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Sports detraining, a vital alternative for high-performance youth water polo athletes

El desentrenamiento deportivo, una alternativa vital en atletas juveniles de polo acuático de alto rendimiento

Destreinamento esportivo, uma alternativa vital para os jovens atletas de Pólo Aquático de alto rendimento

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ABSTRACT

At present, in Cuba, many athletes who reach their retirement age do not carry out sports detraining processes, which affects their health in the medium term; they begin to suffer from chronic non-communicable diseases, as well as depression and inadequate psychological states. The objective of this research was to determine the inadequacies derived from the conduction of the sports detraining process in retired athletes. To achieve the proposed goals, the authors relied on theoretical and empirical methods; the descriptive statistics tool (percentage calculation) was used to process the information, taking as a sample retired youth water polo athletes, sports doctors, psychologists and sports medicine physiotherapists, to whom interviews were applied and their opinions during the conduction of this process were analyzed. The final result was that there is insufficient knowledge of how to carry out this sports detraining process in the sample studied, they do not fully master the methods, procedures, contents and methodologies, based on the research and methodological preparations on the subject that is vital in high performance sports. Among the most relevant conclusions of this work, it is found that the theoretical references of sports detraining currently do not meet the expectations of the athletes who retire in the various sports groups and the athletes when they retire do not have information on how to carry out this process.

Keywords: High performance; Water polo athletes; Sport detraining.

RESUMEN

En la actualidad, en Cuba, muchos atletas que llegan a su edad de retiro no realizan procesos de desentrenamiento deportivo, lo que repercute en su estado de salud a mediano plazo; estos comienzan a sufrir de enfermedades crónicas no transmisibles, además de depresión y estados psicológicos no adecuados. La presente investigación tuvo como objetivo determinar las insuficiencias que se derivan en la conducción del proceso de desentrenamiento deportivo en atletas retirados. Para lograr las metas propuestas, los autores se apoyaron en métodos teóricos y empíricos; se utiliza la herramienta de la estadística descriptiva (cálculo porcentual) para procesar la información, tomando como muestra a atletas juveniles retirados de polo acuático, médicos deportivos, psicólogos y fisioterapeutas de medicina deportiva, a los que se les aplicaron entrevistas y analizaron sus opiniones durante la conducción de este proceso. El resultado final fue que es insuficiente el conocimiento de cómo realizar este proceso de desentrenamiento deportivo en la muestra estudiada, no dominan cabalmente los métodos, procedimientos, contenidos y metodologías, a partir de las investigaciones y preparaciones metodológicas sobre el tema que es vital en el deporte de alto rendimiento. Entre las conclusiones más relevantes de este trabajo, se encuentra que los referentes teóricos del desentrenamiento deportivo en la actualidad no cumplen las expectativas de los atletas que se retiran en las diversas agrupaciones deportivas y los atletas cuando se retiran no poseen información de cómo realizar este proceso.

Palabras clave: Alto rendimiento; Atletas de polo acuático; Desentrenamiento deportivo.



RESUMO

Atualmente, em Cuba, muitos atletas que atingem sua idade de aposentadoria não realizam processos de destreino esportivo, o que afeta sua saúde a médio prazo; eles começam a sofrer de doenças crônicas não transmissíveis, assim como depressão e estados psicológicos não adequados. A presente investigação tinha como objetivo determinar as insuficiências que derivam na condução do processo de destreino esportivo em atletas aposentados. Para atingir os objetivos propostos, os autores se basearam em métodos teóricos e empíricos; a ferramenta estatística descritiva (cálculo percentual) foi utilizada para processar as informações, tomando como amostra atletas juvenis de pólo aquático, aposentados; médicos esportivos, psicólogos e fisioterapeutas de medicina esportiva, aos quais foram aplicadas entrevistas e analisadas suas opiniões durante a condução deste processo. O resultado final foi que não há conhecimento suficiente de como realizar este processo de destreino do esporte na amostra estudada, eles não dominam totalmente os métodos, procedimentos, conteúdos e metodologias, baseados em pesquisas e preparativos metodológicos sobre o tema que é vital no esporte de alto rendimento. Dentre as conclusões mais relevantes deste trabalho, constata-se que as referências teóricas de desvalorização do esporte atualmente não atendem às expectativas dos atletas que se aposentam em vários grupos esportivos e os atletas quando se aposentam não têm informações sobre como realizar este processo.

Palavras-chave: Alto desempenho; Atletas de pólo aquático; Destreino esportivo.

INTRODUCTION

In the contemporary world, sport is a social phenomenon that is acclaimed by millions of people in all its events. The development of sport goes hand in hand with advances in science, technology and society, as well as research aimed at responding to the different problems that arise from sport and the practice of physical activities.

Platonov (1991) refers that the systematic practice of physical activities with a healthy orientation constitutes one of the fundamental pillars to increase the quality of life. Conducting research on high performance is of utmost importance for Physical Culture professionals involved in it, due to the repercussions it can have on the health and quality of life of the practitioners.

Alonso and Forteza (2001), in a published article, express that,

"given the characteristics of the level of current sports results, to interpret that high performance sport is healthy is an absurdity, since the aggressions (influence) involved in the physical loads to be performed by the athlete are truly worrying, to which is added the system of constant competitions and the biological sacrifices that this implies".

The athlete who goes through sports training in its various phases and assumes retirement must undergo a sports detraining process. In this case, the objectives and directions of the load, frequency, duration time and contents are modified, but the athlete must gradually detrain with special attention to his individual characteristics.



At the international level, this research is based on the letter of the **International Olympic Committee (1958)**, in its principle eight, functions nine and 11, which state the practice of physical activities and sports according to the needs of the practitioner, monitoring the health of the athlete during and after his sports career, in addition to ensuring the proper social integration of the athlete, after his retirement.

Among the pertinence studies in this scenario on quality of life, health and preservation of man as a species, undoubtedly stand out those conducted by **Alvero, J. R., Ronconi, M., García, J. C., Carrillo, M., Jiménez, M., Correas, L., & Carnero, E. A. (2017)** on sports detraining, which start from physiological analysis of the object of study. These authors state that the principle of sports detraining is that of reversibility as a principle of adaptation to training; supported by the following argument: the cessation or a large reduction in training leads to a partial or complete loss of these adaptations. Thus, sports performance is compromised, there is a deterioration of the cardio-respiratory condition and, on the other hand, it leads to an alteration in energy generation.

For their part, **Ibáñez, S. (2003)** and **Ribeiro (2005)** reflect in their research the effects produced by detraining due to the reduction of training stimuli on the physical fitness of athletes who are immersed in the process.

In Cuba, a **collective of authors (2003)** created the Medical Care Program for retired athletes, designed by the Institute of Sports Medicine (IMD) was created. This program constitutes the starting point of the other methodological ways proposed to implement sports detraining. However, it is established on a rigid and temporary basis in its planning, using the same values for intensity, volume, frequency, work and rest time.

In this program, the nature of sports is not contemplated, and the particularities of the subjects, the years dedicated to sports practice, the results achieved and the causes of sports retirement are considered. These fundamental aspects do not take into account the anatomical, physiological and psychological characteristics, which are unrepeatable in athletes. Moreover, no control is conceived to indicate the transformations that the organism exhibits during a process of unloading. These elements constitute shortcomings in the process under study.

Currently, sports detraining is governed by resolution 82/2015, which establishes the creation of a care group for this activity. This directive establishes the implementation and control of detraining by the IMD. Despite attempts to develop this process, much remains to be done in favor of its proper orientation and direction to answer other questions (**Inder, Cuba. 2002**).

Consequently, coaches should assume in the process of their training, the methodological preparations on the subject of sports detraining and these, in turn, should make athletes aware of the importance of this in their future life.

The foundations of knowledge that characterize sports detraining focus their content on different tendencies. Authors such as **Barrizontes (2003), López (2007)** and **García (2012)**, place detraining as a phenomenon of maladaptation and cover their approaches from the physiological. These authors describe the pathologies suffered by athletes who have retired from high performance sport and do not detrain, such as: arterial hypertension, diabetes mellitus, sedentary lifestyle, obesity, sudden death, myocardial infarction and an increase in toxic habits such as smoking, alcohol, drugs, among others.



Other authors approach detraining from the methodological point of view and have offered in their research alternatives for its implementation based on various physical activities and different sports, including [Aguilar and Valdivia \(2011\)](#). In the works published on sports withdrawal and detraining, these are seen as isolated elements. The authors consulted do not relate them to each other and only some, such as [Alonso and Forteza \(2001\)](#), see the need to relate them to a new phase of the athlete's sports preparation; therefore, there are still insufficient studies on the preparation for detraining.

In the National Balance of Attention to Athletes, it was reported to former athletes, coaches, and managers of Inder (National Institute of Sport, Physical Education and Recreation) that 40 % of those retired until 2013 did not reach 60 years of age, when, paradoxically, the average life span of men and women in Cuba is 75 and 78 years in that order ([Inder, 2014](#)). These elements reaffirm the need to pay greater importance to the health of athletes when they retire and are victims of non-detraining and who, in the medium term, acquire chronic diseases that function as triggers to the detriment of the quality of life.

In the previous studies, the objectives of the researches are directed to give answers by different methodological ways to the sports detraining process and are organized by means of programs, indicators and stages. However, they do not take into account the state of overload with which the athlete comes after long and hard years of training to face the detraining. It has not been found in the literature consulted, in research or in previous requirements, the fundamentals on the state that the athlete must present when he/she culminates his/her stage of sports longevity and accepts retirement to be subjected to physical loads. This lack implies the demands of a detraining program and its repercussion in new morphofunctional adaptations.

Thus, based on the author's practical experience, the result of research carried out previously, his theoretical reflections, as well as the empiricism developed in this initial stage in the province of Cienfuegos, it was found that there are insufficiencies in the knowledge of professionals in the sport of water polo. These limitations demand ways on how to act during sports detraining, which requires theoretical and methodological knowledge to be able to develop this process fully, with youth athletes who go into retirement.

Coaches show a lack of interest in the mastery of methods, procedures, contents and methodologies to conduct this process, in addition to not instilling in their athletes the vital importance of this process for their subsequent retirement.

Consequently, there are theoretical-methodological insufficiencies in the professionals who work in the sport of water polo to successfully conduct the sports detraining process. The objective of the present work is to determine the insufficiencies derived in the conduction of the sports detraining process in retired athletes of water polo in order to contribute to provide solutions to the shortcomings.

MATERIALS AND METHODS

In the research, different techniques and methods were used, which allow sustaining and directing the methodology used; among them, the theoretical methods stand out: the analytical-synthetic refers to all the material collected during the research work to



arrive from general conceptions to the theoretical and methodological foundations that support sports detraining, as well as to reach the conclusions of the research work. The inductive-deductive served to establish characteristics, links and relationships in the composition of the methodology and to reach general conclusions.

The empirical methods used were the review of documents, such as comprehensive athlete preparation program (PIPD in Spanish) from 2017 to 2020 to know if at present methodological indications have been established for the preparation of this sports detraining process, from the categories preceding the sports retirement of athletes.

In addition, sports detraining programs and national and international publications were reviewed to analyze the performance that the different processes have had, the particularities of the previously established programs and their shortcomings and to be able to establish regularities and provide information in this regard.

In the methodological work plans and visits to training units, participatory or open observation was used, where the observer is directly or indirectly involved with the object, fact, phenomenon or process to be observed, i.e., the observer does not hide and the subjects know that they are being observed.

Consequently, it was possible to verify in the methodological work plans and in training units that the teachers do not contribute, nor plan elements that contribute to the knowledge and importance of carrying out the sports detraining process for the quality of life of these subjects who finish their juvenile category and are not enrolled in national teams, therefore, they are not prepared for its realization.

The interview, as a complementary method of empirical level that consists of a professional conversation of planned character between the interviewer and the interviewees, was carried out with the following objectives:

- To obtain reliable information on the sports detraining process.
- To enrich, complete or confirm the information obtained through the use of other research methods.

The interview was conducted with coaches, retired athletes and sports medicine professionals in Cienfuegos to learn how the detraining process is developed in the province and the preparation of the professionals working in this area, based on the following indicators: organizational methods and procedures and the fulfillment of the objectives that are set to implement this process in practice. The descriptive statistics tool (percentage calculation) was used. In addition, official documents and methodological activities were analyzed.

RESULTS AND DISCUSSION

In relation to methodological activities, the following was noted:

- Aspects related to the methodology to be used for sports detraining, its steps and importance for the health of athletes, the didactic components of how to do it and the results that emanate from it are not taught.



- In the review carried out, there are insufficiencies in the mastery of the methods and organizational procedures for the conduction of this process and the poor use of the results of the sports scientific activity as a way to solve the problems.

Interviews with trainers

In addition to the above, interviews were conducted with a group of ten high performance water polo coaches, for 100 % of the sample, who work at the Eide (Provincial Sport Initiation School) "Jorge Agostini", in the province of Cienfuegos. The 100 % of this sample has a degree in Physical Culture, with more than 10 years of work in high performance. Of these, five, representing 50 %, have a master's degree in science.

The 100 % of the coaches interviewed consider sports detraining important for the retiring athlete. Most of their criteria is based on the preventive nature of this process, which they consider as important as the preparation process itself, but with different purposes and in different contexts because it avoids health problems in the future. However, it is not carried out or referred to several athletes retired from the territory in these disciplines, who today suffer from arterial hypertension, are obese, sedentary, diabetic, report joint pain, present deformities of the locomotor apparatus and some have heart attacks.

The 100 % state that they do not know how to plan it, which indicators to start from, how to work on individuality, it is not included in the integral program of preparation of the athlete (PIPD) as a final stage; they agree that the planning of this should be similar to that of the training process, but in a descending direction.

The 100 % recognize that it is a process little treated in their methodological preparations, that the athletes do not feel encouraged because they do not know about this process; the level of knowledge at present does not allow them to work it in an adequate way.

Regarding the components that make up detraining and the contents to be dealt with in each one, 100 % of the coaches refer to the structuring of sports detraining and the components to be worked on in each one, similar to a class of Sports Training or Physical Education.

Analysis of the results of the interview with the youth athletes who were the object of the research

This population is made up of 12 youth athletes of high performance sports, born in the city of Cienfuegos, all of them from the water polo team that has represented the province in first category tournaments, some of whom have also been on the national team roster. It should be added that this is the most awarded sport in the province as a collective sport. One hundred percent dedicated more than 15 years to the practice of this sport, criteria that were taken into account when working with them.

The 83.3 % corresponding to ten athletes of the total stated that detraining is a new term for them, but they recognize that it is of great importance for those who retire from active sport. They state that this topic is currently discussed, but, in reality, the orientation is very poor, which is why most of those who are part of the ranks of the provincial teams omit this process in their sporting life, despite knowing the necessity of detraining.



In relation to the methodological particularities of sports detraining, 11 athletes, representing 91.7 %, state that they do not know any information on the subject since their training as water polo athletes. All of them do not know how to deal methodologically with sports detraining.

Regarding the general attention that should be given to those who retire from high performance sport, 100 % of the respondents reduced their answers to the actions that emanate from the Provincial Commission of attention to retired athletes and sport glories. It can be seen that they do not have sufficient knowledge about sports detraining and that no promotional activities are materialized for this purpose in order to give a prophylactic, systematic follow-up to this population.

Analysis of the results of the interview of sports medicine professionals

The interview was applied to a group of 16 professionals working in the field of sports medicine at the Provincial Center of Cienfuegos. This sample consisted of six physicians representing 37.5 %. Of these, 100 % are specialists in Sports Medicine and Masters in Science. Another 25 % of the sample consisted of four physiotherapists from the Provincial Center of Sports Medicine of Cienfuegos; 100 % of them are graduates and one for 25 % is a Master of Science.

Similarly, six Sports Psychologists were interviewed, representing 37.5 %, who work at the Provincial Center of Sports Medicine. Of the psychologists interviewed, one (16.7 %) has the scientific degree of Doctor of Science and the main teaching category of Full Professor; two are Master of Science, with the teaching category of Assistant Professor, for 33.3 %.

All of them consider important the sports detraining process, which has a direct impact on the health of the athletes, not doing so is equivalent to suffering pathologies in the future. All agree on the need to guide detraining and give it as much attention as training itself, given its importance and pertinence.

Likewise, 100 % of the respondents stated that post-retirement detraining is the current trend, due to its preventive effect on the subject's life. On the contrary, the vast majority of athletes do not detrain, some for lack of guidance and others by their own decision, which is unfortunate because at the same time, they are dispensarized as hypertensive, diabetic, obese and sedentary.

On the other hand, they justify psychological processes of anxiety with vices such as excessive consumption of coffee, cigarettes, tobacco and alcohol. The aforementioned reveals the pertinence of the present research and the need to deepen the theoretical and methodological references that support sports detraining, so that it may occupy the place it deserves in the life of the retiring athlete.

Regarding the methodological indications of sports detraining, the six physicians and three of the physiotherapists refer that they know the methodological elements that govern detraining. The 100 % of the psychologists claim to know some methodological particularities of it because of their work experiences with sports training. They state that they have had access to bibliographies that refer to the subject and have worked with some of the athletes of the territory who have undergone detraining.



In addition, they agree that there is insufficient methodological knowledge for the optimal treatment of detraining. There is a diversity of criteria in relation to the subject matter and they propose some variants for its implementation, although most of them are similar in their structure. They consider it opportune to work in order to organize it and to propose methodological indications to lead it. It was found that there is no single criterion about the detraining process.

Official document and research review

The review and analysis of official documents was carried out with the theoretical-methodological references that support the implementation of sports detraining at present. The documents analyzed were the National Sports Medicine Program of medical care for retired athletes (Collective of authors, 2003) and research conducted by Mujica (2011), Marín (2019) and Hilario-Sacta, *et al.*, (2020).

A review was made of the aforementioned documents, taking into account the following units of analysis: theoretical foundations that support the proposals consulted the determination of the content, the temporal distribution and dosage of the loads to be worked in detraining, the methodology and the treatment of individualization as a core aspect in the conception of sustainable sport.

From the review and analysis of the above-mentioned documents, the following regularities are evident:

Limitations in the theoretical and methodological foundations that support the proposals, the results of the diagnosis are not taken into account for the methodological treatment, according to the needs detected.

The contents to be worked on are not well determined, the object of their selection is not explained, the nature of the sports and the individual characteristics of those involved, according to their specialization, are not taken into account.

The trainers do not have enough methodological indications to concretize the detraining process from an individualized perspective.

The training and instruction of the athletes is not appreciated, therefore, these subjects cannot be responsible for this process. Consequently, many athletes who retire, not being prepared to detrain, use the easiest way, which is not to do it. It is important to make coaches and athletes aware of the need for this process.

There is no detraining control system that defines the progress and allows the evaluation of the state of the retired athlete, according to the objectives set.

By way of summary, the following elements are provided:

The athlete's preparation program, although specialists are of the opinion that its social object is only training, the author observes that no methodological guidelines are given on how to conceive the purpose of the athlete's career.

The nature of sports and individual characteristics of athletes are not taken into account. The methodological ordering of procedures is insufficient for this process to flow optimally.



There is no methodological algorithm of detraining control that guides the progress and allows the evaluation of the state of the subject involved in the process, which allows elements of feedback and readjustment.

When making a contrast of the results of the interview, review of documents, methods and research techniques used in these documents, rigidity is appreciated in terms of stages, duration, frequency, the methodological treatment does not guarantee systematization. These aspects do not guarantee their concreteness in practice. There is little scientific-methodological literature for detraining, in addition to the lack of unique criteria from an individualized perspective, which serves as theoretical support for coaches and athletes involved in this process.

Sports detraining is a term as current as it is controversial, which has been little treated in the scientific literature and has a contradictory character due to different points of view, from different authors, which results in the same term adopting various definitions and giving name to different phenomena of the objective reality.

According to **Ronconi and Alvero (2008)** in their article, current trends for detraining, according to their temporalization they classify short duration detraining, less than four weeks and long duration detraining, more than four weeks.

In the author's opinion, this article is not theoretically and methodologically based because it lacks supporting indications. It frames the detraining of athletes in periods of time, without taking into account the adaptive responses of the subjects, characteristics of the sports, capacities to be developed, individual characteristics of the athletes, which are unrepeatable in human beings and the forms of specialization.

Mujica (2011), for his part, states that the principle of sports detraining is that of reversibility as a principle of adaptation to training, based on the following argument, the cessation or a large reduction of training causes a partial or complete loss of these adaptations, thus compromising sports performance.

In the author's opinion, detraining in its direction is considered a reversible process, but this is not its guiding principle, it is governed by a system of methodological principles and, for its individualization, which make it a process of reduction of loads with a healthy orientation to raise the quality of life.

According to **Hilario-Sacta et al., (2020)** in Ecuador, sports detraining has not been planned or systematic and even retired professional soccer players have not been taken into account by the sports management for a detraining with a dosed planning process. If this situation is present in soccer, it is then possible to infer the situation that can occur in other sports. This leads to the fact that retired professional athletes from different disciplines continue to perform physical activities controlled by themselves, that is, in an empirical way, without the observation of a professional, which results in a continuous lack of control of the loads and their health, which becomes a risk to their livelihood.

This study conducted in Ecuador, mentions that athletes who conclude their sporting life do not comply with a systematic and directed detraining process with trained professionals, the fundamental causes are insufficient existence of documents that regulate the bio pedagogical and psychosocial ways and conditions, in charge of sustaining the sports detraining process.



There is evidence of the lack of a plan promoted by the sports secretariat, federations or other sports organizations in the country to motivate detraining, especially in retired athletes, in addition, the lack of fully and objectively trained personnel to fulfill the role of sports detrainer, the insufficient knowledge of retired athletes and athletes in retirement, the importance of sports detraining as a prophylactic measure, the emergence of non-communicable diseases such as hypertension and cardiovascular problems, among others.

There is a lack of interest in carrying out this process. The Physical Culture professional must take into account the adaptive changes that occur in the body due to the influence of physical activity to plan the detraining of an athlete in an organized manner, a key aspect today, if it is known the alarming figure given by **IMD (2014)** of 40 % of elite athletes, retired, affected by pathologies, not having performed detraining processes in their different sports disciplines.

Finally, it is concluded that at present sports detraining is an important and central issue for the maintenance of the health of athletes who pass to sports retirement. Here sports institutions, society and the family should pay more attention so that this athlete can move on to different performance roles in his/her future life, with a high level of quality of life. In this way, sustainability will be achieved in the practice of sports at the local and national level.

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The authors declare not to have any interest conflicts.

Authors' contribution:

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