done in the pre-test and under the same conditions, order and time.

Statistical methods

The Statistical Package for the Social Sciences (SPSS) was used to process the search data.

Results

Presentation and discussion of the results of the kinetic variables for the experimental research samp



Variables	Measuring unit	Pre-test	Post-test	T value	Level	Type Sig
Sprint 30 m (seconds) transitional speed	Second	5.95	5.08	4.211	0.010	Sig
Bend the torso forward and down from standing	Cm	1.41	3.91	6.612	0.000	Sig
Barrow's Slalom Running Test (Agility)	Second	10.55	8.57	7.011	0.000	Sig
Test Numbered circles test (measuring eye-leg coordination	Second	13.49	9.93	9.203	0.000	Sig

Table 2.
Shows the results of the kinetic variables for the experimental research sample.

Discussion

The current study confirms the positive effects on physical capacity and functional status in beginner players. The physical characteristics (transitional speed, flexibility, agility, and compatibility) under investigation show statistically significant variations between the pre-, inter-, and post-measurements, favoring the post-measurement.

In the physical variables (transitional speed, flexibility, agility, compatibility) under investigation, the developing rates differ between the pre-, and post-measurements, favoring the post-measurement.

In particular, the group that trained on basic strength showed significant improvements in the four basic areas of functional capacity, maximum power, and transitional speed, The researchers attribute this clear superiority in the post-test to the training program that they used, which included physical exercises appropriate to the characteristics of the age stage, which aimed to develop the physical variables of the research sample, as physical performance and skill performance should not be separated when training players in a way that suits the age stage. Taking into account the characteristics of each stage, take into account that each basic skill in football has its appropriate physical fitness elements associated with it (Lafta et al., 2024), which is consistent with the results of previous studies (Bottaro et al., 2007; Pereira et al., 2012; Schaun et al., 2022), where the authors indicated that EF achieves high speed and is more efficient in improving functional capacity and explains the variance in tests of functional capacity, strength and power (Barón Barón et al., 2023). The strength training and its increase are essential for age groups during the preparation period, and basic strength training can lead to improved performance in skills

among players of football, handball, basketball, swimming, dancing, karate, Muay Thai, gymnastics, volleyball, badminton, and golf (Al-Fadli, 2007) (B. Ahmed, 2010) (Al-Beik, 2002). Strength training is the basic rule for facilitating the task of mastering players' skills and achieving sports form for their ages.

(Lafta et al., 2024) (Al-Kartani, 2024) (Banwan Hasan & Awed, 2024)

Standardized training programs play a major role in raising the level of players, which leads to the development and development of the skill aspect, which helps the player perform the duties assigned to him. This is what was indicated that planned programs established on scientific foundations achieve the best level of development and development in achievement (Hassan, 1997).

The researchers stress the need to pay attention to standardized strength training to serve the motor duty of young age groups appropriately to maintain the safety of functional systems and organs. (Al-Kartani, 2024).

In addition, many studies have found that core strength training has beneficial effects on young age group football players (Bavlı & Koç, 2018) The core area of the body is crucial for effective biomechanics. It enables the production, movement, transfer, and control of force excellently to the distal section during integrated sports activities. Core muscle activity can be defined as the pre-programmed integration of core muscles for the purpose of providing stability and producing movement. This leads to proximal stability for distal movement, a near-to-far pattern for force generation, and the formation of reactive moments that move and protect the distal joints. At the same time, reactive moments maximize force at the distal end while maintaining accuracy and stability at the distal end (Kibler et al., 2006). As a result, this clarified why football players benefit from core strength training.

Conclusions

- The training has a clear impact on the players' abilities in a positive direction
- It became clear to distinguish the differences between the two research groups in terms of the external appearance of muscles have a positive effect on the psychological state
- Basic strength training is considered the main basis for maintaining and raising the level of performance.

Recommendations

- Pay attention to body weight strength training for all age groups
- Motivating players to give great importance to strength training
- Conducting other studies on other activities, samples of different ages.

group of older adults). Retos, 51, 741–748.

Funding

This study was funded by Wasit University (32/174/2023)

Conflict of interest

The authors declare that they have no conflict of interest.

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