

Exploring self-declared prohibited substance use in combat sports: The Serbian perspective

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Abstract

The exploratory study is grounded in field research, utilizing semi-structured interviews with active, former, and recreational athletes in combat sports. The first section outlines key theoretical frameworks that address everyday life, lifestyles, and the issue of doping. The second section presents the main findings from the field research. Interviewees detailed the positive effects of doping on athletic performance while also acknowledging significant side effects, including physical and psychological consequences. Participants highlighted that the availability of information on doping has increased with the advent of the Internet and specialized retail outlets. The testimonies indicate that the culture of doping is driven not only by the pursuit of enhanced sports performance but also by aesthetic considerations and social pressures, underscoring the complexity of doping use in both professional and recreational sports. The study concludes that doping is a pervasive issue in combat sports, necessitating comprehensive social action and collaboration among policymakers, social stakeholders, and researchers across multiple disciplines, with a prominent role for physical education and sports sciences.

Keywords: combat sports · doping · performance enhancement · athletes

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Introduction

The topicality of scientific and research studies on the problem of doping in sports is the result of numerous factors. Competitiveness and the desire for achievements and victories have always been characteristic of sports. However, in this social and economic moment, innovations in the field of pharmacology sharpen the contradiction that concerns not only the physical characteristics of the individual, his psychological will, determination and endurance, social and infrastructural prerequisites for successful training and victories, but also artificial interventions in increasing psychophysiological abilities an athlete. The consequences of such an intervention are ambiguous. These include medical and biological changes in the body (most often with a negative health prognosis), social contradictions and even conflicts associated with unequal competition conditions, attitudes towards the use of doping as a violation of social and formal-legal norms, unfair way of winning prizes, undeserved receipt awards, and other privileges based on sports results.

The high price of victory in modern sports leads to several adverse effects, among which doping or the use of prohibited substances or methods in sports is of particular concern. From a medical point of view, using such preparations and applying some physical methods and manipulations that are often not grounded and controlled is futile and sometimes dangerous for the health and life of athletes. In modern sports, deaths often occur as a result of the use of prohibited substances by athletes (Rudenko, 2014).

In addition to the significant damage to the health and life of athletes doping can cause, the use of such agents contradicts the ethical standards of sports and the sports movement, which is why the main task of modern sports is to permanently continue the continuous fight against doping since the use of prohibited substances represents the strongest threat to sport in the 21st century. Doping undermines the health of athletes and takes away faith in athletes (Morente-Sánchez & Zabala, 2013). Although it is impossible to achieve a zero level of doping, the fight against doping in sports must be set as the first priority. Therefore, one of the most difficult problems of modern Olympic sports is the fight against doping.

Experts from different countries agree that the World Anti-Doping Agency (WADA) policy needs to be more consistent. Even the definition of doping ("doping - is a violation of one or more anti-

doping rules," as stated in the 2009 Anti-Doping Code) is neither logical nor scientific. To this day, sports science is developing in a way that is independent of WADA's functioning (Rudenko, 2014). It is essential to point out that some sports performance enhancement experts predominantly direct their efforts towards missing areas in research, which WADA may need to be fully focused on. Researchers in one study state that they believe it is impossible to eliminate doping in sports because anti-doping authorities will always be one step behind the doping industry (Lux & Vinther, 2024).

Many works are devoted to the theory and practice of anti-doping measures (Dikić, 2016; Fair, 1993; Naughton et al., 2024; Woolway et al., 2020). The researchers note that this problem involves a close interconnection of medical, social, pedagogical, political, ethical, economic, and legal aspects. The primary efforts of sports and medical science are focused, in principle, on the study of the influence of substances and methods prohibited in sports on the athlete's organism, on finding and improving instruments for their detection of biochemical components, and on reducing the costs of doping control, determining its more straightforward and more efficient procedures. Such an approach is conditioned by the requirement first to determine the impact and consequences of doping on health and only then find solutions for pedagogical, legal, and other problems in the fight against doping in sports (Fair, 1993).

Therefore, doping is one of the most serious and controversial problems of modern sport and society in general and includes closely interconnected medical, legal, political, ethical, organizational, social, psychological, and pedagogical aspects. The effectiveness of the fight against doping in sports largely depends on the system of its organization. However, it should be noted that researchers practically did not pay attention to the principles of organizing the fight against doping. Creating an effective anti-doping system, which would ensure effective restriction and prevention of doping, requires solving several tasks. It should be noted that there is a demand and objective prerequisites for the development and adoption of a general concept, which would generalize the obtained data and serve as a basis for the development of effective anti-doping measures based on the improvement of the legal and legal basis and infrastructure of the anti-doping policy, which should be harmonized with modern international standards (Baoutina, 2020; López et al., 2020).

Method

Participants

Thirty athletes (N = 30) from the field of combat sports participated in the research: 11 active athletes, 10 recreational athletes, and 9 former athletes. The research has been conducted in Serbia, between September 2022 to December 2023. All participants were men. The selection of subjects for this research was made on the basis of a common criterion – use or history of use of doping agents that are on the list of prohibited substances in the long term. The first contact towards interviewee sampling was the researcher's personal and professional contact with potential interviewees, and further sampling was based on the “snowball” technique. When meeting the interviewees, the initial parts of the interviews aimed to clarify the purpose of the research so that they would voluntarily agree to participate. All respondents gave signed consent to participate in the research. Anonymity was guaranteed to the participants, and the collected data would be used exclusively for scientific purposes. When analyzing the qualitative data, each interviewee was anonymized and categorized according to the type of sport and age.

Procedure

The field research was carried out according to a pre-defined protocol, using a semi-structured interview with elements of direct observation. A questionnaire basis for conversation was used as an instrument for data collection. The questions in the questionnaire are structured in several segments:

- Socio-demographic data of the participant;
- Sports status of the participant;
- Experience with doping agents;
- Phase of active application of doping agents
- A personal review of the consequences that the means used (potentially) left on the participant's organism's general socio-emotional and physical state.

The questionnaire-basis for the interview constructed in this way enabled a detailed, chronological reconstruction of the everyday life of the participants, for whom (at least in a certain phase of life) the use of illegal substances was part of their lifestyle.

The questionnaire questions were open-ended, allowing the participants to freely express all their thoughts and experiences related to doping. Such an approach allowed the participants to describe in

detail all phases of doping use, including the beginnings of use, periods of active use, and final comments on potential health consequences. All conversations were held in a calm environment, which allowed the participants to speak completely, honestly, and openly about their experience of doping in sports. The interviews were recorded using a voice recorder. The audio recordings and the researcher's handwritten notes are stored in the researcher's database.

During the field research, diverse participants were observed, from completely honest to restrained-honest. Interviewees of older age and with longer sports experience more often belong to the category of completely honest respondents. They supported the answers to the questions with numerous examples from everyday life. On the other hand, participants of a younger age and with less experience in sports were more inclined to be reserved and did not complete their answers with examples. The length of the conversation was different, with the shortest conversation of 21 minutes and 54 seconds to the most extended conversation lasting 1 hour, 15 minutes, and 29 seconds, and this variability was directly related to the age and sports experience of the respondent. At the end of the field research, the audio recordings were transcribed, after which we started the qualitative data analysis. Data analysis was performed using the QDA Miner Lite 3.0 program. The initial tree of codes followed the blocks of protocol questions, which led to a more detailed analysis of the obtained results.

This study was approved by the Ethics Committee of the Faculty of Sport and Physical Education (ref. 48-11-12/2022-1).

Results

Socio-demographic characteristics of the participants

The sample of respondents consisted of 30 athletes (26.67 ± 9.71 years; 20.30 ± 8.64 years of sports experience) engaged in combat sports. The pattern was formed using the so-called "snowball". These are athletes from the following sports: kickboxing (7 interviewees, 23%), MMA (6 interviewees, 20%), judo (4 interviewees, 13%), boxing (4 interviewees, 13%), wrestling (4 interviewees, 13%), combat sambo (3 interviewees, 10%) and ju-jitsu (2 interviewees, 7%). All athletes interviewed for this research used some products to improve their performance. They confirmed this already in the sampling period, because the condition for participation in the field research was primary

experience in the application of certain illegal substances, to improve sports performance. The results of the research indicate that the interviewees mostly first took legal substances that were not on the anti-doping list. However, over time, they switched to illegal substances as well.

We classified the respondents into active, former, and recreational athletes. Eleven interviewees declared themselves active athletes, nine were former athletes, and ten were recreational athletes.

In the period when the interviews were conducted, 60% of the interviewees stated that they had completed high school. Nine participants reported university education, of which five have student status. Two respondents defended the master thesis. One of them was a PhD student.

Knowledge of doping agents and the beginning of their utilization

In modern sports, above all in professional sports of high achievements, the problem of using various methods that increase the human body's potential and encourage the achievement of significant results and victories in sports competitions is omnipresent. Doping causes many controversies and scandals. The Medical Commission of the International Olympic Committee (IOC) considers doping to be the use of pharmacological drugs that artificially improve sports performance. Finally, sports doping can be conditionally classified into those that athletes can use during competitive activity for short-term stimulation of their abilities and those that can be used for a significant period of time in order to build muscle mass in order to bring the athlete as close as possible to maximum sports performance.

Against the background of increasing international opposition to doping, the results of a sociological survey conducted among Russian students who play sports (Nemtsev et al., 2020) show that the lack of educational programs for the youth audience causes a negative attitude of its representatives toward participation in the fight against doping. At the same time, including the younger generation of athletes in anti-doping education is one of the most critical actions that should be implemented. Children and youth must receive objective information about the possible negative consequences of doping for health and careers. This is one of the key areas for preventing anti-doping violations.

Doping has undoubtedly become a global problem that affects professional sports today, but

it is also increasingly present in the lifestyle of social actors. There are different approaches and reactions to doping issues in the sports world. When asked about such matters, some athletes may decline comment or distance themselves from such accusations. Others may be open and cooperative with investigations, providing information about their experiences. In some cases, athletes face pressure from sports organizations or the public, and their responses may be carefully considered to protect their reputations. It is important to emphasize that doping is a severe offense in sports and carries various sanctions, including suspensions, loss of titles, and fines. Athletes should cooperate with anti-doping agencies and adhere to anti-doping rules to preserve the sport's integrity. Interviewees who were engaged in combat sports, who admitted to using illegal means during their careers, and who wanted to share their experiences during semi-structured interviews were included in this research, with the guarantee that the protection of personal data would not be violated.

The immediate environment (physicians, coaches, teammates, friends, etc.) of athletes can significantly influence their intention to use prohibited substances in sports (Lentillon-Kaestner & Carstairs, 2010). Athletes do not immediately use doping, but there is a growing acceptance of performance-enhancing means and techniques, with a progressive transition from the use of legal products or methods to illegal ones. It is very difficult to know the extent of doping at a non-professional level due to the law of silence. With all of the above in mind, our respondents were first asked about when, where, and how they learned about doping, as well as who first offered them illegal substances. Most athletes heard from older colleagues preparing for international competitions in the locker room or during training. These older athletes, who were already involved in the use of illegal substances, were often perceived by the younger athletes as sources of knowledge and experience and provided information and often pressured the youth to engage in such behavior in order to improve their sporting performance.

“Nineteen years.” It was this one... I was then wrestling in -----, for the ----- wrestling club. And when I arrived, I heard from the conversations of older colleagues who were preparing for international competitions and so on, and at that moment, they were drastically ahead of me in terms of the preparation itself, sports and so on, and this... my best friend and colleagues who are closer to me in terms of age, we came to... to... the source, actually, where do they get it from and who can guide us and so on. It was some guy who ran a gym in -----, you know who procured it and who

knew some of the basics of it, otherwise he was quite a successful bodybuilder, let's say. And this... we received some instructions from him, for which today, I am a little more educated on these topics, I realized that it has nothing to do with life. I... I think that, looking back, come on, that will probably be a question later, but come on, that's my kind of answer to this question when I first came into contact with it and how." – wrestler, 30 years old

Some interviewees stated that they received conflicting information about the positive and negative effects of doping from close friends, who conveyed their first-hand experiences and shared their personal observations about the impact of doping on their sports careers and general health.

"And that friend who dealt with it really well, I started from him, as I would say, from him, I got some real information even about those negative effects, that it happened that someone died on stage, his heart burst or what happens, er... from that heavy doping." – judoka, 53 years old.

The importance of other people's positive experiences, that is, believing in other people's experiences, also led to the acceptance and use of prohibited doping substances, especially when athletes testified to a significant increase in success and performance in sports after doping. This resulted in the conviction that this was the way to achieve top sports results.

"In the gym in ----- I met a guy who later got serious... and then we started hanging out in the gym, so... naturally I was interested in his way of training, and then you could compare how you train and basically, when you see a man who weighs 120 kilograms and is shorter than me, where those muscles are laid out, each in its place, where he really has a serious tone at that moment, those muscles, and again I look at the weight I push more kilos, I train longer, so all training segments are on my side and the look is on his. Moreover, we start to train together a little, to hang out and this... and somewhere in a cafe I ask someone for the first time. He said yes, I've been using it for about 10 years, and then he introduced me to steroids in the sense of how they are used in what period, after which certain period there is a break, how during that break there is a fast, that is, recovery, and so on. There are some, some first steps in direct acquaintance. It is not anymore, how can I tell you, it's one thing when you read something, and it's another thing when someone tells you about their experience, that's a huge difference, you know." – boxer, 38 years old.

Some interviewees stated that they encountered the concept of doping very early in pre-adolescence, emphasizing that they were exposed to pressure to achieve exceptional results and surpass themselves

in training and competition in their early years in the club environment.

"Colleagues who are older... and a bit older... significantly older at that time... 10 years was when I was 12, 13, they were 22, 23... that was a big difference back then." – kickboxer, 40 years old.

Most of the respondents, especially those over 45 years old, gained their first knowledge from bodybuilders who had extensive experience in using illegal substances. Many perceived older bodybuilders as authorities in their youth, so we can assume they learned from the model.

"Well, a friend who used it offered it to me. He was a bodybuilder, and after consulting with two or three other friends, I realized that I should... yes... take it to recover faster, to have better strength and..." – kickboxer, 35 years old.

Following the recent literature, it turns out that there is more and more open talk about doping among recreational players than among top athletes. Doping is not only present at the professional level. Doping is common in society, and several studies have shown that young amateur athletes take licit and illicit drugs, including tobacco, alcohol, and marijuana, as well as performance-enhancing substances (Laure & Binsinger, 2007; Laure et al., 2003; Papadopoulos et al., 2006), which this field study confirmed.

"Well, the first time I encountered it was when I was playing American football because the guys came who... that is, the coach of the Arizona Cardinals came and took seven, I think, rings... and he brought the player. He spoke to us for the first time, and we saw people you do not have the opportunity to meet in Serbia. You see, it is something completely different. So, d... there was more talk about doping when I came to Novi Sad and in gyms among recreational players than among athletes. So, it was more when I went to training to lift weights and the rest... I heard more about doping from recreational players, and they pushed it more than an athlete like me." – sambo athlete, 30 years old.

The first findings about the side effects of the use of doping agents in the form of pronounced pimples on the back are emerging, which may indicate possible adverse effects on the skin as a result of changes in the hormonal balance caused by the use of doping. Such changes on the skin can be just one of many potentially harmful effects that doping substances can cause in the body of athletes, which requires additional research and caution in their use.

“I was eighteen years old... well, I was younger when I heard about steroids... I was sixteen years old, that is, from those older friends in the locker room before training, after training, the way it was classically, so you could see this, that they were bloated with water, they had those pimples on their backs, and so on, that is how I noticed that it was... new to me (...) a friend from the gym, an older yes, an older boxer, who he told him that it... means that it goes faster... that it gives him more power... that... he achieves better results.” – boxer, 40 years old.

Following the findings of field research, the time between learning about doping and the first application is very diverse. For older athletes, it was a longer period of time. Access to information about doping was much less. At that time, knowledge of combat sports mainly came from bodybuilding. This passage from the first knowledge of doping to its application in older athletes may result from various factors, including cultural and educational circumstances. Also, it is important to understand that the availability of information about doping and its acceptability could be significantly different in different sports communities and in different local communities.

“If I heard it for the first time when I was, say, 13 years old, and the first time I took doping, it was somewhere after the army.” So... let us say, ten years.” – judoka, 53 years old.

It is necessary to determine the breaking point at the beginning of doping consumption. For some athletes, it was a moment when they felt overworked and lost matches to weaker opponents. This reveals deep-rooted social dynamics and pressures that can influence athletes' decisions about doping and also points to the necessity of a culture change in sports to counter these pressures and protect the integrity and health of the sporting community.

“Abb... the result was decided. I was ready to give everything to achieve a competitive result.” – 23-year-old sambo athlete (combat).

“That I want to use that... that was a turning point, a result that was a national medal...” – judoka, 39 years old.

Period of active use of doping agents

In the beginning, the time spent taking doping agents lasted shorter, while later, that period increased significantly, which led to a significant improvement in training, i.e., the benefits of doping. This evolution of the time spent taking doping agents points to possible changes in how athletes

perceive their effects and importance in their training routines.

“The first time, I used it for two weeks; after that, there was a break of maybe two months, and after that, then seven weeks, during those preparations for grappling, because at that time I was training karate at the same time... Then I used it for the first time for a really long time, and then I felt an improvement during training because I was rested, I could... I think I slept six hours during the night, and that was it, that, even excessive. I got up rested, I could normally train again, I went to school... everything..... but then I didn't take care of my diet, which is my biggest mistake.” – wrestler, 38 years old.

One respondent stated that the effect is really exciting. He describes how he felt a rush of strength and energy in the first seven days, followed by a more rested and fresh feeling in everyday life. It becomes, the athlete claims, superior to others, which is simply phenomenal. This experience of the interviewees towards taking doping draws research attention to the psychophysical effects they can examine by performance in sports.

“The effect is terrible. And already after the first... after the first seven days, you already feel the charge of strength and energy where you have... you are more rested, fresher, superior to others, you know... with proper work and adequate nutrition, the results were more than expected.” – MMA fighter, 25 years old.

According to one respondent, endurance, and strength increase, and recovery is faster. This athlete points out the significant benefits associated with the use of doping agents in terms of enhancing sports performance. Recovery, as an important aspect of training and competition, becomes significantly more efficient, contributing to athletes being able to withstand greater efforts, more intense training, and more demanding competition conditions.

“Yes...yes...yes...that means Superman. Batman... but what is his name? It was important to me because of the training that I could endure it for three hours... three hours, that I could have two pieces of training a day without it being a burden, so yes...” – kickboxer, 23 years old.

Some athletes described the subjective feeling that they were up to 40% fitter, better, faster, and stronger. Such noted improvements in sports performance reveal the potential benefits of doping agents on athletes.

“Yes, I felt even on myself that after the cycle, how can I say, even up to forty percent, forty percent in my opinion, that has not been researched, it is nothing... I was fitter, better, faster, stronger... It did not just give me the

opportunity... it gave me the strength to train like a horse so that I could reach that level.” – wrestler, 20 years old.

Some interviewees claim that an athlete is at a disadvantage if he does not use doping agents, and they claim that the benefit is much greater than the risk associated with the use of doping agents. This statement reveals the deep conviction that some athletes feel regarding the use of doping, highlighting the perception that the benefits of using doping outweigh the possible negative consequences. For them, the average benefit that doping can bring in the form of improved performance and athletic fitness outweighs the risk

of sanctions, health problems, and ethical challenges. Such beliefs reveal deep-rooted mentalities in sports communities and the potential trade-offs between ethics, health, and success.

“I can say that doping agents gave me an advantage, I was... I felt an improvement in pace, endurance, and in terms of losing weight. I would not have lost weight if it were not for that no way... Moreover, that is it... If it wasn't for that, I would not be able to do it. If it is taken properly, with the right people and things, then the benefits are much greater than... than the risk, and it gives you... it gives you a lot.” – MMA fighter, 20 years old

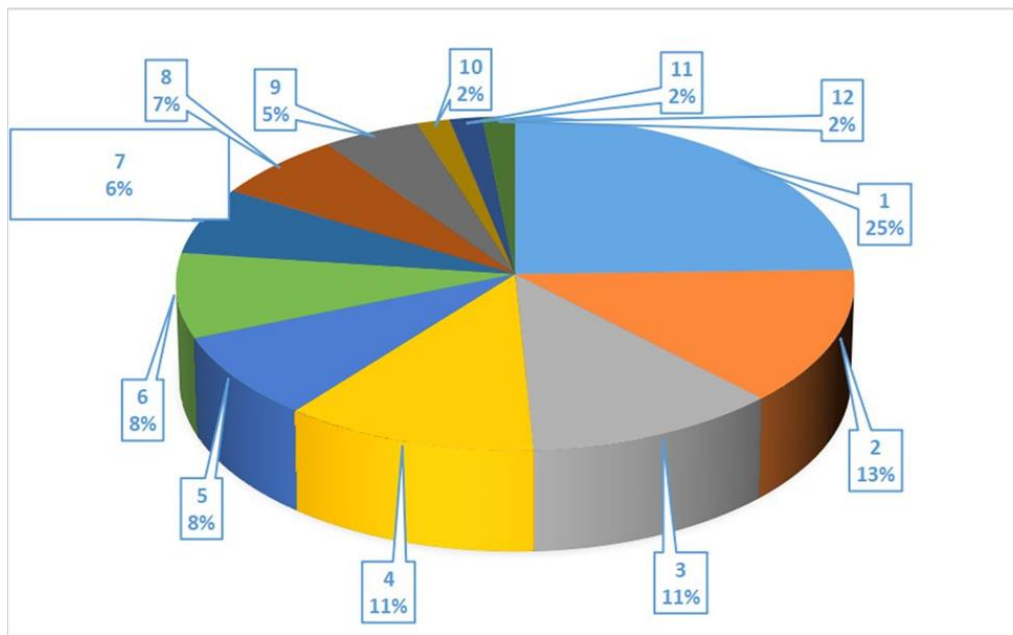


Figure 1. Percentage of use of doping agents

¹Testosterone is the primary sex hormone and anabolic steroid

²Masteron is a synthetic anabolic steroid.

³Stanozolol is an anabolic steroid.

⁴Deca-durabolin is an anabolic steroid.

⁵Oxandrolone is an anabolic steroid.

⁶Winstrol is an oral steroid.

⁷Methandrostenolone is an anabolic steroid.

⁸Growth hormone

⁹Sustanon is a steroid that contains four different testosterone esters in a mixture.

¹⁰Primobolan is an anabolic steroid.

¹¹Deca-nadrolone is an anabolic steroid.

¹²Ephedrine is a sympathomimetic amine used as a stimulant, appetite suppressant, concentration enhancer, decongestant, and to treat anesthesia-induced hypotension.

Overview of periods of active doping use

When analyzing who was the source of advice on the use of illegal doping agents, the research results indicate that the older respondents most often relied

on the experiences of older athletes and coaches, while the younger ones, to a greater extent, used the Internet as a source of information.

“I had... I had people I trusted, two people I trusted, and who really... I cut the weight easily, unbelievably, so no one believed it. Moreover, I cut the weight to the last gram. So, um... not to mention that the next day I fought... I had five fights. And that I did not feel any kind of, in any fight, fatigue, anything and so on...” – sambo athlete (combat), 39 years old

Some state that they did not have advisers regarding the use of doping because it was considered a taboo topic in their time. At the time, information about doping was not available, but athletes could sometimes learn about it through television, where cases of steroid use were shown.

“Well, I did not, it was not there then, I repeat again, it was still a taboo topic, it was not even talked about that much, it was literally, you knew about Schwarzenegger taking steroids.” – boxer, 40 years old

Some interviewees stated that the only adequate advisors regarding the use of doping are physicians and medical specialists. They believe that advice from medical professionals is the most reliable and qualified, given their expert knowledge of the medical aspects and potential risks of doping.

“With doping, only an adequate person can be your endocrinologist. A man who... who deals with hormones. Because you... primarily, doping is the intake of too many hormones, which means we increase some performances like testosterone; mostly, it all boils down to testosterone... and the doctor cannot help you here. A doctor is just a person who refers you to a specialist. If you have a problem with increased enzymes, increased... I do not know, a thyroid hormone disorder; he refers you to further examinations by experts.” – wrestler, 29 years old.

Younger athletes often find advice on doping on the Internet, where there is a wide range of information of varying quality and potentially unverified or outdated content. This counseling channel could have been a source of misconception or unverified claims, jeopardizing their health and sports performance.

“Mostly on the Internet. I am on the Internet... I am looking at research and found some American research, too.” – wrestler, 20 years old.

We must also mention the misconceptions that exist about the use of doping, such as the belief that the use of testosterone has a negative effect only on male fertility. This misconception, which is often spread, does not fully capture the complex aspects of testosterone's effects on health, including possible negative effects on other systems in the body, as well as its potential impact on fertility and reproductive health.

“And, unfortunately, there are many serious athletes who do not have families... and they did not use doping agents. Watch out. When someone tells you, you immediately know they have no idea what they are discussing. Look, you spend your time talking to the contestants. Here I am, an example of a man, so I used it to make two children. So, I was in the process. You understand... If you use artificial testosterone, then it collapses or completely extinguishes this natural one. That is not true. It is a complete lie. It's a complete lie. So, um... it all depends from person to person, first of all, what I would recommend if someone asked me, to do a complete blood analysis of their body.” – boxer, 38 years old

The answers to doping control as a life experience are also very interesting. The interviewee states that he managed to avoid it because he was not drawn, which can indicate the importance of managing the situation and the consequences if exposed to doping control. This information can provide insight into changes in mentality and attitudes towards sport and doping in different communities of athletes.

“I managed to avoid it because I was not drawn in that competition.” – sambo athlete (combat), 39 years old

A more experienced respondent states that he has been controlled several times at international competitions but emphasizes that he has always succeeded in control, which indicates a high level of discipline and compliance with anti-doping rules in his sports involvement.

“I did, more than once. Well mostly, Czech Republic, Germany, Netherlands, Austria, where else have I been? Ukraine... m... I think I am in Lithuania... I have always been negative, I have never been suspended, I have never had anything.” – kickboxer, 40 years old

One participant stated that younger age categories are not controlled enough and are more directed toward seniors, which reveals possible failures in applying anti-doping protocols and implementing equal control measures for all categories of athletes.

“I did not. You know how, in the younger categories, they usually control it less. It is poorly controlled. At least I did not notice anyone being controlled in those younger categories where I was. So I was in junior categories; they are still junior categories. Now in the senior categories more... and when you go to those international competitions. Those controls were probably strengthened there and...” – judoka, 20 years old.

Older generations state that personal and coach's knowledge about doping was unsatisfactory, representing a significant challenge in properly

managing sports activity. Very often, senior coaches and athletes did not have access to the latest information and scientific research on doping and recovery methods, which limited their ability to effectively manage the training and health of athletes. Apart from doping, the big problem with the older generation was that they didn't know how an athlete should recover, which led to the application of ineffective recovery methods. For example, drinking water during the training sessions was not allowed, which led to a significant deficit in the athletes' hydration. Because of this, after training, athletes had to quickly compensate for fluid loss, which created additional pressure on their bodies and could affect performance and general health.

The respondent states that his knowledge about the use of doping agents has significantly deepened compared to fifteen years ago. In recent years, he has been actively involved in research and education on doping in sports, which has enabled him to gain a more detailed understanding of the consequences, effectiveness, and ethical issues associated with doping agents.

"Well, look, as in everything in life, depending on how much time you devote... You devote yourself to it, of course, today. First of all, I am much more experienced, as far as using it is concerned. Second... er... I am much deeper into all that than I was fifteen years ago. Ah, what is." – boxer, 38 years old.

The interviewee regrets that he did not know the negative effects of doping because everyone told him only the positive effects. This lack of information led to an insufficient understanding of the potential risks and consequences, which, he claims, had a significant impact on his understanding of doping.

"No one told me anything about the negative consequences of all the doping agents I used... Everyone only said what the improvements were. No one spoke, so the mistake is absolute. Now, even with this brain, I would recommend to some of the new generations that are coming to talk to experts first." – kickboxer, 40 years old.

The young respondent thinks that he used excessive doses, which led to the appearance of acne and hair loss. Although he tries to justify it with puberty and genetics, they remain indisputable as the consequences of his doping.

"So yes, it is possible that I used higher doses of this than is good for me. After all, acne appeared on my back, possibly due to puberty. Moreover, I started to go bald a little bit, and my hair fell out, but that might be due to genetics. (...) Well, maybe I just got too nervous... in those

situations. My nerves were completely gone. And so... for every little thing, I was..." – MMA fighter, 18 years old.

One participant does not believe he made mistakes while doping, claiming that he did everything perfectly and to the best of his knowledge and understanding.

"I do not think so. I think that everything was perfect... how can I tell you... and the result of all that, I think that everything was absolutely perfect in all of that." – sambo athlete (combat), 39 years old

The interviewees state four key reasons for using doping: performance, recovery, physical appearance, and social status. One respondent stated that social status is more important than money.

"I think that all of us in that combat sports are more addicted to that social status than to money and that we prefer someone to come up to you to congratulate you, to say, well done, I have been watching you, you're a great fighter this, that, but if you... However, if you got it, I do not know what kind of money. We are like that, we are rare, that is why it is not as popular as football..." – sambo athlete (combat), 39 years old

Research has confirmed that there are consequences for physical and mental health. Some of them are anger, acne, and the appearance of remorse. They also ask themselves whether the results are due to doping or intensive training. One respondent stated that he was more aggressive.

"I was a lot more aggressive." – judoka, 53 years old.

One of the interviewees states that, along with other unpleasant effects, he experienced outbursts of anger. These emerging emotional challenges could be highly destructive to himself and those close to him.

"Well, I had mental problems, like that more, like... in quotation marks, like anger... how I can explain it to you, uh... I was a little like that..." – judoka, 39 years old.

Several respondents emphasized that they had problems with acne, which represents only one aspect of the unpleasant consequences. In addition, the interviewee also exposed problems in the decline of form and body mass after stopping the use of doping agents, which indicates the wider implications and long-term effects of this practice on health and physical appearance.

"Physically only acne... well maybe a little... somehow it subsided, it was not the same form as I stopped. So, it was not that weight, muscular... it was not there... but it dropped

like five kilos, I think now...” – sambo athlete (combat), 30 years old.

The respondent states that he became addicted to doping. He cites his age as the reason he wants to remain at a high level of sports performance. This expressed a desire to maintain top sports achievements may suggest the emergence of addiction to doping as a means to achieve and maintain success in sports.

“So, I think. I mean. That I became an addict because, um... especially when you get to some... some... later in years, and when something like that hits you when you know that you have been able all your life, and you know... time does your... a person cannot beat time, but somehow you try to hold on, in a sporty way, yes... yes... I think...” – judoka, 53 years old.

Several interviewees explicitly deny that they are or will become addicted to doping, emphasizing their self-control and confidence in their ability to control doping use and manage their health and sports life without fear of addiction. These statements go through a complex picture of their awareness and attitudes toward the use of doping, revealing different aspects of their relationship with the issue.

“No, no... not.” – boxer, 40 years old.

“Addict by no means.” – sambo athlete (combat), 39 years old.

The respondents' answers to whether they would encourage others to use doping are also interesting. The interviewees gave unequivocal answers to encourage athletes they believed could achieve better sports results. The interviewee states that he spoke encouragingly to each of his prospective athletes about doping. However, he also explained that it was his choice, stressing the importance of respecting personal decisions and freedom of choice in sports.

“Every fighter I trained who had some perspective, I told him that. However, I told him clearly and loudly that it was all a matter of his choice, and I did not encourage it. So, I explained to him, just as I explained to him, all the techniques and all the tactics we had; I also explained this to him. So, you will reach a point where you won't be able to do it naturally.” – judoka, 53 years old.

The interviewee advises that it be used in smaller quantities, stressing the importance of respecting the dosage and careful moderation when using doping agents. This approach implies a review of the safety and health of athletes and awareness of the potential negative consequences that may arise from improper use.

“So, I advise that it should be taken in a certain amount. So that it does not harm... just because of that if there are any such harms and that... and that they ask well.” – boxer, 40 years old.

The interviewees were asked a question about the time distance and whether they would dope again. One participant expressed his wish that, if he found himself in a similar situation, he would have started using doping much earlier in his career. This statement indicates a tendency towards a change in attitude over time and a possible evolution in approach as a result of some personal or sporting experiences.

“I would have started doing much earlier because now this was just my whim, er... not to say complex, at that age to try to do something, because then I did not have the opportunity, I did not think of myself as a professional athlete and so on and so forth...” – sambo athlete (combat), 39 years old.

The respondent points out that if he finds himself in a similar situation, he would reconsider the use of doping. However, he would consult a doctor or medical specialist before taking any steps.

“If I could do it again, then with the physician. Someone with professional connections. The whole process would be different for me. I would use it, but then I would also do it professionally, of course, and I would somehow invest all the time and money that is important for it... In order for it to make some sense, of course...” – ju-jitsu fighter, 19 years old.

When it comes to the ethical side of the use of doping from the point of view of the respondents, one of them expressed the opinion that the most fair and just thing would be if doping were completely eradicated from sports activities. However, at the same time, he believes such an outcome is unlikely to be realized. This comment reveals a deep disturbance in the interviewee's belief in the effectiveness of suppressing doping and represents disappointment in the possibility of dealing with this problem in an adequate way. It can be assumed that such an opinion stems from disappointing experiences or distrust in the ability of institutions and organizations to effectively control and prevent doping. This attitude can have significant consequences on doping control, confirming the necessity of active engagement and achieving substantial results in the fight against doping.

“You know what is most important... well, the most important thing is that... I think it would be best if it could be completely eradicated so that people, er, naturally compete, but that is never going to happen because it is, there

is a lot of money in-game, in general, at those certain levels, but again precisely because the money is not big at the lower levels, it could be eradicated. I think that..." – kickboxer, 23 years old.

The respondent points out that his attitude is aimed at something other than the fact that sports success can be achieved in the short term or by skipping steps. Instead, he seeks to promote systematic work and persistence as the basic principles of achievement. He believes that the key to success in sports is commitment, consistency, and maximum engagement, which can lead to significant progress and achievement on a long-term level.

"I believe that with systematic work and commitment... it is a difficult, slower, but more effective path. By taking a shorter route and skipping the stairs, I do not think people should go. Because that, after that... that is the addiction that is created in the sense that the person returns again, returns, returns because when he stops using, the results are lower." – judoka, 39 years old.

Discussion

The topic of this exploratory study focuses on the specifics of doping abuse in combat sports. Existing evidence indicates that the use of performance-enhancing doping in elite sports is now widespread (Momaya et al., 2015). The use of performance-enhancing substances in sport remains a significant problem, although it is regulated by the Anti-Doping Code (Bricknell, 2015) of the World Anti-Doping Agency (WADA). Over 10% of elite athletes are considered doped, and the tendency to use these substances can be seen as a search for a way to achieve better results (Scarr, 2015).

The use of anabolic steroids was the most common reason for anti-doping rule violations. Furthermore, a fighter's weight has been shown to be a significant predictor of doping. Further research into doping practices in fighting organizations (e.g., UFC) is essential, and this can be done by raising awareness of the risks of using banned substances/methods, increasing the number of tests, and conducting additional research in the future (Fares et al., 2021). This is necessary to preserve the integrity of the sport, protect the combat sports athletes, and ensure fair competition. However, awareness of the dangers and the need to control these substances remains crucial. The main goal of the research is to determine the real use of doping in combat sports to achieve better results.

Today's sports ethics have become a global sociological issue (Woods & Butler, 2020). Negative

connotations of morality in sports are increasingly present. Namely, in the sport of the 21st century, there is increasing bribery and corruption, commercialization, political interference for self-promotion, and sponsorship contracts worth several million euros that motivate athletes to use prohibited substances, i.e., doping (Brkljačić, 2007).

In the modern world, the importance of sports victories at major international tournaments grows yearly (Horne & Manzenreiter, 2006; Storm & Jakobsen, 2020). Politically, they increase national prestige and demonstrate the power of the state. In an economic sense, countries that occupy leading positions in the international sports arena gain the right to host major international competitions, which attracts foreign capital to the national economy (Kobierecki & Strożek, 2021). Victories also improve the financial situation of athletes (Pantuso & Hvattum, 2021). High fees and social benefits contribute to successful adaptation in society after the end of their sports career. Winners become national heroes; the more successful an athlete is, the more often winning major competitions becomes the meaning of his life's aspirations (Mutz & Gerke, 2024). Doping remains an intractable issue in sports and occurs in a complex and dynamic environment that includes interactions between individual, situational, and environmental factors (McLean et al., 2023). Whether in sports or other areas of modern society, people constantly seek ways to improve their performance and perform better than others, breaking the great diffusion of various dietary supplements, ergogenic aids and performance-enhancing substances (Lippi et al., 2003).

A total of 30 athletes from combat sports voluntarily participated in the research: 11 active athletes, 10 recreational athletes, and 9 former athletes. All participants were men. All of them were informed in detail about the research objectives, and all gave their written consent to participate. The sample was formed using the so-called "snowball." Sampling confirmed that the respondents used, or continue to use, doping agents that are on the list of prohibited doping agents for a long period of time during their sports careers. These are athletes from the following sports: kickboxing, MMA, judo, boxing, wrestling, combat sambo, and ju-jitsu. The research technique used was a semi-structured interview (with direct observation). The questions in the questionnaire-basis for the interview were structured in several segmented parts, which, in addition to socio-demographic data and the sports status of the respondent, included descriptions of several life phases, namely: an encounter with

doping, the phase of active use of doping agents and a personal review of the consequences of doping use. Such segmented conversations, during the analysis of the obtained data, enabled a detailed reconstruction of the everyday life and lifestyle of the participants through the prism of their life experience with doping. The interviews were dominated by interviewees belonging to the type of completely honest and open interviewees, although there were also reserved-honest participants (especially among those of a younger age). The questions in the questionnaire basis for the conversation were formulated to allow the interviewee to freely express their (everyday) life experiences and opinions about doping and the use of doping substances. Different life and sports experiences, as well as the ages of the participants, caused differences in the length of the conversation. Nevertheless, all the participants answered all the questions as a result of their experience and readiness for an open/honest conversation.

Experiences with doping most often come from different sources in the lives of athletes who share information about this controversial topic. In particular, research on actors and factors influencing doping at all levels of the sports system highlights the diversity of participants and contributions at multiple levels of sports structures (Naughton et al., 2024). Some learned about doping from those closest to them, such as a friend from training or a wife (a physician), whose expertise determines the problem's importance. Others got the information from friends in the gym or parents who were active in sports. It is confirmed that doping is a complex problem that requires a view beyond the circle of athletes, coaches, and other personnel (Naughton et al., 2024). Each source contributes to the diversity of understanding and awareness of the importance of the fight against doping (Backhouse, 2023), emphasizing the need for the cooperation of all segments of society in this common task. The analysis of the results of one research shows that there is not enough knowledge about doping, but also for organizations that act against the use of doping in sports, some interviewees could not name a single institution of this type (Zmuda Palka et al., 2023).

The interviewees confirmed positive experiences with doping in combat sports. They state that after just a few days of use, they felt a rush of strength and energy, they became more rested and fresher, and the results exceeded expectations. They then claim that they recovered faster, have increased endurance and strength, and the adjustment of superior training and nutrition has led to better

results in combat sports. Some respondents claim that the use of doping is necessary to achieve top results, and possible side effects after stopping use include pain in the bones and muscles. The characteristic of one interviewee was his conviction that he could learn based on his experience, there was a time when there was no adequate information and knowledge about doping. One participant stated that during that time, he only knew the positive aspects of doping, while information about the negative aspects was not available. Today, although it is challenging, access to information on doping is significantly easier compared to previous periods. Knowledge about the consequences of doping is modest, mostly based on personal experience. Respondents noticed nervousness and aggressiveness during use. There are physical consequences, such as pain and weight gain.

Long-term use leaves lasting health consequences. Gaining muscle and strength is an advantage, but it is essential to know yourself when using it. Poor mental health can lead to depression. Mental strength is key to professional sports. People with a labile mental state should not use steroids. Some deny the negative consequences, but they do exist. There are benefits, but after the end of use, serious problems can appear. One study suggests that French physicians consider doping in athletes to be a real public health problem and also that they want to participate in its prevention. However, although this observation seems encouraging, their limited knowledge of the reality of doping should encourage the introduction of adequate training in this area (Laure et al., 2003). The results of one study (Hurst et al., 2022) provide evidence to support educational anti-doping interventions that target moral values and show that the use of sports supplements and the belief that they are necessary may not lead an athlete to doping when athletes hold strong moral values. Before giving sports supplements to athletes, practitioners should assess their athletes' morale and consider whether they see the importance of moral values, such as respecting the rules and their competitors, and whether they need to be moral persons.

When it comes to experiences with counselors in the use of doping agents, older participants rely on the experiences of older athletes and coaches, while younger ones use more resources on the Internet. Some participants stated that they did not have advisers because, in their time, the topic was taboo, while others emphasized the importance of the advice of doctors and specialists. The younger respondents searched for their advice on the Internet. While researching, one of them concluded

that more could be achieved with less effort, prompting him to experiment with doping out of curiosity. Experts in the field of sports psychology should be able to recognize misinterpreted or adopted social norms in the MMA community and actively work to change them by providing adequate normative messages (Petrou et al., 2022). One of the interviewees expressed regret because he was previously unaware of the negative effects of doping, given that his previous advice was focused exclusively on positive aspects. Moreover, participants single out four basic motives for using doping: improving performance, faster recovery, desired physical appearance and achieving social status.

This study confirms that there are different consequences on physical and mental health among doping users. Among the listed effects are acne, remorse, aggressiveness, confusion, nervousness, outbursts of anger, liver problems, and physical changes such as loss of shape and problems with body mass. Some participants also pointed out aesthetic side effects, such as acne, stretch marks, and skin cracking. However, there are also different views on the health consequences; where some do not feel any adverse effects, while other interviewees present various health problems, including tumors, heart problems, and fertility problems. Respondents also emphasize the importance of counseling and supervision of a professional team when using doping, suggesting that under the supervision of medical experts, this practice may be less harmful. In the world of elite sports, doping represents a serious challenge and an ethical dilemma that threatens the integrity of competition. Under pressure to achieve top results, athletes often resort to doping, which can cause serious physical and emotional consequences, including addiction. Interviewees present different views on the question of whether they would encourage others to use doping. Some unequivocally state that they would encourage athletes they believe can achieve better results but also explain that it is their choice. A study by Peterson and colleagues (Patterson et al., 2014; Patterson et al., 2019) indicates that coaches pretend to be interested in anti-doping measures, but only a minority attend the course. The authors of one study (Pöppel & Büsch, 2019) emphasize the importance of setting a strong foundation for implementing a doping prevention program specific to coaches. This would allow coaches to become active supporters of the anti-doping culture because of their training expertise and as multipliers who can influence athletes in their network.

The interviewees reacted differently to the question of whether they would dope again, taking into account the time distance. One respondent points out that he would have started using doping much earlier, while another believes that he hit the right moment to use it and would not change anything. There is also an interviewee who would choose the same, without feeling remorse, but would consult a doctor. The older participant strongly and negatively points out that he would not use doping again, violating his previous pattern of taking it.

The attitude of the interviewees on the ethical side of the use of doping is contradictory. Individuals express their desire for the complete elimination of doping in sports, although they strongly express doubts about the achievement of this goal. Although they encourage systematic work and dedication in sports, participants emphasize the importance of health and placing it first. One respondent points out the dilemma that he cannot decide whether it is better to use doping in addition to striving for a clean and healthy sport. He sees the challenges of maintaining a healthy and clean environment in sports, feeling the pressure of others who use doping and jeopardizing the results of those who do not.

Conclusion

Efforts to reduce the risk of doping in athletes should focus on prohibition norms and the development of resistance skills to doping substances. Anti-doping programs should also target psychological variables such as moral disengagement and expected guilt and provide comprehensive anti-doping education covering various topics over a long period of time. The complexity of the doping problem is evident in sports, and there is a need for joint efforts from all segments of society in the fight against this negative phenomenon that threatens the integrity of sports and young athletes. Under great pressure to achieve top results, some athletes are inclined to use doping to progress faster. The desire for better success and the success examples of colleagues can continue the tendency to use doping. The most obvious and strongest motive for an athlete to turn to doping is that for a long time, during the most productive years of an athlete's sports career, most coaches instill in the athlete the need to achieve results, almost at any cost. However, the health effects and risks of steroid use in sports require detailed analysis and do not depend only on individual cases. The medical community has protocols and standards for

using such substances, which help prevent negative health consequences.

A clear boundary between permitted and prohibited substances in sports is set, established not only by representatives of anti-doping agencies but based on reasonable agreements between them and those structures of state and public organizations directly responsible for the athlete's training and medical and scientific support. Furthermore, the anti-doping policy should shift the emphasis from punitive measures to prevention. The problem will be solved once the institutions dealing with the training of young athletes introduce teaching on the ethics of sports behavior into the mandatory training and education program of athletes.

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