



Review

Medical assessment in athletes[☆]

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ARTICLE INFO

Article history:

Received 21 August 2017

Accepted 4 September 2017

Available online xxx

Keywords:

Assessment

Sport

Prevention

Adaptation

Palabras clave:

Revisión

Deporte

Prevención

Adaptación

ABSTRACT

Practicing sports at a professional level requires the body to be in good health. The fact of carrying out a continuous and high intensity physical activity in the presence of pathological conditions and/or a maladaptation of the body can be detrimental to the athletes' health and, therefore, to their performance. Many of the problems that arise in the sports field could be prevented with a periodic and well-structured medical assessment. In this review, we describe the protocol of the medical service of a high-level sports club for the assessment of its professional athletes.

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Revisiones del deportista

RESUMEN

La práctica del deporte a nivel profesional exige al organismo un buen estado de salud. El hecho de realizar una actividad física de alta intensidad de forma continuada con la presencia de situaciones patológicas y/o una mala adaptación del organismo puede ser perjudicial para la salud del deportista y, por consiguiente, para el rendimiento. Muchos de los problemas que aparecen en el terreno deportivo se podrían prevenir con una evaluación médica periódica y bien estructurada. En esta revisión presentamos el protocolo del servicio médico de un club deportivo de alto nivel para la evaluación de sus deportistas profesionales.

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Introduction

There is no doubt that scientific evidence widely recommends the practice of physical exercise for the reduction of general mortality, especially cardiovascular.¹ It is also known that physical exercise, especially high intensity exercise and in susceptible individuals, may be related to an increased risk of cardiovascular disorders, mainly sudden death (SD).²

Although the incidence of SD is low, it has a great social and media impact, especially when it involves elite athletes.

Different organizations and international medical societies have proposed conducting a medical assessment prior to the practice of physical exercise, not only to assess athletes at risk of suffering SD, but also to perform a sports health screening.³⁻⁶ Although the need to carry out this assessment is widely acknowledged, there is currently no universally accepted consensus, mainly between European and American organizations, regarding how to implement it and what the content of this assessment should be, with different types of protocols available.^{4,6,7}

We present in this review the protocol of the medical service of an elite sports club for the medical assessment of athletes, mainly of professional football players.⁸

A health assessment is a necessary medical act for anyone who intends to participate in a scheduled physical activity or a sport, whether recreational or competitive.^{8,9}

This health assessment is necessary whenever high-performance athletes are involved. It is a more complex and

[☆] Please cite this article as: Pruna R, Lizarraga A, Domínguez D. Revisiones del deportista. Med Clin (Barc). 2018. <https://doi.org/10.1016/j.medcli.2017.09.008>

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costly assessment than that carried out in amateur sports, since this population is subjected to a more intense and demanding physical activity, besides a significant public and media exposure, therefore, it is more than justified.¹⁰

Objectives of the athlete's health assessment

Athletes can be affected by pathological situations that have no obvious symptoms and that can only be detected through regular health assessments. One of the main objectives is to identify them early, so that an early intervention and treatment can be performed.⁴

The objectives of this assessment are^{4,8}:

- Detect life-threatening or incapacitating situations that could prevent the athlete from participating in high-demand sports activities.
- Detect medical and/or musculoskeletal conditions that may predispose the athlete to an injury or disease resulting from training or competition.
- Carry out a complete assessment to determine the general health status.
- Protect the health of the athlete in an integral way.
- Guide the athlete on the activities and actions that can or should be performed, in order to preserve his/her health and allow maximum sports performance.
- Evaluate the medicines or nutritional products that the athlete uses. In specific cases, the need to make an application for *therapeutic use exemption* (TUE, "exemption from therapeutic use") to the *World Anti-Doping Association* (WADA) will be considered.
- Satisfy legal, contractual and health insurance requirements.

The athlete's assessment—general requirements

In the design and implementation of this health assessment there are a series of considerations to take into account⁴:

- It must be based on sound scientific and medical criteria.
- It must be performed under the responsibility of a doctor experienced in sports medicine, preferably the team doctor who will be responsible for providing ongoing medical care.
- It must consider individual factors, such as the geographical area, the particular sport, the level of competition, age and sex.
- The athlete's privacy must be respected, access to previous medical records should be permitted and an appropriate doctor–patient relationship should be developed.
- The assessment should only be carried out after a free and informed consent has been obtained from the athlete or his/her legal guardian.

Structure of the athlete's medical assessment

Usually these evaluations are called pre-competition medical examination or assessment and are performed during the pre-season period.^{11,12} These terms refer to the fact that this assessment is done only at a specific time and is useful to identify an athlete at risk, in addition to allowing the treatment and resolution of any medical problem or injury before major competitions. However, there are many external factors that can develop during the season that can affect performance, and predispose the athlete to develop an injury or illness resulting from the sport. For this reason, this pre-competition health examination must be combined with periodic and continuous assessments throughout the competitive season (regular health examinations).

The variables that should be included in these examinations depend on the type of sport, time and resources available, as well as the population being examined. The material and human resources, as well as the experience, will be different for an elite professional team with respect to one *amateur*. In addition, the age group, sex or ethnic group can also affect the variables under evaluation.⁴

Some of the conditions evaluated are not serious from a health perspective, but can influence sports performance, so their assessment is also important.

Although the assessment is carried out by the responsible team doctor, a multidisciplinary team is also required, made up of professionals from different Health Sciences, such as nutritionists, physiotherapists, physical trainers, sports psychologists, chiropodists, nurses or other medical specialists (trauma specialist, gynaecologists, internists, etc.).

Every athlete that belongs to the structure of the club undergoes the medical-sporting assessment at the beginning of the season, in addition to a regular health monitoring programme and whenever the circumstances require it.

Below we detail each one of the integral parts of the medical-sports assessment.⁸

Medical record

This medical record has some added characteristics with respect to the conventional medical record. In addition to history taking regarding personal, pathological, allergic, chronic disease and treatment history, it is of special interest to consider the background related to the sport activity: years of practice, sports level, position, sports injuries and types of treatment (conservative or surgical), nutritional supplementation, anti-doping controls and clubs in which he/she has played.

Nutritional assessment

An assessment of the athlete's nutritional habits is made through an interview and a record. This information provides us with the general habits, the qualitative and quantitative analysis of the diet, as well as a possible energy deficiency with respect to the demands that the sport requires. The regimens will be adapted according to the objectives of the training, the competition's calendar and travelling. This assessment is carried out by a nutritionist with experience in sports nutrition.

Physical examination

A correct and complete physical examination must be performed by devices and systems with the aim of detecting possible alterations that temporarily or permanently prevent the practice of sports, and findings that point to an active disease. This examination will serve as a basis for subsequent follow-up visits, assessing the athlete's progression.

Cardiovascular assessment

The correct functioning of this system is vital in sports. The incidence of SD in young athletes is estimated at 2 cases per 100,000 athletes per year.¹³

Although this incidence is low, the impact has devastating consequences on society and the athlete's family.

Currently there is no consensus among the different sports organizations regarding the components/structure that this assessment should have. An example is the different recommendation regarding echocardiography. While institutions such as FIFA and UEFA require this test as part of the medical assessment prior to the competition, others recommend complementary evaluations only

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