Training Methods and Didactics

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Abstract
This research work aims to identify the main and most effective training approaches, with specific reference to the sport of football.
The analysis of the athlete's performance, the most avant-garde specific instructions, the techniques to take care of the athletic preparation of the player and the new technologies applied to sport, are among the topics covered in this paper.

Keywords: *Training, Athletic preparation, Football, Technology*

Introduction

Physical condition training can help the athlete to support the energy demands of the game, maintain a good technical level during the game, and perform any motor gesture as efficiently as possible during the performance. In the game of football, as well as in other physical and sports disciplines, coaches and athletic trainers focus mainly on making their players improve through training sessions, the quality of which will lead to a real improvement in motor skills.
Training can be identified as a complex process, aimed at increasing the level of sports performance. The latter refers to the effectiveness of the task (by effectiveness, we mean the ability to achieve an objective) and, in order for this to happen, there must be a planning of the objectives to be pursued both in the short and the medium-long term.
These assumptions can be achieved provided that training is organized in such a way as to optimize the amount of learning of both cognitive concepts and motor programs. All this gets much more complex if we take into account the time available, not only in terms of hours, days, weeks and months of training, but also in terms of cognitive and physical availability of the athlete who is constantly fighting with the processes of fatigue. A concept to keep in mind is that the relationship between amount of practice and performance improvement does not necessarily satisfy the learning process; learning and performance are two different concepts, and so are the mechanisms and processes that favor one or the other. Experience and scientific studies support that practice fosters performance, and that learning is more rapid in the initial stages of the acquisition of a new skill, but then its improvement becomes slower and more difficult.
Strategies that play on performance are different from those that enhance learning. Strategies that play on performance have the greatest advantages over performance in the immediate term, unlike methods that promote learning, which degrade performance in the short term.
When training an athlete, it is therefore necessary to consider strategic aspects concerning the implementation of his or her conditioning skills, and to consider them closely related to performance. These aspects will be discussed in this paper, and will allow us to understand what the key elements in the performance of the football athlete are.

1. Training, Athletic Preparation and Technology

In this perspective, we are supported by the technology concerning the control and monitoring of physical activity and movement in terms of sports gestures, which, in recent years, has undoubtedly made great strides. Above all, we aim to investigate and understand what happens during the performance of competitive activities. Until now, tests and on-field

assessments have been carried out in periods more or less distant from the competition. Today, it is possible to measure the quality of performance, the athletic productivity of a football player, even if it should be emphasized that it cannot depend only and exclusively on metabolic and physiological factors, but also on other more important factors that pertain to the mental and motivational sphere.

The training of conditional skills is achieved through refined motor activities and performances that stem not only from a wise modulation of the types of work, but also from a careful discrimination of working time.

More and more importance is given to the role and functional model of the player. It would be appropriate that football clubs, in their budget headings, introduce resources to be allocated not only to human resources, but also to research facilities that analyze all those phenomena contributing to high team performance.

If football, which must be considered as an entertainment industry, has the strength to reconceive the corporate structure, as well as to create space for actors endowed with a high level of synergy and referring to subjects with different professional skills (ergonomists, performance analysts who, through studies based on biomechanical observation, are able to establish the functional patterns of the players), it will undoubtedly achieve a better athletic productivity, limit the number of injuries resulting in a continuity of performance, and eventually limit the amount of energy needed for athletes to recover.

The figure of the trainer as the only person responsible for the athlete's physical activity must take on a new dimension. Since the trainer cannot materially take care of all the players, it is necessary to make use of figures that can support him or her in the personalized work. He or she must become a sort of motor manager, and must be able to relate to other structures and needs. Hence the need to deepen and develop issues related to these aspects, in order to contribute to the formulation of new guidelines regarding the conditional aspects of training in the game of football and its organization.

2. Performance Analysis of Football Players

Football is a sport that requires considerable commitment from a physical point of view. The physical performance of the player, over the years, has evolved considerably. Just think that, in the 1990's, the total distance covered in a match by a footballer was about 7-8 kilometers, while today, the total distance covered is about 10-11 kilometers, and the footballer performs about 1300 variations of intensity.

However, the time in which each player keeps possession of the ball is limited to few minutes per match.

The game of football is part of those sports disciplines involving an effort of aerobic-anaerobic alternating type. This group includes those sports that are based on the more or less regular, codified, random or predefined alternation of phases:

- Subaerobic phase - with effort below maximum aerobic capacity;
- Aerobic phase - at the limit of aerobic capacity;
- Anaerobic phase - with efforts engaging metabolic systems in the absence of oxygen;
- Resting phase.

The aerobic energy production system provides the greatest amount of energy used during a match.

This can be deduced from relatively high heart rate values.

3. Specific Training Methodologies in Football

Heart rate and body temperature observations indicate that a top player keeps an exercise average intensity equal to about 70% of the maximum oxygen consumption. Such an activity,

which lasts for about 90 minutes, strongly stresses the oxygen transport system and the local muscle resistance.

Anaerobic energy production is particularly important as it is needed during high-intensity running or other energy-intensive activities such as tackling, changing direction and jumping.

During a match, a top level player performs about 30 sprints with an average of two seconds duration.

During intense activity, energy is also produced by anaerobic lactacid processes, as shown by the high concentration of blood lactate observed during a match.

Here are some statistics of a football match:

- Minutes of play: 90;
- Effective 50-60 minutes in which the player performs:
  - 3 Kilometers walking;
  - 8 Kilometers running.

The problem is to understand which energy production systems the player uses in these 11 kilometers.

Basically, we distinguish between:

- Maximum accelerations;
- Medium speed running;
- Aerobic running or walking.

The physical effort of a player during a match is conditioned by an important element which also underlies situational sports: **the role**.

In fact, according to the role, we can have different performances. For example, it is observed that central midfielders in football show different running intensities: different kilometers run and different maximum O2 consumption compared to central defenders.

Therefore, it results that players of the same team have different training needs, and consequently, part of the athletic preparation should be planned on an individual basis.

Physical training must be planned by taking into account individual physical demands, although it is also true that the possibility of performing part of the work individually depends on some factors, such as the number and time of training sessions. Lately, with the use of sophisticated equipment such as the "match analysis", it has been possible to measure all the movements of the players during a match. Thanks to the "match analysis" it is possible to predetermine the different speed ranges of the movements according to one's needs, and to have information about the opposing team. Currently, this system is also being used during training: in this way, it is possible to obtain information on the mechanical work performed, expressing the external load; the latter, combined with the heart rate control, which represents the internal load, allows to have a more complete picture of the training load performed.

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