

# DEVELOPING SPEED AMONG 10-11 YEARS OLD CHILDREN PLAYING INTERNATIONAL SOCCER IN ADDITIONAL EDUCATION FACILITIES

## DESARROLLO DE LA VELOCIDAD EN NIÑOS DE 10-11 AÑOS QUE JUEGAN FÚTBOL INTERNACIONAL EN INSTALACIONES EDUCATIVAS ADICIONALES

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### ABSTRACT

This article reviews the speed of development among 10-11 years old children playing international soccer in additional education facilities problem. Since these facilities are paying much attention to the technical and tactical part of the game during the training process, there is not much time to develop the qualities that players need. Due to this fact, it is imperative to implement some exercises that help develop young players' speed in the training course. The goal is to develop the complex of exercises to increase children's 10-11 years old's speed using coordination development means. The main approach of the soccer referees training research is structural analysis. The research methods are scientific and methodological literature and information environment on speed development based on coordination development means analysis and generalization, pedagogical surveillance, pedagogical experiment, and mathematical data processing methods. The results of the pedagogical experiment with control and experimental groups comparing in different speed development tests are shown. Speed improving training exercises complexes are developed, including no item exercises, ladder exercises, ball exercises. The results are genuine, proven by Student's t-test statistic method. This article can be useful for beginner and skilled soccer coaches to implement different exercises in their training process to make the training process more exciting for their trainees and create favorable conditions for speed development.

**Keywords:** physical fitness; soccer coaches; additional education facilities; development of speed; training course.

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## RESUMEN

Este artículo revisa la velocidad de desarrollo entre los niños de 10-11 años que juegan fútbol internacional en el problema de las instalaciones de educación adicional. Dado que estas instalaciones están prestando mucha atención a la parte técnica y táctica del juego durante el proceso de formación, no hay mucho tiempo para desarrollar las cualidades que necesitan los jugadores. Debido a este hecho, es imperativo implementar algunos ejercicios que ayuden a desarrollar la velocidad de los jugadores jóvenes en el curso de entrenamiento. El objetivo es desarrollar el complejo de ejercicios para aumentar la velocidad de los niños de 10 a 11 años utilizando medios de desarrollo de la coordinación. El enfoque principal de la investigación sobre la formación de árbitros de fútbol es el análisis estructural. Los métodos de investigación son la literatura científica y metodológica y el entorno de información sobre el desarrollo de la velocidad basado en el análisis y la generalización de los medios de desarrollo de la coordinación, la vigilancia pedagógica, el experimento pedagógico y los métodos de procesamiento de datos matemáticos. Se muestran los resultados del experimento pedagógico con grupos control y experimental comparando en diferentes pruebas de desarrollo de la velocidad. Se desarrollan complejos de ejercicios de entrenamiento para mejorar la velocidad, que incluyen ejercicios sin elementos, ejercicios de escalera, ejercicios con pelota. Los resultados son genuinos, probados por el método estadístico de la prueba t de Student. Este artículo puede ser útil para que los entrenadores de fútbol principiantes y experimentados implementen diferentes ejercicios en su proceso de entrenamiento para hacer que el proceso de entrenamiento sea más emocionante para sus alumnos y crear condiciones favorables para el desarrollo de la velocidad.

**Palabras clave:** Aptitud Física; Entrenadores De Fútbol; Instalaciones Educativas Complementarias; Desarrollo De La Velocidad; curso de entrenamiento.

## INTRODUCTION

In international soccer speed is complex physical feature determined by neural and muscular system. To understand the nature of the speed we need to pay attention to two key aspects: straight and coordination. For team sports the speed is functional ability that provides immediate and correct (optimal) motor reaction to different stimulus and situations during the game and functional ability which allows performing mental and movement actions needed for fast and effective gameplay (Kruchinina & Filonov, 2020).

When we talk about international soccer we need to pay attention on two types of speed: movement and gameplay element executing during the match and situation assessment plus making decisions. Fast runner is not always a fast player because of lack of coordination for fast redirect and in-game speed change disability. Since international soccer is played on large field such player cannot take the opponent by surprise with his actions (Rasulovich, 2022).

It is important to know that there is no point in fast players that don't know how to use it wisely. We must teach sportsmen when they need to accelerate or decelerate, how to change direction, when to stop, pass to free teammate. Thus we help our players to get a game speed even if their regular speed is not so high (Turbin, 2004; Santos-Sánchez et al., 2021).

Despite that, speed can be increased with the help of special high intensive exercises. Unlike anaerobic stamina development training the pause between these exercises must last until full recovery (pulse no more than 120 bpm). Thanks to full recovery player can execute each exercise in full straight, improving his movement speed as a result. The exercises should be performed on a playing ground, the basis of the exercises is movement with direction changing, multidirectional charged rushing (forward, backward, diagonal). For technique perfection and as a motivator for players, ball exercises may be added (Pombo et al., 2021).

Special exercises with the focus on fast game elements, like counterattack, defensive pulling back, transitions, majority/minority game, time limits, may be added to improve in-game and ball handling speed, their execution requires awareness, decision making and realization skills. Key moments in international soccer are usually short-term and high-intensive, they require high speed performance. But the elements, such as counterattack, decisive movements, playing ahead, goal strikes, free space creating and control, will be useless if they are just performed at high speed but lack of quality in other technical actions (passing, ball control etc.) (Bodony, 2020).

Having good speed is not enough. It must be demonstrated exactly in the moment of special action on the field, considering that haste can provoke a large number of technical flaws and can have negative impact on player's total performance. International soccer is difficult sport if we mean speed. In this context the definition of speed is accurate until we realize that the term covers not only movement rapidity but also typical non-cyclic actions which require another type of speed: muscle fibers contraction rapidity. More than that we must not forget about other types of speed, like time of reaction on external factors, segmental speed (body parts movement rapidity) and performing speed (the rapidity of technical actions executing). All of them are very important for ball handling. The goal of the article is to develop a complex of speed developing among 10-11 years old children playing international soccer in additional education facilities (Liu & Ma, 2022).

Modern international soccer makes high demands to physical development even to juniors. Young players must perform all technical and tactical elements of the game at high speed. This demands high speed and coordination skills. Modern international soccer is also unimaginable without player's fast movement on the field. The effectiveness of tactical combinations is heavily depended on fast maneuvering. However even the fastest player will not be effective if he cannot stop the ball, pass or hit the goal. That is why the development of speed among 10-11 years old children playing international soccer in combination with coordination and ball handling exercises is in very high demand.

## **LITERATURE REVIEW**

Modern international soccer has high demands on rapidity in competition activity. The complex development of speed skill is very important even in junior age. According to that fact the means of speed skill development should include coordination exercises and straight-speed exercises. Only complex approach to speed abilities can form fast player for competition. It would be better if speed ability training means will be combined with ball exercises (Kopylov, 2011). This allows not only to develop players' speed abilities but combine speed with technical performance of selected competitive elements.

Players' maximum speed during training period and competitive period depends not only from his movements' rapidity. Strong relationship between speed abilities and dynamic speed with player's

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flexibility. We can say that football players' speed abilities are complex movement quality, which allows to demonstrate movement rapidity and technical elements rapid performance (Stafeeve et al., 2019).

The most effective way for players is to simulate in-game situations during training process, which allows to show movement actions maximum rapidity. We should consider that all moves, movements and rest in-game actions as a result must be directed on solving command task (Sørensen et al., 2022).

However during the training process the manifestation of footballer's speed qualities must be accompanied by additional criteria:

- Movements must be performed in maximum tempo;
- Execution technique must be learned clearly, so it can be performed without consciousness control;
- Speed must not be lowered during the element execution. If it does, that player must rest until full recovery (Zhemchug et al., 2019).

If the player cannot recover fast, tan coach need to implement the fast stamina development means in training process. This allows increasing the effectiveness of speed training process of player.

The result of match depends on players' rapidity manifestation; it must be rapidity of all team and not the rapidity of individual player (Eskandarifard et al., 2022).

The rapidity manifestation is a priority task of training process. However the including of footballer's movement rapidity training means will not allow developing footballers' speed qualities in complex. I say rapid relocating of the player on the field will not always allow him to take the ball, handle it or pass it to a teammate.

It is also important to select training means according to current team tactics. The presence of fast and technical player allows to use aggressive tactics scheme of the game. Well developed and physically prepared players allow to choose power play tactics for the whole match. The absence of high speed players with minimal technical potency narrows possible tactics to defensive only. Creating and building up the attacking actions in much harder than spoiling them. That is why this demands not only developing of speed qualities among the players, but also technical and tactical skills during the training and competitions (Arkhipova et al., 2019).

There is one more condition of players' speed developing. It is speed abilities optimal development accompanied by deep common physical development. That is the reason why coach shouldn't develop the player's speed up to the limit at ones. It is imperative to purposefully develop common stamina, social stamina, strength and coordination abilities during the training period. With this basis the development of speed abilities is more effective.

Player's rapidity is also important to perform such competitive actions like accelerations, spurts, jumps, ball kicks, dribbling. But such rapidity manifestations should be developed by means combined with ball handling. Thus the training complex will be effective if it is not divided on different qualities development, but a complex one. This allows develop both speed and technique of a player. Thus the best way to develop players' speed manifestation is the training complex which develops fast movement and ball handling at the same time ([Markova et al., 2019](#)).

This fact demonstrates the necessity of search the means of players’ speed abilities which can combine ball handling, movement and direction changing.

**METHODS**

Methodological and scientific literature review included the analysis of means and methods of footballers’ speed abilities development, searching of the most effective methods of rapidity development in training and competition processes. The most optimal children playing football rapidity development means were studied with the most effective complex means of speed abilities.

Tests. Testing of young footballers included speed abilities development tests.

Test 1. 30 meters running. Running was performed on a soccer field, from a high start using soccer shoes (sneakers, cleats, multi-studded cleats). Testing was performed by one player or in pairs for competitive atmosphere. Time measurement made with tenth second accuracy.

Test 2. 60 meters running. Running was performed on a soccer field, from a high start using soccer shoes (sneakers, cleats, multi-studded cleats). Testing was performed by one player or in pairs for competitive atmosphere. Time measurement made with tenth second accuracy.

Test 3. 30 meters running with maximum speed dribbling. Player must perform no less than five ball touches; otherwise test is considered to be failed and must be repeated.

Test 4. Outlining the racks. Dribbling starts with the signal to the first rack in 10 meters from the start line, then player outlines 5 racks with 2 meters between them. After the final rack player runs to the finish line dribbling on the way.

Test results statistic processing. Average values were calculated. Data were processed by STATISTIKA 6.1 software to calculate difference reliability with the help of Student’s t-test for dependent sample.

Graphical method. Diagrams were created for visual presentation of young players’ speed abilities test results.

**RESULTS AND DISCUSSIONS**

At the start of the research young players form control and experimental groups were tested in order to determine their rapidity basic development level.

The results of experimental and control groups showed almost same results. All test showed low rates of speed, just like the most of the children of their age.

There were no significant differences between test subjects’ results (Table 1).

**Table 1.** The results at the research start

Test	XG	CG	Medium result difference	t-criteria	Reliability
30 m running	5,82	5,87	+0,05	0,11	Unreliable
60 m running	10,95	10,91	-0,04	0,08	Unreliable

Test	XG	CG	Medium result difference	t-criteria	Reliability
Dribbling	12,05	12,28	+0,23	0,21	Unreliable
Outlining the racks	15,99	16,07	+0,08	0,14	Unreliable

Thus we say that at the moment of research start the rapidity values of experimental and control groups were at the same level.

During the research the complex of training exercises for children 10-11 years old speed development was used for 2 months (24 training sessions).

During 24 training sessions the main part of the complex included young players' rapidity development. The feature of exercises selection was that complex alternated exercises on rapidity speed and strength qualities, coordination ladder exercises and speed ball control exercises every day.

After 24 training sessions young footballers from control and experimental groups passed through retest.

The tests result at the end of research showed growth of rapidity manifestation in both groups. But experimental group demonstrated higher dynamics in all exercises.

The experimental group showed growth of result at 0.62 seconds in 30 meters running when control group shows only 0.2 seconds improvement. In dribbling test experimental group showed 2.79 seconds increasing while control group demonstrated only 0,29 sec. In outlining the racks test experimental group improved result at 3,21 sec, when control group showed 0,4 sec. improvement.

Details are in Table 2.

**Table 2.** Test results in the beginning and in the end of research comparing

<b>XG</b>	<b>Beginning</b>	<b>End</b>	<b>Difference</b>
30 m	5,82	5,2	-0,62
60 m	10,95	9,85	-1,1
dribbling 30 m	12,05	9,26	-2,79
Outlining the racks	15,99	12,78	-3,21
<b>CG</b>	<b>Beginning</b>	<b>End</b>	<b>Difference</b>
30 m	5,87	5,67	-0,2
60 m	10,91	10,77	-0,14
dribbling 30 m	12,28	11,99	-0,29
Outlining the racks	16,07	15,67	-0,4



In order to confirm the credibility of tests data we use Student’s t-criteria calculation. The calculation was made using STATISTICA v 6.1 software. The numbers are in Table 3.

Table 3. Credibility calculation using Student’s t-criteria.

Test	XG	CG	Average results difference	Student’s t-criteria	Difference credibility
30 M running	5,2	5,67	0,47	1,25	Unreliable
60 M running	9,85	10,77	0,92	2,84	Reliable when $p < 0,05$
Dribbling	9,26	11,99	2,73	3,28	Reliable when $p \leq 0,05$
Outlining the racks	12,78	15,67	2,89	3,32	Reliable when $p \leq 0,05$

The results of 3 of four tests are considered to be reliable. Only results of 30 meters running test appeared to be unreliable.

Thus we can say that proposed complex of rapidity improving exercises which included non-item exercises, coordination ladder exercises and ball handling exercises, is effective. Rapidity indicators were improved in all experimental group tests.

Our research demonstrate the complex of rapidity improving exercises complex using non-item means, coordination ladder exercises and exercises with ball research attempt. The effectiveness of this complex using for rapidity development among 10-11 –year-old children was confirmed.

The following tasks of the research were completed:

Scientific literature on the topic of the research reviewed;

Training exercises for speed development among 10-11-year-old children playing football complex using coordination improvement was created.

The effectiveness of the complex for speed development was confirmed.

Suggestion that using the training exercises complex would allow to improve speed abilities of 10-11-year-old football players confirmed.

## CONCLUSION

The competition result in international soccer depends on players’ speed manifestation. In modern international soccer game the faster team wins as a rule. At the same time it is whole team rapidity on the field is matters, but not individual player’s rapidity.

Player’s rapidity is important during other competition activity like accelerating, burst of speed, jumping, ball kicks, dribbling. However such manifestation of rapidity must be developed by the means that combined with work ball training. This means that the most effective raining process is not divided on movement abilities development, but a complex one. This allows developing movement activities and technical qualities at the same time (Dmitriev & Zagrevskaya, 2018). Thus, the best way of player’s speed ability is to use fast movement and ball handling exercises at simultaneously.

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The research demonstrate the attempt of developing training exercises complex directed on rapidity improvement using non-item means, coordination ladder exercises and exercises with ball. The effectiveness of using this complex among 10-11 years old children was confirmed.

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