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STUDY ON COACHES' AND ATHLETES' ATTITUDE TOWARDS THE CONSUMPTION OF DOPING SUBSTANCES

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ABSTRACT. Doping continues to attract the attention of specialists in the field of Sports Science due to its frequency of occurrence and the need for scientific substantiation of educational interventions. In all the conditional factors of doping behaviour, coaches and athletes are the key factors. Coaches are often identified as a potential enabler in athletes' doping, but precisely for this reason, they continue to be identified with their status as important potential agents in doping prevention. In turn, the athlete is the product of his own development and social-educational-cultural factors. The behavior of rejection or acceptance of the use of prohibited substances is determined by internal, subjective factors and external, social-environmental factors. An extensive model of risk factors, at international level, shows that interventions are needed at different levels for the educational effect to increase. In order to identify the attitude of coaches and athletes working in the Romanian sports system, between February and April 2022, online, with the help of Google forms, two questionnaires about anti-doping knowledge and attitudes were applied, one for athletes and one for coaches. The analysis of the results found that experienced coaches are better informed and have objective views on the impact of doping in sport. On the other hand, athletes resort to doping under peer pressure, lack of time required for training and as a result of competition pressure. Knowledge of these attitudinal peculiarities allows the formulation of recommendations on educational activities in the field of anti-doping education.

Keywords: *coaches, athletes, anti-doping, doping substances*

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REZUMAT. ***Studiu privind atitudinea antrenorilor şi sportivilor faţă de consumul de substanţe dopante.*** Fenomenul dopajului continuă să atragă atenţia specialiştilor din domeniul Ştiinţei Sportului care urmare a frecvenţei de apariţie a acestuia şi nevoii de fundamentare ştiinţifică a intervenţiilor educative. În ansamblul factorilor condiţionali ai comportamentului doping, antrenorii şi sportivii reprezintă factorii esenţiali. Antrenorii sunt adesea identificaţi ca un potenţial factor favorizant în fenomenul de dopaj al sportivilor, dar tocmai din acest motiv, ei continuă să fie identificaţi şi cu statutul de agenţi potenţiali importanţi în prevenirea dopajului. La rândul său, sportivul este produsul propriei dezvoltări şi al factorilor sociali-educaţionali-culturali. Comportamentul de respingere sau de acceptare a folosirii substanţelor interzise este determinat de factorii interni, subiectivi şi factorii externi, sociali-ambientali. Un model extins al factorilor de risc, la nivel internaţional, arată că intervenţiile sunt necesare la diferite niveluri, pentru ca efectul educaţional să sporească. Pentru identificarea atitudinii antrenorilor şi sportivilor care activează în sistemul sportiv din România, în perioada februarie-aprilie 2022, online, cu ajutorul Google forms, au fost aplicate două chestionare despre cunoştinţe şi atitudini anti-doping, unul pentru sportivi şi unul pentru antrenori. În urma analizei rezultatelor, s-a constatat că antrenorii cu experienţă sunt mai bine informaţi şi au opinii obiective privind impactul dopajului în sport. Pe de altă parte, sportivii apelează la dopaj la presiunea colegilor, a lipsei timpului necesar pentru pregătire şi ca urmare a presiunii concursului. Cunoaşterea acestor particularităţi atitudinale permite formularea unor recomandări privind activităţile educaţionale în domeniul educaţiei antidoping.

Cuvinte-cheie: *antrenori, sportivi, anti-doping, substanţe dopante*

INTRODUCTION

The UK Anti-Doping Agency's value-based model of doping risk factors upholds the principle of strict liability, meaning athletes are solely responsible for what's in their system, regardless of how it got there or whether there was any intent to cheat. The values are: passion, respect, integrity, determination and pleasure. Clean sport relies on all athletes playing according to the rules. *Spain* identifies key risk factors (ethical considerations of doping, basic relevant knowledge, sources of temptation, emotion settlement) and protection factors for doping substance use in adolescent and young athletes involved in sport. It evaluates the experiences of young people involved in fitness and recreational sports conditions, especially in terms of availability/access, promotion and purchase of doping substances. Working alongside experts in a wide range of fields, from psychology to nutrition, the US Agency's program offers evidence-

based content and engaging programs that reflect the Olympic spirit. The mission is simple and bold: to change the culture of youth sport by providing powerful educational tools to equip young athletes with the resources needed to develop their life skills and core values for success on and off the field. The model is based on three cornerstones: Sportsmanship: Win the right way – with respect and gratitude for teammates, coaches, parents and competitors. Character Building and Life Skills: Using sports experience to develop positive attitudes and behaviours throughout life: perseverance, courage, honesty, and more. Healthy Performance: Health-centred lifestyles that fuel athletic and personal success – in sports and in everyday life.

Following the studies conducted, ANAD *Romania* sets risk factors into three groups. (Table 1.):

Table 1. ANAD Risk Factors Model (2007)

1. Individual	***2. Social***	***3. Situational***
1.1. Personality traits and types 1.2. Performance motivation; Victory at any cost 1.3. Self-image 1.4. Specific attitudes 1.5. Level of culture and education	2.1. Group of membership: Family, Class or professional unit, Leisure group, Sports team, Sports club 2.2. Social environment - mass-media, civil society; social representations on sport and athletes' status	3. 1. Competition and the need for performance 3.2. Rivalry perceived as a threat 3.3. Uncertainty factors of the competition space

The aim of our study is to highlight the attitude of coaches and athletes in relation to the phenomenon of doping in sport. We believe that only knowing these attitudes can lead to the design of effective educational programs in the field of elite sports.

Research of conditional factors of doping behaviour

At international level, constant concerns can be identified regarding the study of the phenomenon of doping and its conditional factors.

The World Anti-Doping Agency (WADA) recently published the results of its athletes' vulnerabilities research project, which included a survey conducted between April and May 2021, to increase understanding of factors that can make athletes more vulnerable to accidental or intentional doping. The project analyses survey responses provided by 574 respondents (355 sports organisation employees and 219 athletes), representing 85 countries and 59 sports disciplines. The purpose of the survey was to gather information from those involved in sport on the types of athletes who may be more vulnerable to doping and the factors that cause the vulnerability; and, consequently, to enable international

federations and national federations to be more proactive in protecting vulnerable athletes. The results will also help WADA identify specific areas for further investigation and research.

Nine vulnerability factors were identified as "the most important" for both athletes and sports personnel, highlighting the need for educational programmes covering a wide range of topics and providing support to athletes through various means. Food supplements were considered the main area of concern by most sports personnel, while athletes referred to the physical demands of the sport and the need for rapid physical development and performance enhancement.

International male athletes were identified as most vulnerable to intentional doping and accidental doping. The coach has been considered to be the most influential staff throughout athletes' careers, especially at elite levels. Therefore, coaches have been put at the center of concerns about the need for education programs for coaches that provide them with accurate and up-to-date information and advice that they can pass on to their athletes. In addition, this aspect highlights that coaches can be the best placed to identify vulnerable athletes and be able to intervene, if given the necessary tools and strategies to do so.

Anti-doping education was considered to be the most effective way to support athletes who may be vulnerable to substance abuse, alongside traditional nutritional and psychological programmes.

The project *Examining coaches' experiences and opinions on anti-doping education* (UK) shows that there is a need for greater coherence and cooperation between relevant agencies in designing and implementing educational programmes. Programme delivery could be improved by integrating anti-doping education into coach education. Such integration of anti-doping education should be done through interactive methods (workshops and seminars) and promote the development of critical analysis competence (case studies, scenarios).

The coaches in the target group of the project *Examining coaches' perspectives on their role in doping and anti-doping* of Stirling University are a factor prohibiting doping, their role provides a solid basis for anti-doping, they recognized the limits of their own influence and the potential for influence from the "coach-controlled environment". Some coaches felt they did not have enough knowledge to engage in anti-doping actions. Those for whom anti-doping was a higher priority engaged in structured, planned, practical anti-doping activities, coach education was a relatively low priority. However, more information is desired in relation to supplements.

The project *Understanding the role of high school athletes support personnel in Kenya in pursuing clean sport* investigates the anti-doping roles of athletes' support personnel in Kenya, especially coaches and team managers. To maximise the impact of this research on policy and practice, the research team will seek

to develop relationships with `final users' (e.g. Kenya Anti-Doping Agency, Kenya Teachers' College Sports Association) and disseminate the findings at key events (e.g. African Union Anti-Doping Forum).

The project *Understanding and influencing global anti-doping education of coaches through the development of an international framework* (UK) aims to improve the effectiveness of anti-doping education and information delivery by developing an international framework for anti-doping education of coaches. This will be achieved by conducting a comprehensive audit and critical assessment of current global anti-doping education of coaches and conducting systematic consultations with coaches, education providers and policymakers worldwide.

Coaches' perceptions on their role in doping prevention (UK) provided a more nuanced aspect, understanding of what coaches "do" (or don't do) in practice when it comes to anti-doping and the factors that influence their (in)action in this context. The current study showed that coaches are not motivated to actively prevent doping in sports. Without institutional support and reinforcement to prevent proactive doping at the highest level, coaches are likely to remain passive actors in prevention efforts. At the same time as increasing the self-efficacy of coaches to prevent doping by improving knowledge and understanding, it is imperative that the sports community raises the profile and status of doping prevention and removes the stigma surrounding discussions about doping in sport. For athletes to participate in the anti-doping system, they must consider WADA, NADOs and other anti-doping partners as legitimate.

Perceptions of legitimacy, attitudes and acceptance among groups of athletes: a qualitative transnational investigation providing practical solutions of the University of Stirling. The athletes in this study were clearly in favour of anti-doping and even generally supported the testing and sanctioning system. However, they were also clearly skeptical about the system's ability to fairly test all athletes in countries and sports, as well as effectively detect and discourage athletes from engaging in doping. The athletes in this study, all of whom reported being against using any prohibited substances for enhancement, saw clear areas where the system was weak and open to abuse. This doesn't mean that these athletes are in any way looking to do so, but it's appropriate to conclude that a motivated athlete would likely have a better understanding and attempt to exploit vulnerabilities in the system.

The project *Identifying and analysing the role of athletes' support personnel attitudes towards doping* (Georgia) will be carried out using both qualitative and quantitative research methods to collect as much information as possible about attitudes towards doping. Research design for the project included data collection, measurement, analysis, and design of diagnostic research; as well as correlative and comparative analyses with previous studies conducted in 2019 and 2020.

Qualitative research in Georgian sport has shown that the level of awareness of athletes is quite low, many athletes do not try to become more informed about doping issues and have total confidence in the competence of medical staff. It is therefore appropriate to explore attitudes and knowledge, in particular of medical professionals. The results of the research will allow planning the necessary steps to be taken in the fight against doping, identifying priority groups and decision-makers for major anti-doping activities to reduce doping in athletes and improve clean sports behaviours and plan intervention projects. Research will allow to obtain information about cognitive, emotional and behavioural components of attitudes to drug use, clean sports, poor-quality food additives, drugs containing prohibited substances.

In Romania, from the research conducted by Vâjială et al. (2010), the risk of consumption is very high in junior athletes, especially those ranked second, third and below; When it comes to medication administration, athletes trust the doctor and coach the most; Older athletes are a "role model" for younger athletes and should be worked with in particular, even if they reject the idea of doping in others, when it comes to their self-image (physical and mental) they are willing to resort to doping.

Research design

Starting from the results presented above and responding to international trends, we organized a study in Romania, to identify the attitudinal particularities of coaches and athletes. The study aimed to identify answers to two questions:

1. What is the attitude of coaches towards the use of doping substances?

2. What are the main factors considered responsible for athletes' anti-doping education?

In this study we aimed to verify the following hypotheses:

H1. People in the athlete's entourage who are against the use of prohibited substances or methods influence the causes for which some athletes resort to doping.

H2. The type of sport, gender, age and context influence doping in sport.

Research methods

Between February and April 2022, two questionnaires on anti-doping knowledge and attitudes were applied online on Google-forms, **one for athletes and one for coaches**.

For data analysis, response frequency and factorial analysis (CFA) were used. CFA, in fact, is achieved through the use of models of structural equations (SEM). The factorial structure is constrained, respectively is defined a priori by the researcher (structural relations are not, however, the only parameters that can/should be constrained). The model will proceed to estimate saturations and therefore calculate a series of matching indices that describe how well the data model fits or, in simpler terms, how well the model is able to describe the observations. There are a large number of matching indices, which can generally be divided into absolute indices (such as the value of the Chi-squared test statistic - the only one that also allows the application of an inferential test) and RMR, SRMR or RMSEA, relative indices (such as NFI and TLI)

The application of these statistical tests was done with SmartPls software that provides a series of tests that can be used to ensure a consistent factorial analysis and interpretation of data and to assume the results of the research.

Target groups

The 1st target group

A 22-question questionnaire was administered to coaches aged between 22 and 66. The average age of the group of coaches is about 40 years. Following the application of the questionnaire, 297 responses were received from coaches.

The characteristics of the group of coaches who completed the online questionnaire are presented below (Figures 1 - 3).

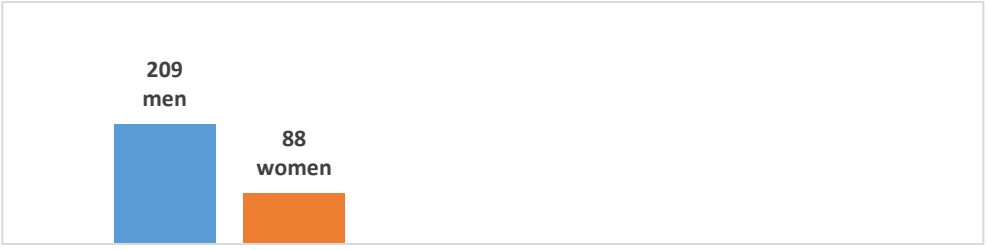

Figure 1. Gender of the coaches

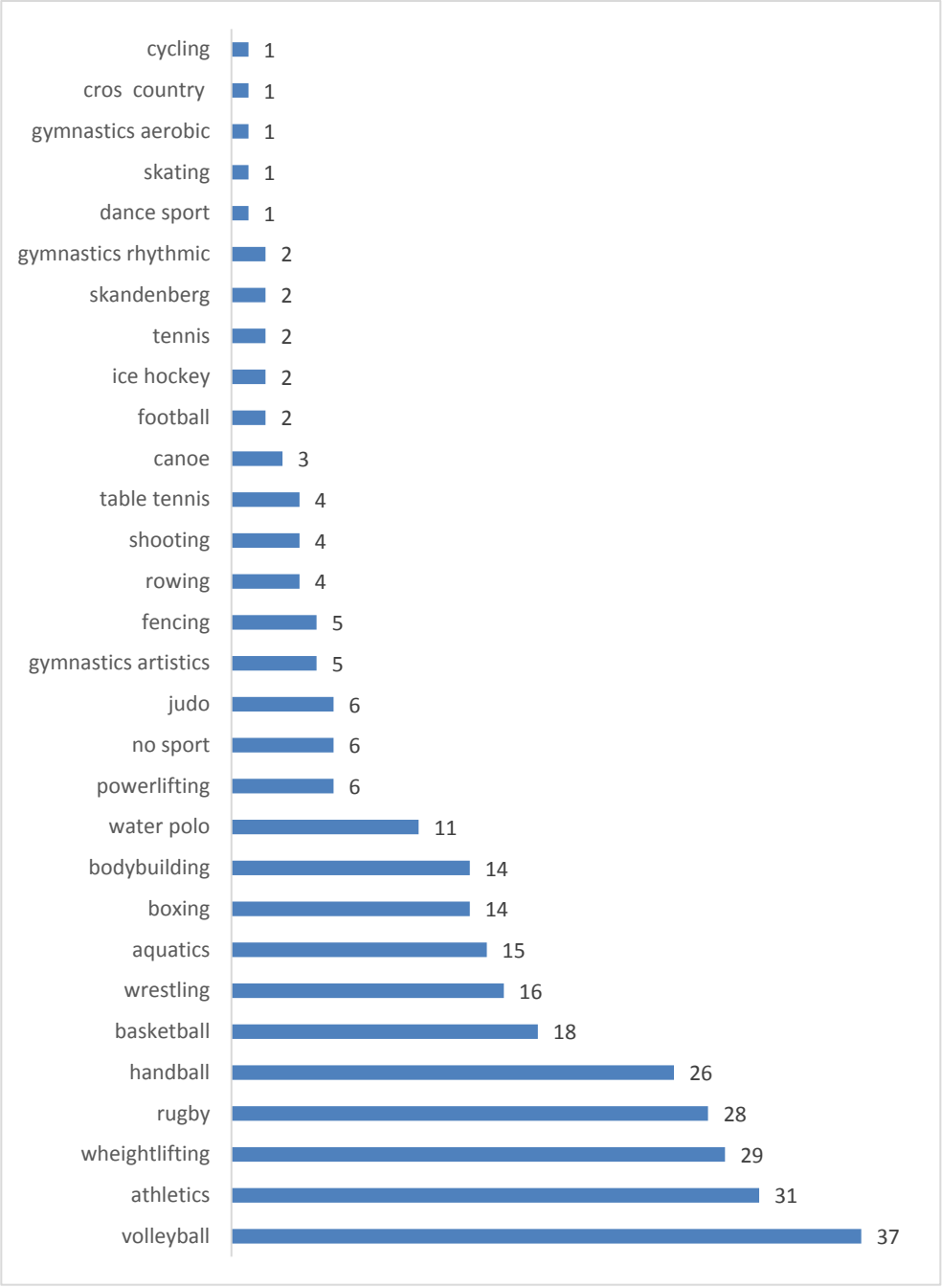

Figure 2. Categories of trained sports

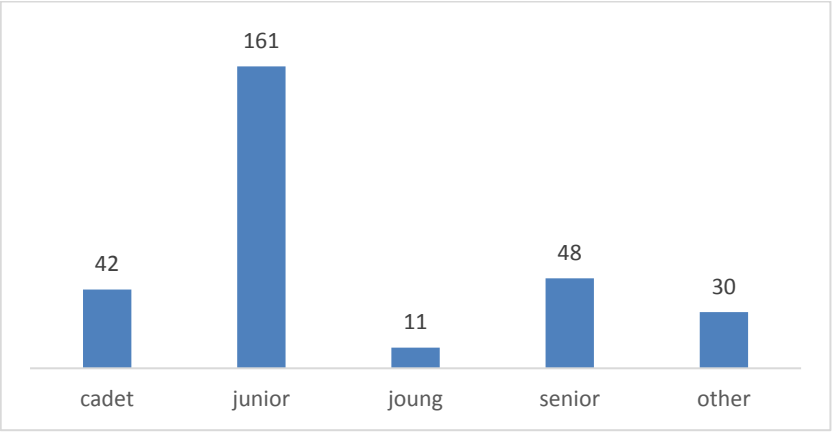

Figure 3. Categories of trained athletes

The questionnaire for athletes included 57 questions and aimed at knowing both the attitudes and behaviours specific to these "social agents" and how they are the product of the concrete socio-cultural conditions in which athletes developed. The questionnaire has 57 items and was completed by 350 athletes.

The questionnaire variables are:

a) subjects' knowledge on the types of prohibited substances and their effects;

b) knowledge of the sanctions that can be applied if they are caught using prohibited substances;

c) attitudes of rejection or acceptance towards the consumption of prohibited substances;

d) the reasons why the athlete may take the risk of using prohibited substances;

e) proximity social environment (sports group, teammates) and media factors that can influence subjects' attitudes towards doping;

f) suggestions for athletes and education of their entourage for rejecting doping;

g) self-references to the use of prohibited substances and its consequences.

The 2nd target group

350 junior athletes, aged 10-30 years. The average age is 16 - 17 years (Figures 4 and 5)

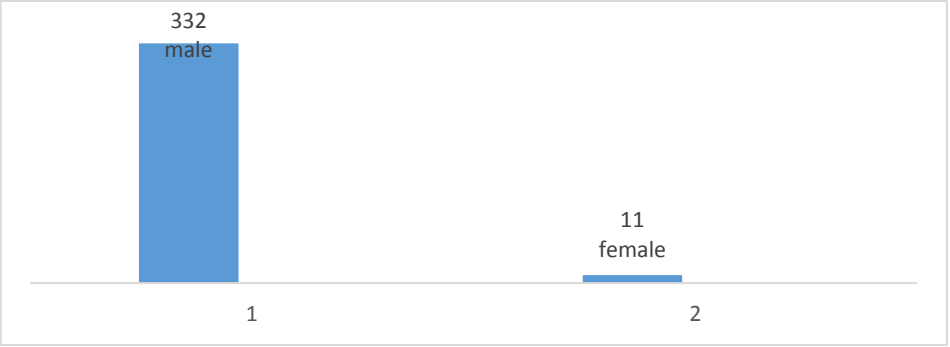

Figure 4. Gender of the athletes

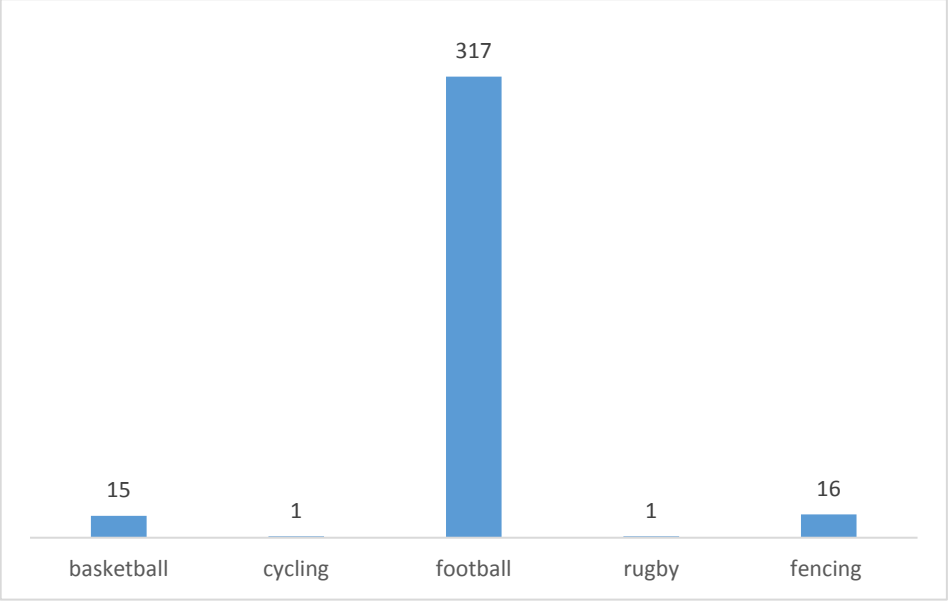

Figure 5. Sport practiced

RESULTS

For coaches: 297 responses from coaches aged 66 to 22, the average age of the coaching group is around 40.

Most coaches are aware of the provisions of official documents regulating anti-doping activity.

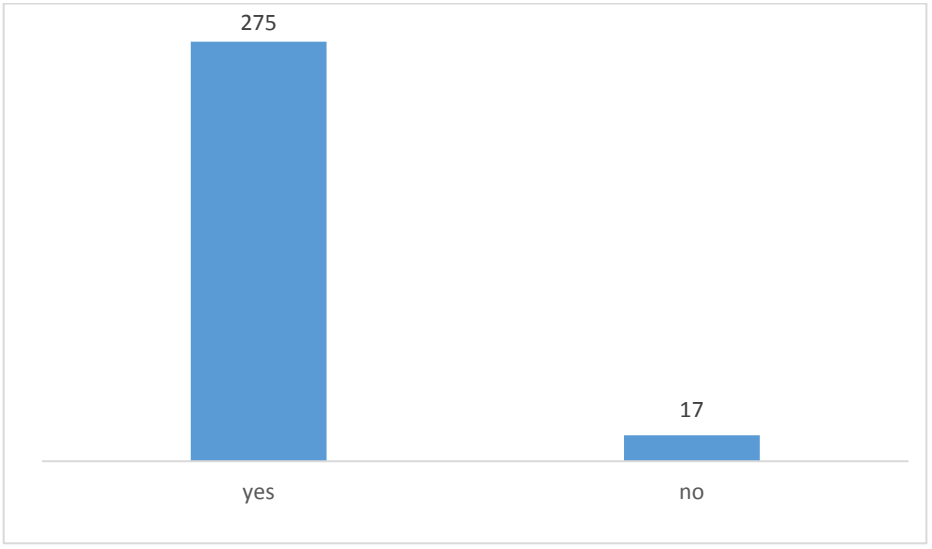

Figure 6. Knowledge of anti-doping rules

93.5% of coaches know the negative effects of substances use and agree with the sanctions that apply to athletes who test positive.

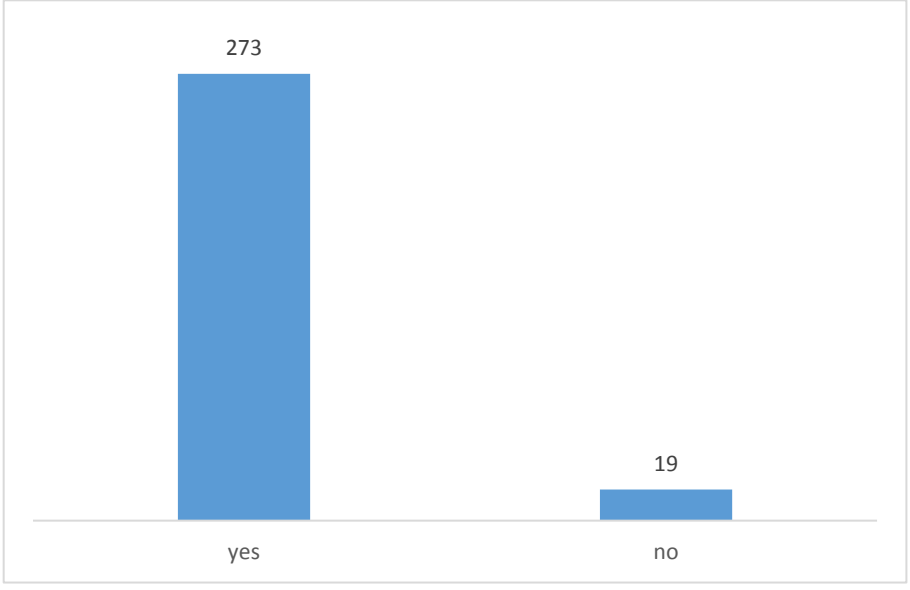

Figure 7. Knowledge of the prohibited substances effects over the body

There is a small difference, 40.3% to 59.7%, between coaches who know and those who do not know the conditions under which athletes can get therapeutic use exemptions.

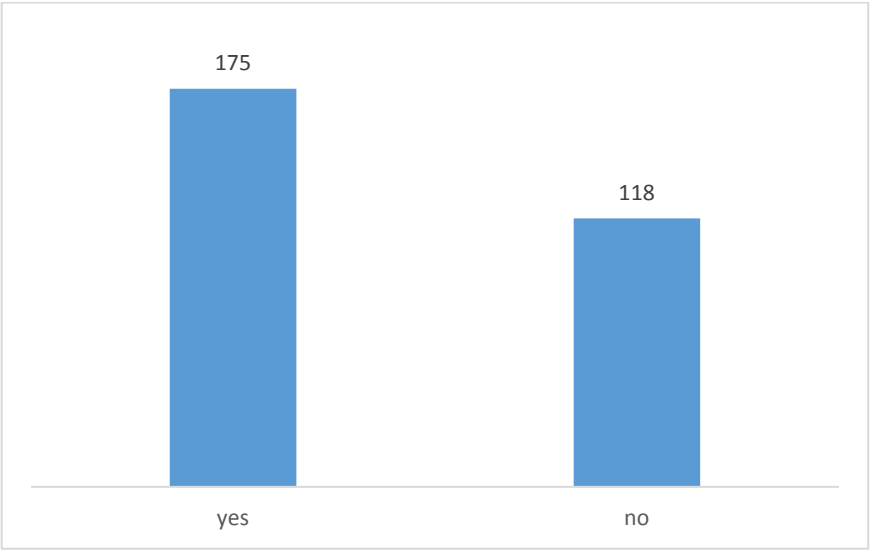

Figure 8. Knowledge of the conditions under which athletes can get therapeutic use exemptions

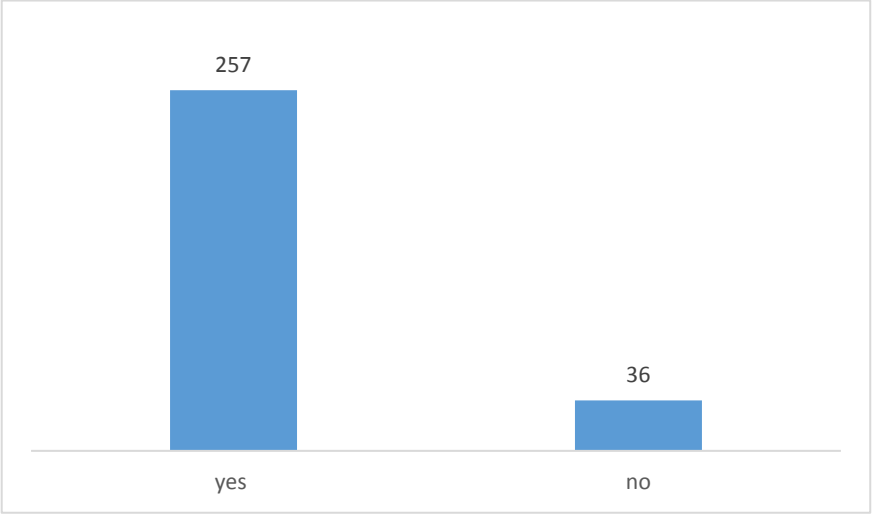

Figure 9. Transmission of information regarding the risks of using prohibited substances to athletes

Most coaches - 87.7%, provided athletes with information on the risks of using prohibited substances.

75.2% of coaches believe that everyone needs to be aware of the substances they use. There are, however, 11.9% of them who believe that athletes do not need to know what substances they use.

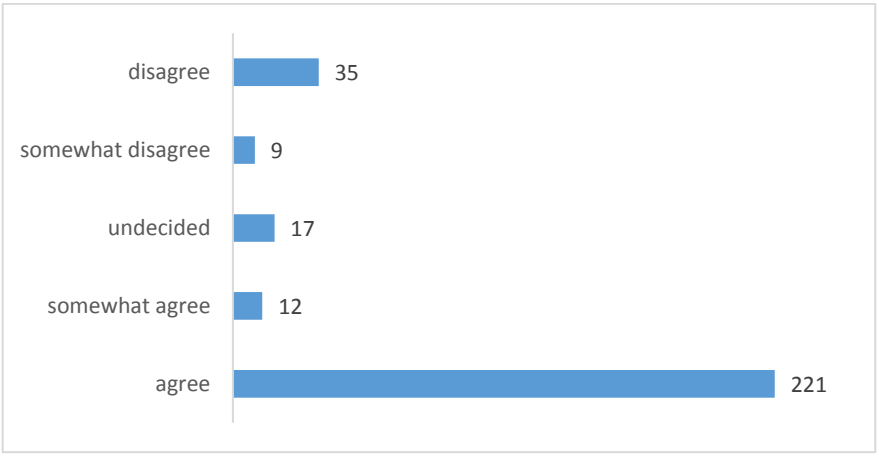

Figure 10. The coaches' opinion regarding the statement: everyone should be aware of the substances used to reach his/her goal

A large percentage - 84.4%, agree that if athletes are properly guided, it decreases the risk of being tempted to use prohibited substances.

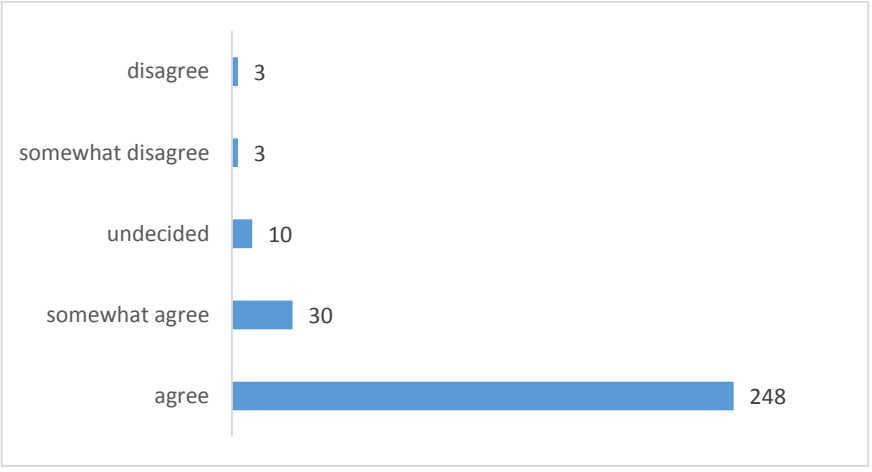

Figure 11. The coaches' opinion regarding the statement: If properly guided, the athletes won't be tempted to use prohibited substances

15% of the respondents believe that the disadvantages of using prohibited substances are exaggerated, 17.7% are undecided and 41.3% disagree. We believe that 15% is a high percentage in relation to this very important topic.

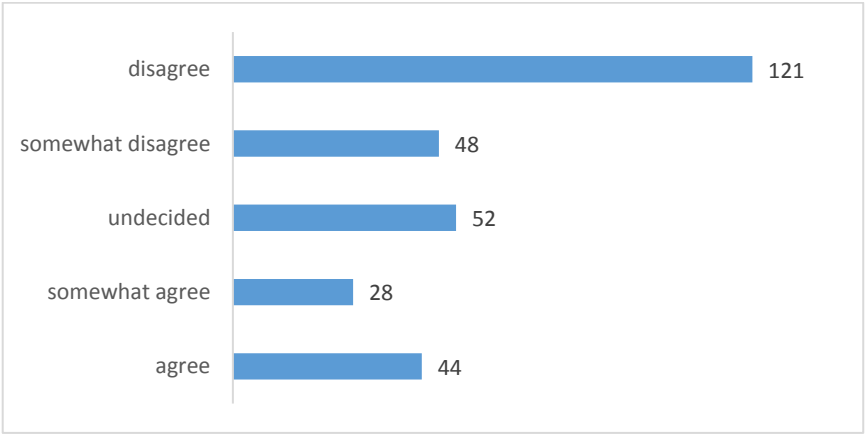

Figure 12. The coaches' opinion regarding the statement: the disadvantages of using prohibited substances are highly exaggerated

21.2% agree that schools/sports clubs are portrayed in a negative light if they pay attention to prohibited substances while 43% disagree. This percentage of 21.2% is high in relation to this assertion.

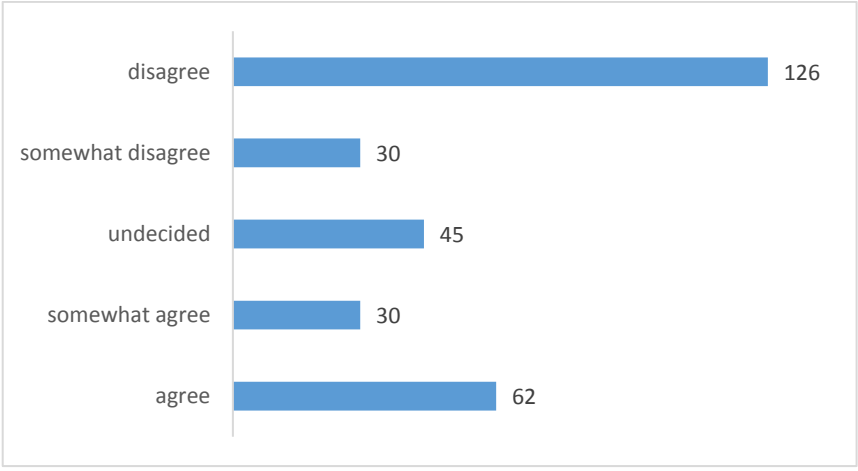

Figure 13. The coaches' opinion regarding the statement: sports clubs are portrayed in a negative light if they pay attention to the prohibited substances

For athletes: 350 junior athletes aged 10-30 years, the average age is 16-17 years.

Physical strength and health are among the most important reasons why athletes do professional sports, 63.6% and 59.5%, respectively.

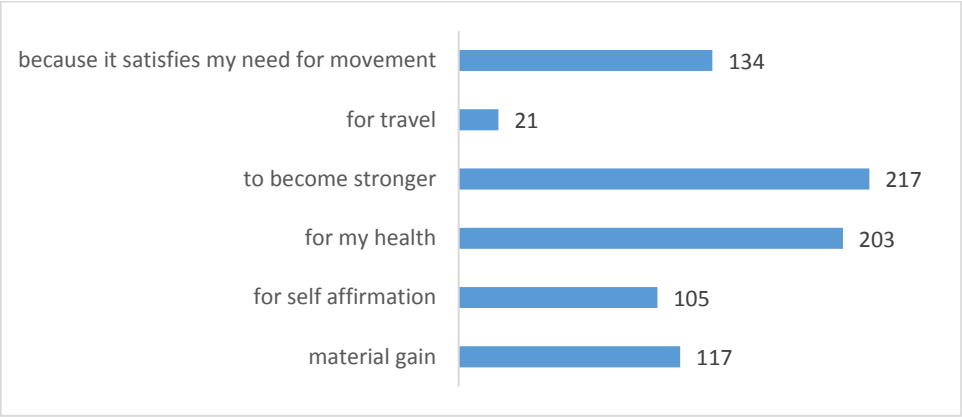

Figure 14. Reason for being professional athletes

Most of the athletes get their information from the internet and media, 65.1% and 53.1%, respectively, 46.3% from their coaches, 36.4% from physicians or other support personnel. Very few, 14.1%, take the information from educational actions.

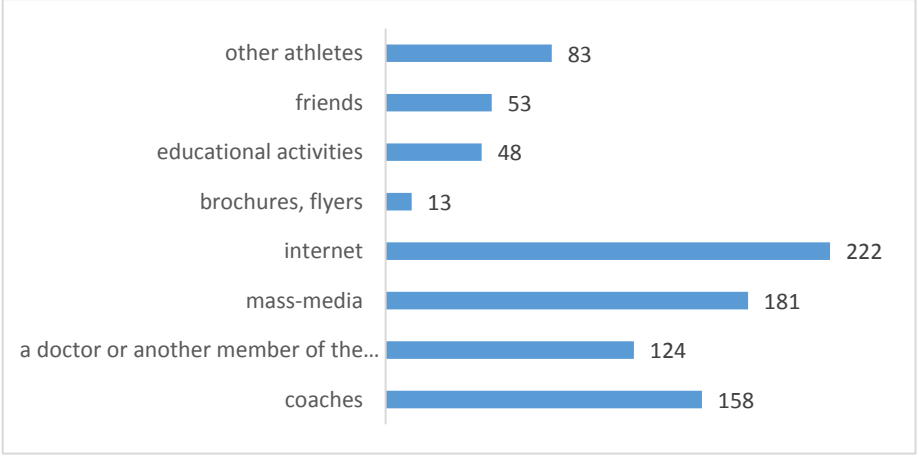

Figure 15. Source of information about doping for athletes

Considering that most of them - 63.6% do performance sports to have more strength, 59% believe that prohibited substances give even more strength, 39.8% that training will not be so exhausting and 30.4% that good performance will come faster.

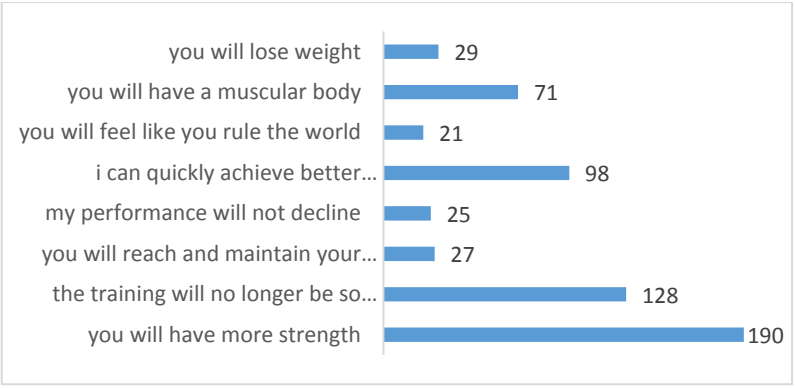

Figure 16. The athletes' opinion regarding the benefits of prohibited substances

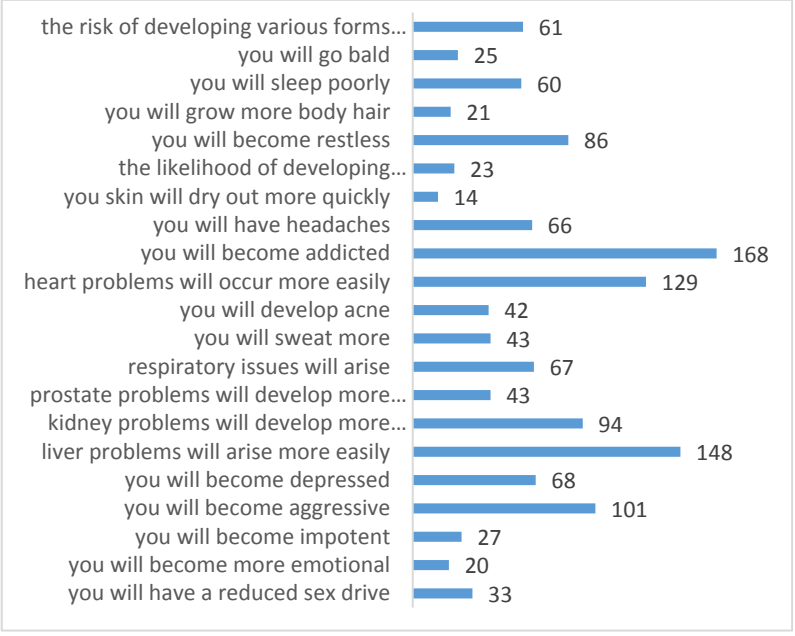

Figure 17. The athletes' opinion regarding the negative effects of prohibited substances

Addiction is the most important side effect (52.2%) of prohibited substances according to the group of respondents. Internal organs issues (liver 46%, heart 40.1%) and aggression (31.4%) are among the most important side effects.

How important it is:

Even though 63.6% of the respondents do professional sports to **have more strength** and **59% believe that prohibited substances give more strength, 26.3% still consider it not important at all the fact that** if they use prohibited substances, **they would have more force.**

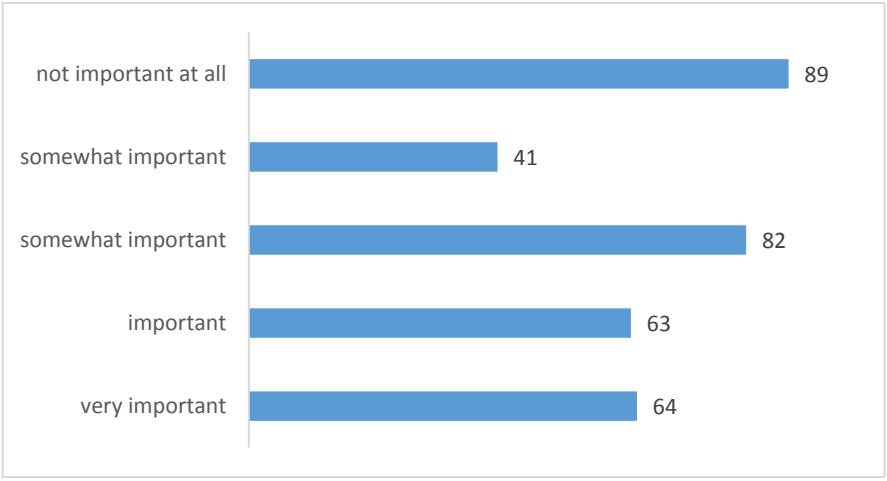

Figure 18. The athletes' opinion regarding the statement: if I use prohibited substances, I will have more strength

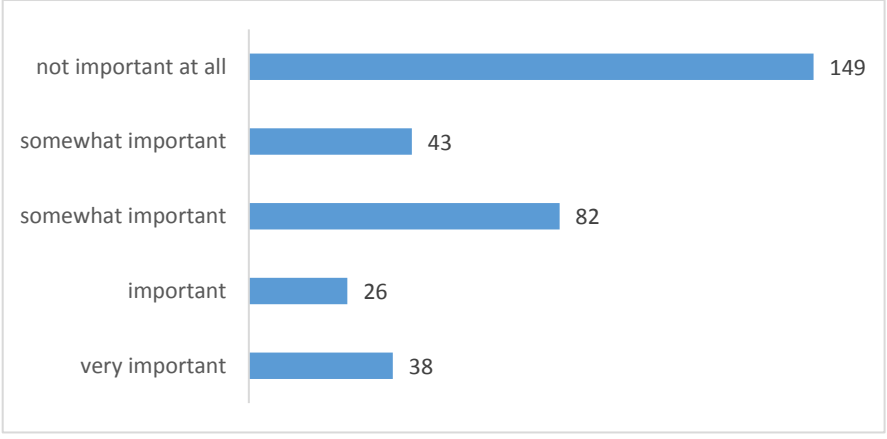

Figure 19. The athletes' opinion regarding the statement: if I use prohibited substances, training would be less tiring

Even if 39.8% believe that training would not be so tiring if they used prohibited substances, 44.1% **consider it not important at all** that if they used prohibited substances, **training would be less tiring.**

85.1% of respondents care about the coach's opinion.

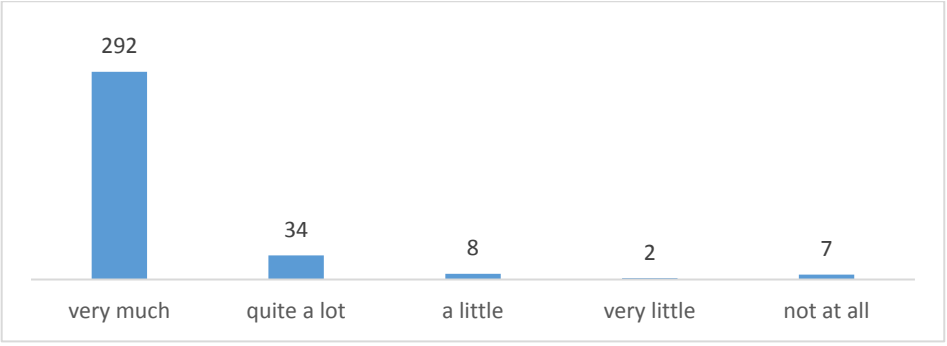

Figure 20. How much the athletes care about the coach's opinion

Very few, 33.2% of respondents, care about the opinion of their teammates.

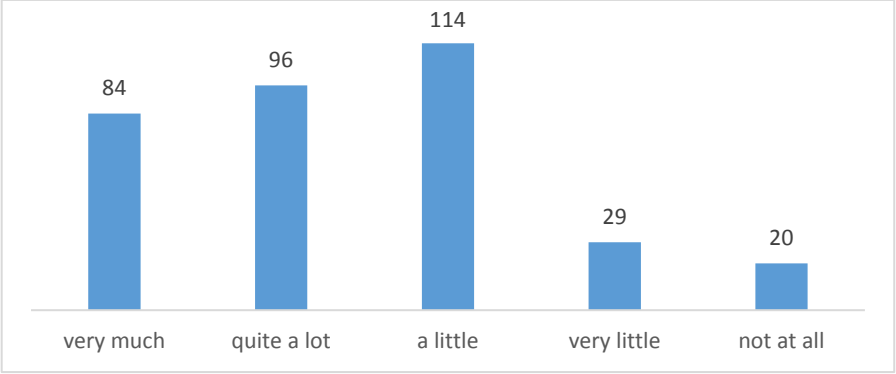

Figure 21. How much the athletes care about the teammates' opinion

Half of respondents, 51.6%, claim that the need for fame is the most important cause of doping. This is followed by insecurity – 49.3% and material gain – 38%.

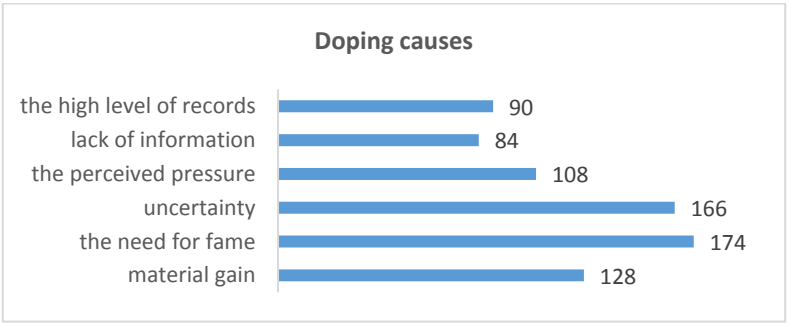

Figure 22. Doping causes

Even though 45.9% claim that the effect of doping equals its risk, it is significant that 42.6% do not know how to answer this question.

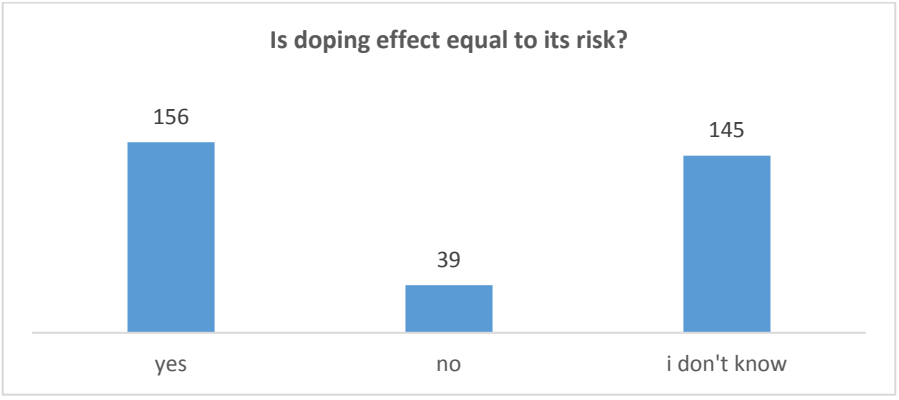

Figure 23. The athletes' opinion regarding the statement:
is doping effect equal to its risk?

We designed our analysis based on 3 formative variables: Info, Coach, Impact.

The Info variable refers to the degree of coaches' information about legislation, side effects of prohibited substances, factors determining doping practice. This variable represents the aggregation of responses to questions 3 to 9 of the questionnaire (Table 2). We note that the most important elements regarding the degree of coaches' information about this phenomenon are the concrete cases faced by coaches involving athletes who violated the anti-doping

rules (athletes who violated the regulations -LF=0.61), taking responsibility for athletes' education on side effects, norms, therapeutic use exemptions, sanctions (Education-LF=0.453) and knowledge of sanctions for violation of the applicable legislation (LF=407). Coaches believe that factors influencing the consumption of prohibited substances are euphoria due to sports results, faster performance, pressure for best physical shape to obtain top performances, lack of information, entourage, psychological factors, unknown persons, others. Education must be done by specialized persons (e.g. those from ANAD), coach, teachers, pedagogue, physician, sports federation, sports clubs, parents, psychologist, entourage, mass-media, ministry of sports.

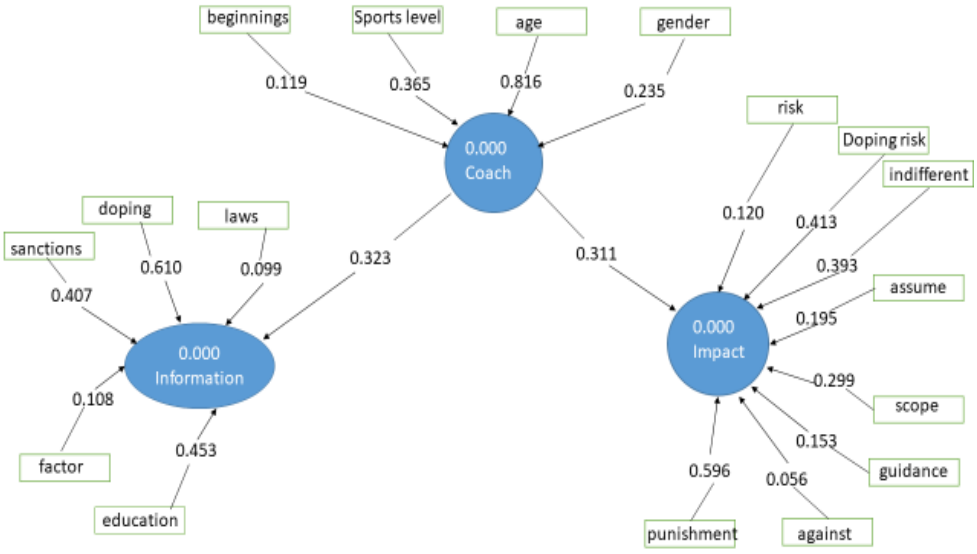

Figure 24. Path Analysis

The Coach variable refers to the characteristics of coaches. This variable represents the aggregation of responses to demographic questions (gender, age, category of trained athlete and seniority) in the questionnaire (Table 2). It is observed that age (load factor = LF = LF = 0.816) and type of trained athlete (cadet... senior) are the defining characteristics of the referees with the greatest impact on the model.

Table 2. Variables analyzed in the model

Variable	Details	LF
Coach	Gender	0.235
	Age	0.816
	The year you started coaching	0.119
	Trained:	0.365
Info	3. Are you aware of the legislation on the use of prohibited substances?	0.099
	5. Have you had athletes who have been declared to have violated anti-doping rules?	0.61
	6. Do you think the sanctions for athletes are fair?	0.407
	8. What factors in the athlete's environment do you think encourage him/her to use prohibited substances?	0.108
	9. Who do you think should educate athletes about doping? List – in order of importance	0.453
Impact	10. You have provided your athlete with information on the risks of using prohibited substances?	0.12
	11. How high do you suspect the possibility is that your athletes will use prohibited substances without your knowledge?	0.413
	12. I don't care how an athlete achieves his/her goal, as long as he/she achieves it.	0.393
	13. Everyone must be aware of the substances he/she uses to achieve his goal.	0.195
	14. When an athlete wants to achieve his/her goal, he must do so without using performance enhancers.	0.299
	With good professional guidance, athletes will no longer be tempted to use prohibited substances.	0.153
	15. I am against the use of prohibited substances.	0.056
	21. If an athlete in your group consumed prohibited substances and it was not detected, you would sanction him:	0.596

The Impact variable sums questions about coaches' opinion on the impact doping has on athletes. This variable represents the aggregation of responses to demographic questions (gender, age, category of trained athlete and seniority) in the questionnaire (Table 1). The items with a high impact load are Sanction 21 - LF=0.596, Doping11-LF=0.413, Regardless12 - LF=0.393, Goal14 LF=0.299. Thus, we can say that due to experience and the level of information, coaches would drastically sanction the athletes they train if they consumed prohibited substances, that they are not indifferent to this phenomenon. They believe that an athlete who wants to achieve his/her goal must do so without the use of performance enhancers.

The other questions were excluded from the template due to lack of representativeness.

There are positive but weak correlations between Coach and Info (R=323), Coach and Impact (R=311), Info and Impact (R=295). It shows that experienced coaches are better informed and have objective views on the impact of doping in sport. Also, collaterally, it is noticed that a higher level of information implies a more accurate assessment of the impact of this phenomenon.

To check if the model is consistent, we calculate Composite Reliability (>0.6), Cronbach Alpha and rho A (> 0.7- permissible bottom value) and AVE (>0.5). In our analysis we used only formative variables, so the model will only calculate rho A that is higher than the minimum accepted threshold (0.7), so our model is valid.

Next, we analyse whether the variables differ significantly from each other. Because the values of the Fornell-Larcker criterion are small (<0.7), we can say that the Coach variable differs significantly from the Impact and Info variables. They measure different elements/phenomena: the characteristics of the coach, his/her level of information and his/her opinion on the impact of doping in sport.

The inflation variation factor (VIF) of each build was calculated using 5000 samples and a 95% bootstrapping procedure to verify the significance of the variables. Diagrams 4 provide an overview of the findings. The P-values of this test are less than 0.01. Thus, we can declare that the global VIF does not exhibit multicollinearity between variables. All values less than 5 express the lack of collinearity and values less than 3, non-existent collinearity

Overall, our model is consistent and matched, as demonstrated by Chi-square values (The estimated value of our model - 260 is greater than the saturated, minimum acceptable value of model, 146), and the SRMR values are <0.7

In our analysis we started from the hypothesis *H1. People in the athlete's entourage who are against the use of prohibited substances or methods influence the causes for which some athletes resort to doping.*

To verify this hypothesis, we analysed 2 variables: Causes (formative variable) and Imp Persons (reflexive variable).

The load factors (LF) of the variable Imp Persons show that the person with decisive influence, who prevented the athlete from doping was the coach, but also the team physician, teammates, friends from private life and team, parents are against this behaviour. This means that institutions authorized to fight against doping must first inform and educate coaches and then the entourage.

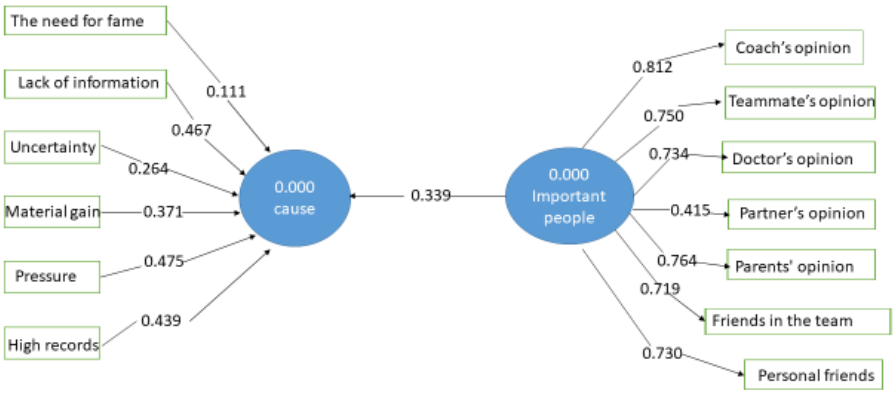

Figure 25. Path Analysis

The load factors (LF) of the Causes variable show that lack of information about doping, pressure felt and high levels of records in competitions, as well as the fact that athletes can quickly perform better are the main factors that lead them to resort to doping.

Table 3 shows the correlation between variables. There is a positive but weak correlation between the 2 variables People and Causes (R=323). It shows that people with great influence on athletes (especially coaches, parents and teammates) can support the athlete in adopting a correct behaviour, namely not to consume prohibited substances, even if the pressure of competitions and the high level of records is very high.

Table 3. Correlation between variables

Latent variable Correlations		
	Cause	**Important people**
Cause	1.00	0.34
Important people	0.34	1.00

To check if the model is consistent, calculate Composite Reliability=CR (>0.7), Cronbach Alpha=CA and rho_A (> 0.7- bottom authorized value) and AVE (>0.5). In our analysis we used a formative variable -Causes, so the model will only calculate rho_A that is higher than the minimum accepted threshold

(0.7). For the reflective variable Persons Imp conditions are also met: CR, CA, rho_A >0. 7 and AVE>0.5. We note that the CA=0.69 value is very close to the 0.7 threshold. We consider that it meets the condition because there are authors who accept a minimum threshold of 0.6, which means that the items that form this variable are representative, with impact, but still different from each other. The CR and AVR values demonstrate that our model is valid (Table 4). The path coefficient (0.339) measures the size of the effect.

Table 4. Model consistency

Construct Reliability and Validity				
	Cronbach's Alpha	**rho_A**	**Composite Reliability**	**Average Variance Extracted (AVE)**
Cause		1.00		
Important people	0.69	0.68	0.83	0.51

Next, we analysed whether the variables differ significantly from each other. Because the values of the Fornell-Larcker criterion are close to the maximum acceptable threshold (<0.7), we can say that the variables differ significantly from each other. They measure different elements/phenomena.

The inflation variation factor (VIF) of each build was calculated using 5000 samples and a 95% bootstrapping procedure to verify the significance of the variables. The figures present an overview of the findings. The P-values of this test are less than 0.01. Thus, we can declare that the global VIF does not exhibit multicollinearity between variables. All values less than 5 express the lack of collinearity and the values less than 3, non-existent collinearity.

Overall, our model is consistent and matched, as demonstrated by Chi-square values (Estimated value of our model equals saturated, minimum acceptable value of model 843), and SRMR values are <0.7

The second statistical hypothesis is H2. *The type of sport, gender, age and context influence doping in sport.*

To verify this hypothesis, we analysed 3 variables: Demographic, Context (formative variables) and Doping (reflexive variable).

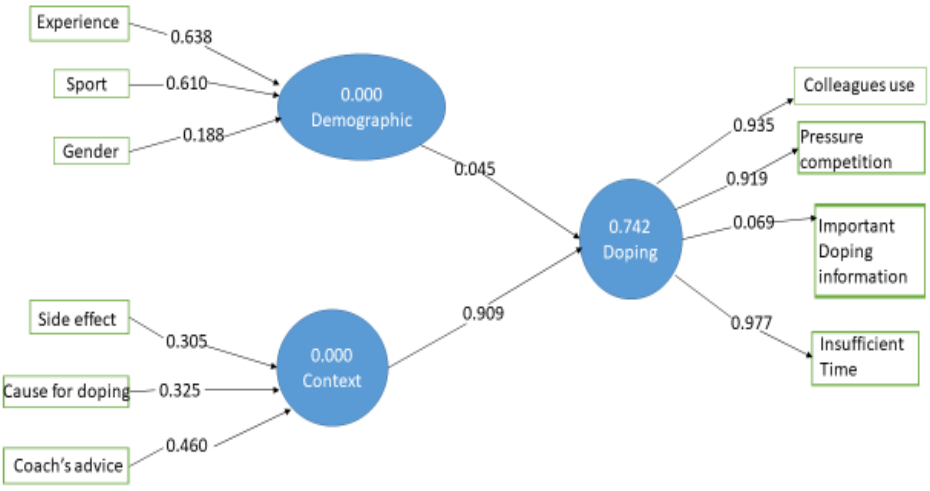

Figure 26. Path Analysis

The load factors (LF) of the Demographic variable show that the factor with decisive influence in the doping phenomenon is the type of sport and age (certain sports are prone – bodybuilding, age – uninformed young people, who come from disadvantaged environments, do not know how to read). Gender matters very little, but this phenomenon is mostly found in boys.

The load factors (LF) of the Context variable show that coach advice, competition pressure, and substance addiction are what cause the athlete not to give up.

The load factors (LF) of the Doping variable show that athletes turn to doping under peer pressure, lack of time required for training, and due to competition pressure.

Table 2 shows the correlation between variables. There is a positive and very strong correlation between the 2 variables Doping and Context (R=0.92). It shows that in most cases context determines doping.

To check if the model is consistent, we calculate Composite Reliability=CR (>0.7), Cronbach Alpha=CA and rho A (> 0.7- the bottom authorized value) and AVE (>0.5). In our analysis we used a formative variable, Demographic and Context, so the model will only calculate rho A that is higher than the minimum accepted threshold (0.7). For the reflective variable Doping conditions are also met: CR, CA, rho A >0. 7 and AVE>0.5. These values demonstrate that our model is valid (Table 5).

Table 5. Model consistency

Construct Reliability and Validity				
Matrix	**Cronbach's Alpha**		**rho_A**	**Composite**
	Cronbach…	**rho_A**	**Composi….**	**Average…**
Context		**1.00**		
Demographic		**1.00**		
Doping	**0.74**	**0.96**	**0.85**	**0.67**

Further, we analysed whether the variables differ significantly from each other. The values of the Fornell-Larcker criterion are higher than the maximum acceptable threshold (<0.7) for the context and doping variables, so in this case the 2 variables do not differ significantly from each other. They do not measure elements/phenomena differently.

The inflation variation factor (VIF) of each build was calculated using 5000 samples and a 95% bootstrapping procedure to verify the significance of the variables. The diagrams present an overview of the findings. The P-values of this test are less than 0.01. Thus, we can declare that the global VIF does not exhibit multicollinearity between variables. All values lower than 5 express the lack of collinearity, and values lower than 3, non-existent collinearity.

The pathway coefficient for Context-Doping is very high (0.909) and is statistically significant (p value<0.05), so it is valid for the entire statistical population.

The pathway coefficient for Demographics-Doping is very low and therefore not statistically significant (p value 0.15), so it is valid only for our data source, not for the entire statistical population.

Overall, our model is consistent and matched, as demonstrated by Chi-square values (The estimated value of our model equals the saturated, minimum acceptable value of model 36), and SRMR values are <0.7

CONCLUSIONS

What is the attitude of coaches towards doping substance use?

The most important elements regarding the level of coaches' information on doping are the concrete cases faced by coaches involving athletes who violated anti-doping rules, taking responsibility for athletes' education regarding adverse effects, anti-doping rules, therapeutic use exemptions and knowledge of sanctions for violations of the applicable legislation.

Coaches believe that factors influencing the consumption of prohibited substances are euphoria due to sports results, faster performance, pressure for best physical shape in order to obtain top performances, lack of information, entourage, psychological factors, unknown persons, others.

Due to their experience and level of information, coaches would drastically sanction the athletes they train if they consumed prohibited substances, because they are not indifferent to this phenomenon. They believe that an athlete who wants to achieve his/her goal must do so without the use of performance enhancers.

Experienced coaches are better informed and have objective opinions on the impact of doping in sport. Better information also implies a more accurate assessment of the impact of this phenomenon.

What are the main factors considered responsible for athletes' anti-doping education?

Education must be done by specialized persons (e.g. those from ANAD) then by the coach, teachers, pedagogue, physician, sports federation, sports clubs, parents, psychologist, entourage, media, ministry of sports. The category of athletes he/she trains (cadet... senior) is a defining characteristic with the greatest impact on coaches.

H1. *People in the athlete's entourage who are against the use of prohibited substances or methods influence the causes for which some athletes resort to doping.*

Institutions authorized to combat doping must first inform and educate coaches and then the entourage.

The lack of information about doping, the pressure felt and the high level of records in competitions, as well as the fact that athletes can quickly achieve better performances are the main factors that lead them to resort to doping.

People with great influence on athletes (especially coaches, parents and teammates) can support the athlete in adopting a correct behaviour, namely not to consume prohibited substances, even if the pressure of competitions and the high level of records is very high.

H2. *The type of sport, gender, age and context influence doping in sport.*

Gender matters very little, but still, doping is mostly found in men. The coach's advice, competition pressure, and substance addiction are what cause the athlete to use doping. Athletes resort to doping under peer pressure, lack of time required for training and due to competition pressure. The social environment has a decisive influence on the decision regarding the use of doping substances.

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