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The Roles and Responsibilities of Sports Pharmacist in Athlete Health Management

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ABSTRACT

Sports pharmacists are the focal points of the whole process of the performance optimization as well as the well-being of athletes. They help atheletes gain knowledge in the reactive nature of medications and dietary supplements and their effects on their performance. Some such responsibilities include:

1. Medication Management: Sports pharmacists are responsible for the right medication given to the athletes if they are injured, sick, or having chronic conditions. They look into drug interactions, side effects, and the patients' adherence to medication schedules.

2. Supplement Counselling: Sports pharmacists guide the athlete through the effectiveness, safety of use, and possible risks that might arise due to the use of different supplements.

3. Anti-Doping Education: Pharmacists provide athletes with the information on banned substances, their actions, and the regulations of the counter-doping process. The 1998 Tour de France (Festina Affair) raid led to the creation of the World Anti-Doping Agency (WADA) in 1999.

4. Performance Optimization: They help athletes and coaches in building personal treatment plans with the help of medication and sometimes supplement use that will achieve the best performance while still ensuring health.

They are also actively involved in research and development. Among other things, they study the performance of drugs and supplements in sports and promote the same through education and practice.

Keywords: Anti-Doping Education, Dietary supplements, Medication Management, Performance Optimization, World Anti-Doping Agency (WADA)

INTRODUCTION

Whether in competition or training, promises are to be made that perfection be achieved over the course of one's entire athletic life. Great effort and concentration should be expended if at all the goals of these athletes are to be attained. At the same time, the adoption of performance-enhancing drugs (PEDs) in sports has become significantly more common than it used to be. These substances capitalize on the sport unfairly as they give some athletes a leeway over the rest. It has to be taken into account that those sports people in their attempt to reduce the degree of competitiveness are obliged to use doped foods and drugs as well as supplements that are safe and legally acceptable.

With the knowledge that athletes are involved in drug abuse and depend on medical practitioners to come to their rescue, it is crucial to involve the inclusion of pharmacists in this task, as they have the knowledge to educate the athletes on the adverse effects of taking in drugs as well as giving medical procedures that are safe and effective.

To promote the integrity of sport and protect athletes, this article will explore the role of pharmacists in clean sport and why their work is so relevant.

2.1. What Is Sports Pharmacy?

The pharmacist's function in sports medicine frequently overlaps with other healthcare specializations and is part of a comprehensive approach to patient treatment. They educate patients about medications and offer advice and counsel.

Sports pharmacy is a growing specialization of pharmacy that helps athletes satisfy their drug and nutritional supplement demands. Pharmacists help athletes during important sporting events. It is critical to understand that athletes, as a distinct patient population, have specific needs for medicine and nutritional supplement assistance.[1, 3]

2.2. What Are the Various Supplements Used by Athletes?

Supplements are a common tool used by athletes to improve their performance in sports and exercise.

A. Performance Enhancement:

- Creatine: This compound can increase muscle mass and strength, benefiting power athletes.
- Protein: Protein supplements can aid muscle repair and growth after workouts, especially for those struggling to meet their daily protein needs through food alone.
- Beta-Alanine: This amino acid can buffer acidity in muscles, reducing fatigue and improving endurance.

B. Nutrient Replenishment:

- Electrolytes: Sports drinks or electrolyte supplements can replace minerals like sodium, potassium, and magnesium lost through sweat, preventing dehydration and cramps.

C. Recovery Support:

- Antioxidants: Supplements like vitamin C and E can help combat oxidative stress caused by intense exercise, reducing muscle damage and inflammation.
- BCAAs (Branched-Chain Amino Acids): These essential amino acids can reduce muscle soreness and fatigue, promoting faster recovery. [1, 8]

Table No. 1: Different types of Sports Supplements used by Athletes

SPORTS SUPPLEMENTS	THE MOST PREVALENT SUPPLEMENT TYPE
Carbohydrate supplements	Gainer, Carbohydrates
Protein supplements	Whey protein
Caffeine supplements	Caffeine tablets
Fat Burner supplements	L-carnitine
Antioxidant and vitamins supplements	Multivitamin, Vitamin-C
Energy drinks	Hype, Red Bull
Electrolytes	Sodium, Potassium, and Magnesium
Others	Glutamine, Pharmaton, Creatine

2.2. Main Responsibilities of a Sports Pharmacist

- Enables the recommendation of appropriate use of medication for injuries and illnesses in sports.
- Facilitates knowledge sharing to prevent misuse and abuse of medication in sports.

- Promotes the use of safe and evidence-based dietary supplement.
- Supports the improvement of athlete health through effective medication use, dosage, and drug interaction control.
- Explains the use and risk factors of nutritional supplements in sports nutrition.
- Evaluates the effectiveness and safety of supplements used for athlete health. Informs athletes about ergogenic aid and doping issues.
- Providing recommendations on the prohibited status of risky substances is a fundamental issue.
- Has knowledge of the current WADA list of prohibited doping drugs and informs athletes about prohibited drugs on this list.
- Compares legal situations in different countries and transfers information to relevant authorities for improvement of conditions.
- Discusses the effects of pharmacy practices on athlete health.

Sports pharmacists' individual or institutional activities include developing and maintaining experimental and clinical research; producing, storing, prescribing, and distributing (in accordance with anti-doping regulations) drugs and dietary supplements used by athletes and individuals engaged in physical education activities for a variety of reasons, whether related to sports or not; and research-related activities, including anti-doping support.[7, 9]

2.3. Working Fields for a Sport

- Sports clubs and associations
- Athletes
- National Anti-Doping Organizations
- International Sports Federation
- Doping Control
- Sports Events

A sports pharmacist can work in a variety of settings, including clinical settings and hospital orthopaedic services, as part of a multidisciplinary team to monitor and manage medications for acute or chronic injuries caused by sports or exercise.

Sports pharmacists can supplement the work of sports physicians, physiotherapists, orthopaedists, and other healthcare professionals who care for athletes in all clinical settings. The pharmacist's function in sports medicine is typically associated with other healthcare professions and can be part of a comprehensive approach to patient treatment.

Advising competitive athletes about forbidden substance statuses is one of the most critical challenges.[9]

2.4. What Is Doping?

This statement defines doping as the use or use of any foreign or physiological substance in abnormal quantities or via an abnormal channel in order to unnaturally and unfairly improve athletic performance during competition.

Doping violates sporting ethics while also endangering athletes' health. The World Anti-Doping Agency (WADA) has identified banned substances and techniques, and athletes must undergo frequent doping controls. Doping regulation is critical to protecting the integrity of sports and guaranteeing a level playing field.[6, 8]

2.5. History Of Doping and Sports Pharmacy

Doping has a long history that begins in ancient Greece in the eighth century BC. The sticky opium extract known as "dope," which was consumed as a stimulant, is where the term "doping" originates. Plant-based compounds were utilized for doping until the discovery of amphetamine, the first synthetic doping agent, in 1920. The first time stimulants were prohibited by the International Association of Athletics Federations (IAAF) was in 1928.

The European Council created a Commission in 1963 to address doping, and the term "sports pharmacy" was defined in an American article for the first time at the same time.

The pharmacist's role was defined as an active civilian defender of public health and safety in sports, offering advice as a colleague of the team doctor and trainer, supplying medication and equipment for the treatment room, and consulting with individual athletes on preventive sports medicine and first aid use.

The International Olympic Committee (IOC) released its first list of substances that were prohibited in 1967. Substances like growth hormone, beta-blockers, caffeine, testosterone, and erythropoietin were outlawed in the years that followed.

The 1998 Tour de France (Festina Affair) raid led to the creation of the World Anti-Doping Agency (WADA) in 1999.

A six-year program in pharmacy was launched in 2006. A system was created for registered drug sellers in place of the second-class licensing scheme for drug shops. The International Convention of UNESCO was signed by the Japanese government. Both the registered medicine sales system and the JADA Sports Pharmacist System were introduced in 2009. In Japan, the first licensed sports pharmacists started working in 2010.[6]

3. Materials and Methods:

3.1. Materials:

i. Academic Databases:

- PubMed
- Google Scholar
- Scopus
- Web of Science

ii. Professional Organizations:

- International Society for the Advancement of Kin anthropometry and Health (ISAK)
- American College of Sports Medicine (ACSM)
- World Anti-Doping Agency (WADA)
- International Olympic Committee (IOC)

iii. Government Agencies:

- Food and Drug Administration (FDA)
- National Institutes of Health (NIH)

iv. Sports Medicine Journals:

- British Journal of Sports Medicine

- International Journal of Sports Medicine
- Clinical Journal of Sport Medicine

v. Books and Textbooks:

- Sports Medicine textbooks
- Pharmacology textbooks
- Nutrition textbooks

3.2. Methods:

i. Literature Review:

We conducted a literature review on databases and journals by incorporating the appropriate keywords and phrases. These include "sports pharmacy," "athlete health," "role of pharmacist, " "doping prevention," and "medication management." To stay informed, with the information we browsed through recent publications.

Search terms are outlined in Table 2.

Table No. 2: Search terms used in the literature retrieval.

Pharmacist* OR Pharmacy OR Pharmacies
AND
drug* OR ailment OR medicin* OR substance OR medical or test* OR sample or urine or urinalysis OR advise OR advice OR dispens* OR compound* OR extemporane* OR manufactur* OR inventory OR imprest OR record OR counsel* OR performance OR enhance OR enhancing OR performance-enhancing OR dope OR doping OR anti-doping OR supplement* OR non-steroidal OR anti-inflammator* OR antiinflammator* OR nonsteroidal OR NSAID* OR analgesi* OR paracetamol OR ibuprofen OR diclofenac OR naproxen OR piroxicam OR mefenamic OR topical OR rubefacient* OR CAM OR "complimentary medicine" OR "alternative medicine" OR TENS OR "transcutaneous electric* nerve stimulation" OR ultrasound OR OTC OR "over the counter" OR non-prescription OR nonprescription OR refer* OR recommend* OR RICE* OR non-pharmacological OR nonpharmacological OR lifestyle OR exercise OR assess* OR manage* OR recommend* OR approach OR strap* OR tape OR taping OR brace* OR device* OR crutch* OR "walking stick" OR wheelchair OR "mobility aid" OR orthopaedic OR orthopedic OR "first aid" OR first-aid OR amphetamine* OR stimulant* OR ephedrine OR adrenaline OR ephedra OR caffeine OR anabolic OR steroid* OR "growth hormone" OR erythropoietin OR EPO OR darbepoetin OR androstenedione OR dehydroepiandrosterone OR creatine OR "biological passport" OR vaccinat* OR immunis* OR immuniz*
AND
injury OR sprain* OR strain* OR contusion* OR "soft tissue" OR ligament OR "muscle tear" OR "torn muscle" OR tendon OR ankle OR sport* OR athlete* OR coach* OR Olympic* OR competition OR competitor OR club

ii. Case studies:

In our analysis, we studied practical examples of the engagement of athletes and their interaction with sports pharmacists in order to learn. We found problems and effective strategies that sports pharmacists have used.

iii. Web-based Resources:

From online sources, sports departments and government agencies, and pharmaceutical companies, we drew the relevant information for our article on the roles of sports pharmacists; we explored their view and resources on the subject.

4. Results & Discussion

4.1. The Pharmacist's Role in Athlete Education

Pharmacists can be useful in sports in as many ways as possible. One of the primary goals to promote fair and clean sports is to educate athletes about substances, including legal or alternative substances that they may come across. However, first, they are important in educating athletes and their back up team on the dangers of using performance-enhancing drug (PEDs) and other drugs. Pharmacists can inform the safety of these drugs as well as other related dangers. Sports safe education by the pharmacist can turn out very important in order to prevent the athletes from the use of the performance enhancement drugs.

Pharmacists who work with athletes can assist the athletes in finding their way in the difficult area of supplements and drugs in order to stay away from prohibited substances. There are many drugs as well as supplements that have substances that are banned in sports and thus it is hard for athletes to know which drugs are safe for use. Moreover, medical practitioners may need to apply this knowledge to help athletes in deciding on what substance to take and what to keep away from in other words, in terms of avoiding dangers.[2, 7]

4.2. Drug use awareness

One of the key responsibilities of pharmacists in the sports industry is to keep current with the list of banned substances. They must be familiar with the World Anti-Doping Agency (WADA) regulations and the specific rules for each sport. Understanding these guidelines allows medical professionals to guide athletes on which medications and supplements are permitted and which are not. By fostering a clear understanding of drug use, pharmacists can assist athletes in managing the complexities of sports medicine, thus lowering the chances of accidental doping violations.[3]

4.3. Promoting Safe Practices

Pharmacists are not restricted to just mentioning information about some medication, they also protect the patients from using these medicines inappropriately. They advise the athletes on the suitable dosages, on how they could mix with other drugs, and how prescription details need to be understood. A significant portion of this process is also performed by medical professionals who have sufficient control and monitoring responsibilities over the sportsmen. They are incorporated with the anti-doping authorities in collecting, processing, and evaluating samples while ensuring the integrity and transparency of the studies. When a problem arises in a test, the pharmacist is able to offer expert assistance. In terms of investigative work, the explanation and general treatment of the issue can be provided.

Thus, these specialists help to decrease the risk of self-medication and drug abuse within sports environment by advocating the proper use of medications. Furthermore, health care providers can help foster an open dialogue between athletes and their providers on ways in which both parties can enhance and maintain the health of the athletes.[7]

4.4. The role of the sports pharmacist in 2014 by FIP (International Pharmaceutical Federation);

- Getting up-to-date information about the content of the WADA Code.
- To promote the health benefits of exercise, including participation in sport.
- To distinguish between legitimate and rationale use of medication and the abuse of medication.
- To refuse to supply a drug designed to enhance performance in an illicit manner when conditions clearly indicate that it is illegitimate.
- To record the medication of an individual who participates in a competitive sport.
- To provide information to individuals involved in competitive sports about which medications contain prohibited substances.
- To provide information to those involved in athletic sports about the benefits and potential risks of nutritional supplements.[10]

4.5. The Pharmacist's Role in Sports Governance

Additionally, it is worth mentioning that pharmacists are also empowered to work with sports teams, anti-doping associations to implement rules and measures to prevent the use of performance enhancing drugs in sports. They can assist in these bodies establishing effective testing systems and identifying the athletes who have abused performance-enhancing drugs. In this health domain, pharmacists support the construction of the fair play principles towards the performance of sport. [2, 10]

4.6. Ethical Considerations in Pharmacist Involvement

The importance of ethical considerations for pharmacists working in sports cannot be emphasized enough. Pharmacists follow a code of ethics that prioritizes the well-being of patients, including athletes. This ethical guideline requires pharmacists to prioritize the health and safety of athletes, even when there is pressure to use questionable methods to improve performance. Additionally, pharmacists must carefully balance supporting an athlete's desire to perform at their best with ensuring they do not harm their health or break ethical rules. This balance is crucial because unethical practices can have serious consequences for individual athletes and the overall integrity of sports.[5]

5. Conclusion

In conclusion, it is evident that to ensure that sports remain clean, pharmacists participate in the education of the athletes on the dangers including performance enhancing drugs (PEDs), assist the athletes in navigating the confusing world of supplements and medicines, and liaise with the sports bodies in the formation of policies and regulations to cover the use of prohibited drugs. Engaging with competitors and their support staff enables practicing pharmacists to safeguard that the fairness in sports is ensured.

There is a need for pharmacists to put more effort into upholding the ethics of sports and promoting clean sports. The activities of pharmacists in relation to this area include informing the sports persons on the use of drugs, providing support and protection from corruption among athletes, and management of resources in sports.

Given that pharmacists are medication specialists, they are in the best position to regulate the use of performance enhancing drugs and the ideals which accompany these drugs of fairness and health in sports. Their participation is important in encouraging clean sports where athletes have a right to choose how to perform without compromising on their health.

With regard to the aspects of clean sports addressed above, the role of a pharmacist has a major impact on athlete health, the safe and healthy competition conducted in a fair manner, and the enforcement of ethical behaviour by sport participants. By embracing their roles as coaches, advocates and colleagues, therapists can ensure that sports life is based on health, justice and respect.[1, 2, 7, 10]

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