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THE SPORT DETRAINING IN WATER POLO, AN APPROACH FROM SCIENCE, TECHNOLOGY AND SOCIETY STUDIES

EL DESENTRENAMIENTO DEPORTIVO EN EL POLO ACUÁTICO, UN ENFOQUE DESDE LOS ESTUDIOS CIENCIA, TECNOLOGÍA Y SOCIEDAD

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ABSTRACT

Scientific and technological development is one of the most influential factors in contemporary society. In recent decades an interest in technology has proliferated. Science and technology are social processes deeply marked by civilization where they have grown; Scientific and technological development requires a careful estimation of its driving forces, its knowledge, its interrelationships and its impact on the development of society. The prophylactic approach to the detraining of Water Polo athletes, due to its multifactor nature, should be the object of multiple sectors or members of society unite their efforts with a view to achieving the application of programs or measures that prevent the progressive increase in the number of athletes suffering from different pathologies for not de-training.

Keywords:

Sports de-training, water polo, science, technology, society.

RESUMEN

El desarrollo científico y tecnológico es uno de los factores más influyentes en la sociedad contemporánea. En las últimas décadas ha proliferado un interés por la tecnología. La ciencia y la tecnología son procesos sociales profundamente marcados por la civilización donde han crecido; el desarrollo científico tecnológico requiere de una estimación cuidadosa de sus fuerzas motrices, de su conocimiento, de sus interrelaciones y de su impacto en el desarrollo de la sociedad. El abordaje profiláctico del desentrenamiento de los polistas, por su naturaleza multifactorial, debe ser objeto de múltiples sectores o miembros de la sociedad unan sus esfuerzos con vistas a lograr la aplicación de programas o medidas que eviten el incremento progresivo del número de atletas que sufren de diferentes patologías por no desentrenarse.

Palabras clave:

Desentrenamiento deportivo, polo acuático, ciencia, tecnología, sociedad.

INTRODUCTION

In the world of scientific discoveries and great technological advances, where the economy and development of countries are determined by production and technology, the teaching of science becomes very important in the social context in which it operates. Science and technology undergo constant changes, so that nothing is established, "we live in a society of continuous learning".

According to López Cerezo (1998), the social studies of science, technology and society (CTS), today constitute a vigorous field of work where the scientific-technological phenomenon is understood in a social context, both in relation to its conditioning factors and in what concerns its social and environmental consequences, therefore science and technology are basic factors of social development.

In order for the population to maintain healthy lifestyles in a society, it is necessary for it to actively participate in the search for the measures that allow its realization and these must be practiced in accordance with a holistic approach where the harmonious integration of all its components facilitates the more efficient realization with the lowest residual effect (Parra, 2006).

It is an unquestionable fact, that for the normal development of the individual the practice of physical exercise is required, which together with other factors such as food and hygiene, are the essential pillars for its harmonious growth.

The prophylactic approach to the detraining of athletes, due to its multifactorial nature, must be the object of multiple sectors or members of society. In correspondence with the reality that there are no magical treatments for it, it is necessary that trainers, doctors, paramedical personnel, officials of the National Institute of Sports, Physical Education and Recreation (INDER) and Ministry of Public Health (MINSAP) join forces with to achieve the application of programs or measures that prevent the progressive increase of the number of athletes suffering from different pathologies by not untraining.

DEVELOPMENT

The scientific term was used for the first time in 1833 during a meeting of the British Assembly for the advancement of science that at that time was an amateur activity fundamentally practiced by the middle class.

According to López Cerezo (1998), Science in Latin *scientia, de scire*, which means to know is a term that in its broadest sense is used to refer to knowledge systematized in any field, but usually applies mainly to the organization of experience sensory objectively verifiable.

Science as an activity is a process of dynamic and integrated development within the system of social activities and is articulated with politics, ideology, production and society.

Knowledge appears as a function of human existence, as a dimension of social activity, its social approach allows the relationship with the other forms of human activity.

Science has an intimate relationship with technology that as defined by Núñez Jover (1999), is that form and historical development of the technique that is structurally based on the existence of science.

Scientific and technological development is one of the most influential factors in contemporary society. The political and military powers, business management, the mass media, rest on the scientific and technological pillars. The common life of citizens is also influenced by techno-scientific advances.

In recent decades, an interest in technology has proliferated. Science and technology are social processes deeply marked by civilization where they have grown; Scientific and technological development requires a careful estimation of its driving forces, its knowledge, its interrelationships and its impact on the development of society.

According to Núñez Jover (1999), he affirms that the modern relationship between science and technology is based on the following proposal:

Science and technology must be separate, even if complex interrelationships are established between them

The social development of science and technology has led to the emergence of an interdisciplinary research field called Science, Technology and Society whose main objective is the study of scientific and technological development and its social consequences. Science and technology are, above all, social processes. Knowing this is very important for the education of people in the so-called knowledge society, or technological society.

The technological development is altering everything, from the economic, the political and even the social, with a very significant impact towards the interior of human beings that is towards the psychosocial of the individual, the intimate life of the people, the patterns of consumption, human reproduction, the extension of life and its limits with death.

In the opinion of the author, technology invades everything and with this imperative, complex processes such as sports and attention to the health of human beings who practice this high-performance activity continue to develop, among which the process of sports are de-training.

Aguilar (2009), defines this process as the gradual reduction of maximum levels or limits of training to achieve new biological, psychological and functional adaptations in the athletes until reaching the levels of a non-sedentary active person, emphasizing that the high performance athlete must stay active throughout life.

It is very important to stay in physical activity gradually decreasing the loads, this avoids sudden changes and the appearance of symptoms of maladaptation and possible physiological traumas, starting from the premise that most athletes when they retire are not untrained.

The Water Polo is a discipline that within the classification of motor praxiology is called cooperation or opposition, since there are partners and adversaries, the former collaborate with each other to oppose others who also help each other. In them there is the interaction or praxical communication essential both communication or positive, as against communication or negative.

García (2003), refers that this sport develops in the water; forcing the athlete during his displacement and his locomotion to leave the bipedal position and therefore at the foot to lose his function of base of general sustentation. It is therefore necessary to appropriate a special arsenal of forms of movements to carry out the game's own actions in the sports catalog.

Perform maneuvers with vertical and horizontal displacements in the water with a ball. It is a sport that has special characteristics in its form of locomotion and specialization which allows having a differentiation when it comes to performing sports de-training individually.

The long-term sports practice in the Water Polo, given the demands of high performance causes soma alterations that are detrimental to the health of athletes (García, 2003). In addition to the alterations referred to above, the presence of cardiovascular diseases and endocrine diseases have been detected, as well as the presence of toxic habits and emotional stress as important risk factors (Barrizotes, Monteagudo, Granda, Iglesias & Almenares, 2003). The foregoing confirms the need to carry out the detraining process.

This process is currently carried out on the basis of the particularities of the individuals, since human beings respond in different ways to the sport's load stimuli (Barrizotes, et al., 2003).

Mena (2014), states that the process of detraining should be based on individualization, biomotor capabilities to develop, particularities of sports disciplines and their social and psychological environment.

In attention to sports detraining, the use of computer systems has shown great advantages in specialized care. Many of the technologies developed in this field of such rapid movement have the potential to influence the different potentialities of the human organism and have an impact on a global scale in health systems.

The software that is used in high performance sports schools, rewarded by sports medicine is a novel technology that provides clinical data, electrocardiography, echocardiography, hemodynamic studies and ergometric data, which are aimed at impacting on health indicators (mortality and morbidity), due to diseases that can occur when a de-training process is not carried out, making it possible for experts of this type of patients to attend to the process of socialization of science at the highest scientific level.

On the other hand, a system of this type would constitute a source of scientific research of incalculable value given the immense breadth of medical variables applied to athletes who pass through sports detraining.

In the teaching area, it would be possible to have a computerized library, a genuine bank of clinical data, images and sounds, which would serve as the basis for the development of Cuban sports.

Over time, the treatment of sports detraining has evolved parallel to the development of Science and Technology, which has had extraordinary cultural effects on the conscience of people and social groups.

According to Crevasse (1994), states that there is a growing role of technological innovations, there is greater demand for information and new knowledge and its tendency to market it, coupled with the rise of the transnationalization of the world economy and greater participation of the states and transnational companies in the generation and dissemination of new technologies.

The links science-technology-society have changed radically in the course of three centuries and today acquire a special intensity.

The education of scientists must take these processes into account. Social approaches are very important today. Education must be based on the idea that science and technology are social processes and not truths and devices within reach of the enormous cognitive capacity of humanity that exerts an ever greater influence on the life of societies and people.

Science is activity and knowing. Knowledge is not in reality, it is built by man, but not isolated from community and society. The process of knowledge can be conceived as a matter of social construction of understanding, which involves

a dialogue, a relationship of double traffic, between reason and experience, between theory and empyrean.

It has been an era of valuable contributions to the goals of health, alleviating the physical suffering of man and improving his quality of life. However, the explosion of biological knowledge in general, that of man and his illnesses, in particular, is beginning an era of scientific achievements with consequences never seen before in the history of man.

Given that ideas and technological advances have consequences, and fundamental ideas have fundamental consequences, the problem of how to make these new advances benefit the whole society is a challenge for which our civilization is ill prepared.

We are about to make human discoveries that could revolutionize medical care and medicine in general, in particular in the prevention and treatment of diseases that threaten athletes who do not detraining.

Computers is one of the most important technological advances of the past and present century. They constitute an extension of man's mental capacity comparable to cars, tractors and aircraft as extensions of our physical being.

According to Valladares (2005), the needs of medicine and the characteristics of computer science seem to be made in one way for the other. In the practice of medicine applied to detraining processes to athletes requires that the coach and the physician take into account the following three aspects:

- Remember a lot of information about symptoms and diseases.
- Record detailed information about signs, characteristics and results of studies in a patient.
- Analyze the information based on the logical relationship of specific data about a patient with the information related to the type of sport that practices skills developed, diseases and treatments.

These activities are precisely those that can be carried out with greater efficiency in computer science and the reason that major efforts have focused on the use of these equipment in medicine.

The use of computer science in sports medicine is a current example of the process of integration of scientific disciplines and constitutes a fact that demonstrates the relevance of the nexus science - technology - society.

The use of telematics systems has shown multiple advantages in raising the quality of daily medical care, however we believe that we are still in an embryonic stage in this field.

Particularly in the field of sports medicine, the country currently has the computer infrastructure, capable of establishing a national network in this specialty that allows to work systemically, systematically, uniformly and interactively. If to this we add that in our days the athletes who do not get out of work suffer from cardiovascular diseases, high blood pressure, diabetes, stress, psychological traumas due to the change of life when they retire.

For the reasons explained above, one could understand the main motivation that drives us to design an integrating system of the different diagnostic and therapeutic elements in this area that allows the exploitation of all the advantages and facilities offered by computerization in medical sciences. , which will revert in a strong impact at the level of the health system, being able to count our sport population with an attention to the highest scientific level and contribute at the same time to the socialization of science in this specialty in particular.

Telemedicine, as a new concept in the medical sciences, uses electronic signals from research, monitoring and management of patients, to transfer medical data (images, biological signals in real time or not).

Although there are initially costs in the investment to obtain the hardware (computers), long-term savings are demonstrated as a result of the prophylaxis in the attention to the retired athlete, since it is not necessary in many occasions to mobilize both institutions as well as between countries.

Putting the care of the entire Cuban sports population at the end of their career in sport at the highest scientific level is the greatest social importance in this field.

In our country there has been a qualitative leap in recent years that has impacted the attention of the high performance athlete who retires; given in the creation of detraining programs for different sports specialties and the acquisition of state-of-the-art diagnostic technology.

The design of a national computer network by Cuban specialists implies a major economic savings by avoiding the importation of this type of technology, in addition to adapting to our own needs, to our social and scientific context.

These new possibilities would be complemented by the possible integration of the diagnostic results obtained with the assessment of the most renowned specialists at national level, distributed throughout the country, in those cases where this was indicated, affecting this in the indices of quality of medical care for athletes.

Based on current historical social conditions regarding total governmental support for health programs in Cuba, the existence of a scientific and technological culture as well

as trained personnel to exploit the latest technologies, a design of research that responds to the particular needs of our country and that makes our system totally innovative.

In some developed countries, telematics networks applied to sport have been implemented, all of them destined only for telediagnosis, and this is precisely where the novelty of this work lies when compared with others internationally.

The aims of the National Institute of Sports Medicine in our country are aimed at medical care, teaching and scientific research (Valladares, 2005).

Medical care (telemedicine) has a great power of socialization and is linked as the process of distribution of health services, in which distance is a critical factor, where sports medicine professionals use information and communication technology to the exchange of valid information for the diagnosis, treatment and prevention of diseases or damages, research and evaluation; and for the continuing education of public health providers, all in the interest of the development of the individual and his community as drafted in the world health organization.

The computerization program of Sports Medicine in Cuba is designed on the basis of offering the telediagnosis service, by transmitting images and data between different units of the same province, from one province to another and to reference centers in the country. Where you can count on the opinion of experts in different diagnostic areas.

It is undeniable the enormous positive impact that the use of diverse telecommunications technologies has in the attention to the high performance athlete in Cuba. The benefits are reported in time economy; in greater individualization to the specific needs of each user; in facilitating the learning of contents thanks to a greater audiovisual, sensory and sequential connection of the studied subjects; in shortening geographical distances, in rapidly communicating to multiple people simultaneously; in streamlining the dissemination of findings, research and knowledge.

One of the most promising advantages would be to develop metacentric, cooperative research, where thousands of athletes are studied, which would greatly increase the statistical significance of the results to be obtained.

Although as explained, the use of technology in the medical sciences in general and in sports medicine in particular from this work would have an impact on the aspects of medical assistance, teaching and research, we could be faced with the bioethical dilemma of:

Is all new technology humanly superior?

Could all new technology replace the medical clinic?

According to Bayés de Luna (2003), the clinical study starts from the following axioms:

- The clinical study of the patient has no substitute.
- The omission in the study of the patient is an unethical attitude and is a frequent cause of a condition aggravating, and this behavior is iatrogenic because the doctor has to examine his patients well.

There is a popular assumption that “high-quality medicine” is equivalent to high-tech medicine.

It is true that the technological achievements in the field of sports medicine have been and continue to be truly amazing, not to mention the well-founded expectations they engender, not least that their costs reach high figures, however the attention medical in contact with the retired athlete is the one that will truly reach the most recondite places, and the affective, human and hopeful exchange has demonstrated its healing power, from the concept of bio-psychosocial balance that implies being in good health .

The field of diagnosis aided by computers or computerized is excellent for the application of these equipments as auxiliaries of complex mental activities and it is really towards this that the function of medical assistance is directed according to the athlete of our research.

The computerized diagnosis is not perfect. Although a computer can perform calculations quickly and accurately, it cannot generate an exact answer if the data is not sufficient enough, such as asking “Where does it hurt?” or “How much does it hurt?” Similarly, the reasoning of coaches and doctors is not always entirely logical. Sometimes it has an intuitive nature and in others it is affected by recent experiences and emotions, which makes it extremely difficult to simulate reasoning with the computer.

CONCLUSIONS

The detraining of sports is a necessary process for the high performance polo player, so timely and specialized attention to this type of process is very important.

The Science-Technology-Society relationship is indispensable and indissoluble for the development of sport and humanity.

The development of science and technology has caused a great boost to the development of certain specialties such as sports medicine, which has generated new areas of research, based on the care and welfare of athletes.

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