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## *Current trends in the physical preparation of soccer players: a documentary review*

*Tendencias actuales en la preparación física del futbolista: una revisión documental*

*Tendências atuais na preparação física de jogadores de futebol: uma revisão documental*

David Alexander Rivera Arturo<sup>1\*</sup>



<sup>1</sup> Central University of Ecuador. Ecuador.

\* Corresponding author: [ddavidalexarturo@hotmail.com](mailto:ddavidalexarturo@hotmail.com)

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### **ABSTRACT**

Physical preparation in soccer is crucial for physical performance, so it is necessary to be aware of the latest trends in the approaches used in order to identify best practices and areas that require improvement. The objective of the research was to develop an exhaustive review of current trends in the physical preparation of professional soccer player. This research was theoretical, the documentary review technique and the registration matrix instrument were applied. The steps followed were the search and selection of relevant articles on physical preparation, information extraction, validation of sources, organization



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of findings, identification of patterns and narrative synthesis. The research revealed trends in the physical preparation of foot players and highlighted the importance of personalization, strategic planning, a comprehensive approach to training and proper nutrition. The study generated new perspectives in the field of physical preparation, allowed a more complete and updated understanding of the trends and practices in this area, which serves as a basis for future research and covers knowledge gaps, in the field of physical preparation of the professional soccer player.

**Keywords:** physical qualities, training, soccer, physical preparation, physical performance.

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### **RESUMEN**

La preparación física en el fútbol es crucial para el rendimiento físico, por lo que es necesario estar al tanto de las últimas tendencias sobre los enfoques utilizados a fin de identificar las mejores prácticas y las áreas que requieren perfeccionarse. El objetivo de la investigación consistió en desarrollar una revisión exhaustiva de las tendencias actuales en la preparación física del futbolista profesional. Esta investigación fue de tipo teórica, se aplicó la técnica de revisión documental y el instrumento matriz de registro. Los pasos que se siguieron fueron la búsqueda y selección de artículos relevantes de preparación física, extracción de información, validación de fuentes, organización de hallazgos, identificación de patrones y síntesis narrativa. La investigación reveló las tendencias en la preparación física de los futbolistas y resaltó la importancia de la personalización, la planificación estratégica, el enfoque integral del entrenamiento y la alimentación adecuada. El estudio generó nuevas perspectivas en el campo de la preparación física, permitió una comprensión más completa y actualizada de las tendencias y prácticas en este ámbito, lo que sirve como base para futuras investigaciones y cubre brechas de conocimiento en el campo de la preparación física del futbolista profesional.

**Palabras clave:** cualidades físicas, entrenamiento, fútbol, preparación física, rendimiento físico.

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## RESUMO

A preparação física no futebol é crucial para o desempenho físico, por isso é necessário estar atento às últimas tendências nas abordagens utilizadas para identificar as melhores práticas e áreas que necessitam de melhorias. O objetivo da pesquisa foi desenvolver uma revisão exaustiva das tendências atuais na preparação física de jogadores de futebol profissionais. Esta pesquisa teve caráter teórico, foram aplicadas a técnica de revisão documental e o instrumento matriz de registro. As etapas seguidas foram a busca e seleção de artigos relevantes sobre preparação física, extração de informações, validação de fontes, organização de achados, identificação de padrões e síntese narrativa. A investigação revelou tendências na preparação física dos jogadores de futebol e destacou a importância da personalização, do planejamento estratégico, de uma abordagem abrangente ao treino e de uma alimentação adequada. jogador profissional.

**Palavras-chave:** qualidades físicas, treinamento, futebol, preparação física, desempenho físico.

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## INTRODUCTION

In the context of soccer, Ayala (2021) mentions that the physical preparation of soccer players plays a crucial role in their performance and physical qualities such as strength, speed and endurance combined, according to Arias (2018) can fully develop the practitioner.

However, these same combinations in physical preparation are constantly evolving and it is important to know the current trends in this field, which is why there is a need to compile and analyze, exhaustively, the scientific information available on the approaches used in specific physical preparation for soccer, in order to identify best practices and areas that require improvement.

The overview of current trends in the physical preparation of the soccer player, according to Díaz and Romero (2022), point out that soccer professionals must have a solid base of knowledge to improve training programs. In this same direction, it is expected to optimize



the performance of the players; the problem lies in the need to keep up to date with scientific and technical advances in physical preparation, as the game evolves and becomes more demanding.

Given this fact, Bustos (2019) mentions that it is essential to understand the new strategies and approaches that can improve the physical performance of soccer players. On the other hand, Castellano (2022) indicates that this implies analyzing the latest research, studies and practices in the field of specific physical preparation for soccer, to identify emerging trends, the most effective methodologies and areas that need further research.

Soccer is considered an eminently perceptive sport, as Zeleznik indicates *et al.* (2023) since the development of players is influenced by changes in their environment such as teammates, opponents and the ball. The nature of the sport and the skills are necessary for competition in soccer, where players must make quick and precise decisions based on the information, they perceive through their senses that requires them to constantly analyze the environment, evaluate the position of teammates of team and opponents, anticipate movements and make strategic decisions in real time, for which they need good physical preparation.

Additionally, players must have sensory awareness of the position and movement of the ball at their feet, as well as the physical challenges they face on the field, such as marking an opponent and protecting the ball or passing according to the trained strategies. Castellano and Echeazarra (2019) confirm the importance of good preparation of the athlete, oriented towards physical and behavioral aspects.

In this sense, the need arose to know the physical condition of the players, through the use of technological devices, which helped detect areas of improvement in physical preparation, due to the ability to collect objective and precise data on the physical performance, such as sensors, heart rate monitors, accelerometers, GPS and others. Speed, distance traveled, changes in direction, exercise intensity and cardiovascular effort were monitored (Castellanos, 2022).



The use of technology to know the physical performance of soccer players generates the need for coaches to establish new specific training objectives and design individualized training programs, depending on the physical characteristics and needs (Cebi, *et al.*, 2021).

Each training session and match played should be considered an opportunity to evaluate the physical condition and fatigue level of the players. This access to data quickly and accurately has transformed soccer, because this information can be used in real time during each training session and match (Barbero, *et al.*, 2009), which facilitates instant decision making during the session or match and makes it possible to improve the physical and coordination capacity of each player.

This research is justified by the need to update the physical preparation of the soccer player. González and Ribas (2019) believe that this sport is highly competitive, because it is important for players and coaches to be aware of the latest trends and effective approaches in physical preparation.

The results of this research provide a current and complete vision of the trends in the physical preparation of professional soccer players through collecting and analyzing available scientific information and identifying and examining the most recent and effective practices used in the field of the individual needs of soccer players and the competitive context in which they find themselves.

This allows players to maximize their athletic potential, improve physical condition, reduce the risk of injury and has a direct impact on performance on the field. Alvira and Martínez (2021) assert that a well-designed training program based on scientific evidence improves endurance, strength, speed and other key physical skills necessary for optimal performance in soccer; this makes a difference in high-level competitions and helps teams and players achieve their sporting goals.

Another justification of the research is based on the contribution to avoid injuries, since different practices and approaches are identified that reduce the risk of injuries and promote the health of soccer players. According to Calahorro *et al.* (2011), by knowing the measures



to avoid injuries, more effective preventive measures can be implemented, which helps keep players in optimal physical condition and reduces recovery time from possible injuries.

The importance of physical preparation in soccer is evident, because it allows to enhance performance and minimize the risk of injuries in such a dynamic sport; therefore, the objective of this study is to carry out an exhaustive review of current trends in the physical preparation of soccer players.

To meet the objective, theoretical research was applied through the use of the documentary review technique, which allowed deep exploration and understanding, without the need to carry out original empirical research (Cardona, 2020), which serves as a basis. for future research.

Fuentes *et al.* (2019) argue that this type of study provides a solid theoretical framework and an overview of existing theories and different knowledge gaps in a given field; in this case, it focuses on the collection, analysis and synthesis of existing information to develop an updated and complete perspective of trends in the physical preparation of the soccer player.

As the first step, a search of documents from 2014 to 2023 was carried out in Redalyc and Academic Google databases, using the keywords: physical preparation in soccer, trends in physical preparation and sports training in soccer; after this search, 114 articles were found, the titles and abstracts, as well as their relevance and suitability to the proposed objective were reviewed. 93 articles were discarded.

From the 21 selected articles, relevant information related to current trends in the physical preparation of soccer players was extracted. The approaches, methodologies, practices and results of each reviewed article were recorded. The sources were validated through a quality evaluation that considered the indexing level of the journal, the H index level and 10 of the authors, and the methodological rigor of the articles.

Subsequently, the information was organized, the relevant findings were grouped and the trends in the soccer player's physical preparation were highlighted; the best practices were identified with an instrument called the registration matrix, patterns, similarities and



differences between the studies were identified and a narrative synthesis was prepared that integrated the information obtained.

The above allows to address and understand the topic in depth without the need to carry out original empirical research (Cardona, 2020), serves as a basis for future research, provides a solid theoretical framework and an overview of existing theories (Fuentes, *et al.*, 2019).

## DEVELOPMENT

The physical preparation of soccer players has become an essential aspect to achieve optimal performance on the playing field; by exploring and analyzing the information obtained, several current trends in the physical preparation of soccer players were identified and understood, as well as some notable similarities and differences (Table 1).

Table 1. - Matrix recording the trends in the physical preparation of the soccer player

Fitness Trends	Similarities	Differences	Bibliographic data
Individualization of training	Recognition of the importance of adapting training programs to the specific needs and characteristics of each player.	Specific approaches may vary depending on teams and trainers.	Soriano et al. (2014); Tarragó et al. (2019); Pons Alcalá et al. (2020); Torres, (2021); Gomez et al. (2019); Maestre et al. (2018).
Training periodization	Organization of the training program in phases or cycles to optimize performance and avoid accumulated fatigue.	Variation in periodization approaches depending on the equipment and methodologies used.	Tassi et al. (2018); Costa et al. (2015); Sánchez-Sánchez et al. (2015); Gamonales et al. (2021).
Combination of aerobic and anaerobic work	Recognition of the importance of developing both cardiovascular endurance and strength, power and speed.	The volumes and intensity of each type of training can vary depending on individual needs and stages of the season.	Torres, (2021); Loturco et al. (2018); Soriano et al. (2014); Rivas-Borbón et al. (2018); Leceaga et al. (2017); Sebastián Erazo et al. (2022)
Strengthening stabilizer muscles and training proprioception	Focus on preventing injuries, improving balance and stability, and allowing for more efficient movement on the field.	Specific exercises and techniques may vary, but the general goal is to strengthen stabilizer muscles	Montealegre-Mesa et al. (2019); Adalid Leiva, (2014); Mora Ferrera et al. (2014); Torres, (2021); Sebastián Erazo et al. (2022).





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Balanced and adequate nutrition	Importance of a diet that provides the nutrients necessary for performance, recovery and maintenance of health.	and improve proprioception. There may be variations in individual nutritional needs and personal preferences, but the foundation of a balanced diet is common.	Alves et al. (2022); Temimilpa Sánchez et al. (2021); Palacios Guzmán et al. (2022); Tirado Nieto et al. (2023)
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This registration matrix displays physical preparation trends and identifies the similarities and differences between them, to have an overview of the best practices in this area. Previously, it was considered that physical preparation in soccer is a field that is constantly evolving. The results are presented in a narrative synthesis below.

#### *Individualization of training*

There is a clear increase in the focus on the individualization of physical preparation in soccer, Posso *et al.* (2020) mention that physical trainers have progressively recognized the importance of personalizing training programs, for the benefit of optimizing performance and reducing the risk of injuries in players.

Individualization in the training of a team sport involves considering a series of factors that influence the performance and physical capacity of each soccer player. These factors include age, field position, current fitness and previous injuries; all of these elements provide crucial information to design a training program tailored to the specific needs of each player.

These adaptations to the individualization of soccer players manage to maximize the performance of the players because their personal characteristics are considered in the objectives of the training programs; this encourages optimal progress in physical development, corrects muscle imbalances and improves endurance and strength.

Finally, another key benefit of individualization in physical preparation is the recording of previous injuries and the current physical condition of each player, to mimic the risk of relapses that promote adequate recovery; these actions avoid interruptions in your participation.



### *Training periodization*

A trend is identified that highlights the periodization of physical preparation training in soccer, referring to the importance of organizing the training program in different cycles and adapting to the specific demands of each stage of the preseason and season (Guerrero, *al. al.*, 2021). Periodization allows optimization of performance and avoids accumulated fatigue; for this reason, the intensity and volume of training is varied in each cycle, to improve physical performance.

During the preseason phase, emphasis is placed on developing a general physical base, working on aspects such as endurance, strength and aerobic capacity that establish, in the future, support for performance. During the season, training focuses on maintaining and improving the player's specific physical condition such as speed and agility. This adaptation of training allows optimal performance to be achieved at key moments.

Periodization also supports the scheduling of rest and recovery periods that are essential for the regeneration of muscle tissues, preventing injuries, maintaining the player's motivation and focus; which balances the workload, rest, promotes adequate progression and optimal adaptation of the body.

### *Combination of aerobic and anaerobic work*

The combination of aerobic work is identified as essential to optimize performance, since each type of physical training benefits the development of cardiovascular endurance and improves the capacity of this system that supplies oxygen and nutrients to the muscles during prolonged periods of physical activity necessary, to maintain a high level of activity throughout the match throughout the 90 minutes.

On the other hand, anaerobic training focuses on developing strength, power and speed and improving the explosive and high-intensity movements required in soccer, such as sprinting, jumping and rapid changes of direction, to overcome the physical challenges of the game.



The combination of aerobic and anaerobic work allows addressing both fundamental aspects of performance for the demands of soccer, so players can maintain a constant level of effort. These findings provide a solid theoretical basis for future research and practice in the field of physical preparation in soccer.

#### *Strengthening stabilizer muscles and training proprioception*

Another trend found was the training of proprioception in the physical preparation of soccer players and the strengthening of the stabilizing muscles that provide stability and balance during movements. Strengthening muscles is essential to avoid injuries because it protects the joints and reduces the load placed on them; in soccer, strengthening the stabilizing muscles maintains control of the body and reduces the risk of joint wear and tear.

When deepening on proprioception training, it is established that it improves body control in space and allows players to have a greater sense of the position and movement of the lower body; which helps them make more precise and efficient movements during matches; this includes exercises that challenge balance, coordination and spatial perception.

#### *Balanced and adequate nutrition*

The importance of a balanced and adequate diet in the physical preparation of soccer players has been emphasized as a trend. Adequate nutrition means the incorporation of the necessary nutrients that keep the player energized and support tissue repair, in addition to facilitating rapid recovery.

In this sense, soccer players must ensure they obtain an adequate intake of carbohydrates, proteins, healthy fats, vitamins and minerals. It should be noted that soccer players need to eat a greater amount of carbohydrates, because they are the main source of energy during exercise, to maintain optimal levels of muscle glycogen and proteins are also essential for muscle repair and growth.

In addition, they should include the consumption of any source of fats such as avocados, olive oil and nuts in their diet. The consumption of vitamins and minerals should not be neglected since they are essential to improve performance and play an essential role in



numerous metabolic processes and the functioning of the immune system, hence the need to consume a variety of fruits and vegetables.

It must be understood that each player has individual nutritional needs due to factors of age, sex, weight, height and training intensity. Therefore, it is recommended that teams work together with sports nutrition professionals, ensuring personalized meal plans that meet the specific needs of soccer players.

### CONCLUSIONS

It is concluded that generic approaches are not sufficient to maximize the physical performance of each soccer player, because they all occupy different positions on the playing field and perform specific functions with different levels of physical weakness. Therefore, future research can explore more individualized approaches and establish methods to constantly evaluate and adjust training programs according to the changing needs of players.

With the advancement of technology and data analytics, opportunities are opening up to explore digital tools such as tracking devices and artificial intelligence to improve data collection, performance monitoring, and personalization of training programs. Future research should be carried out focused on the integration of these technologies and optimizing physical preparation to improve player performance in a successful way.

This research promotes personalization, strategic planning and a comprehensive approach to training as key elements to improve physical performance in soccer and contributes to a more complete and up-to-date understanding of best practices in physical preparation, which in turn can serve as a basis for another research.

Finally, limitations of the theoretical approach and the documentary review technique used were identified, because the trends in physical preparation could not be explored and understood in depth, so it is suggested to use empirical approaches, such as field studies and mixed research methods.



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***Conflict of interests:***

The authors declare not to have any interest conflicts.

***Authors' contribution:***

The authors have participated in the writing of the work and analysis of the documents



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