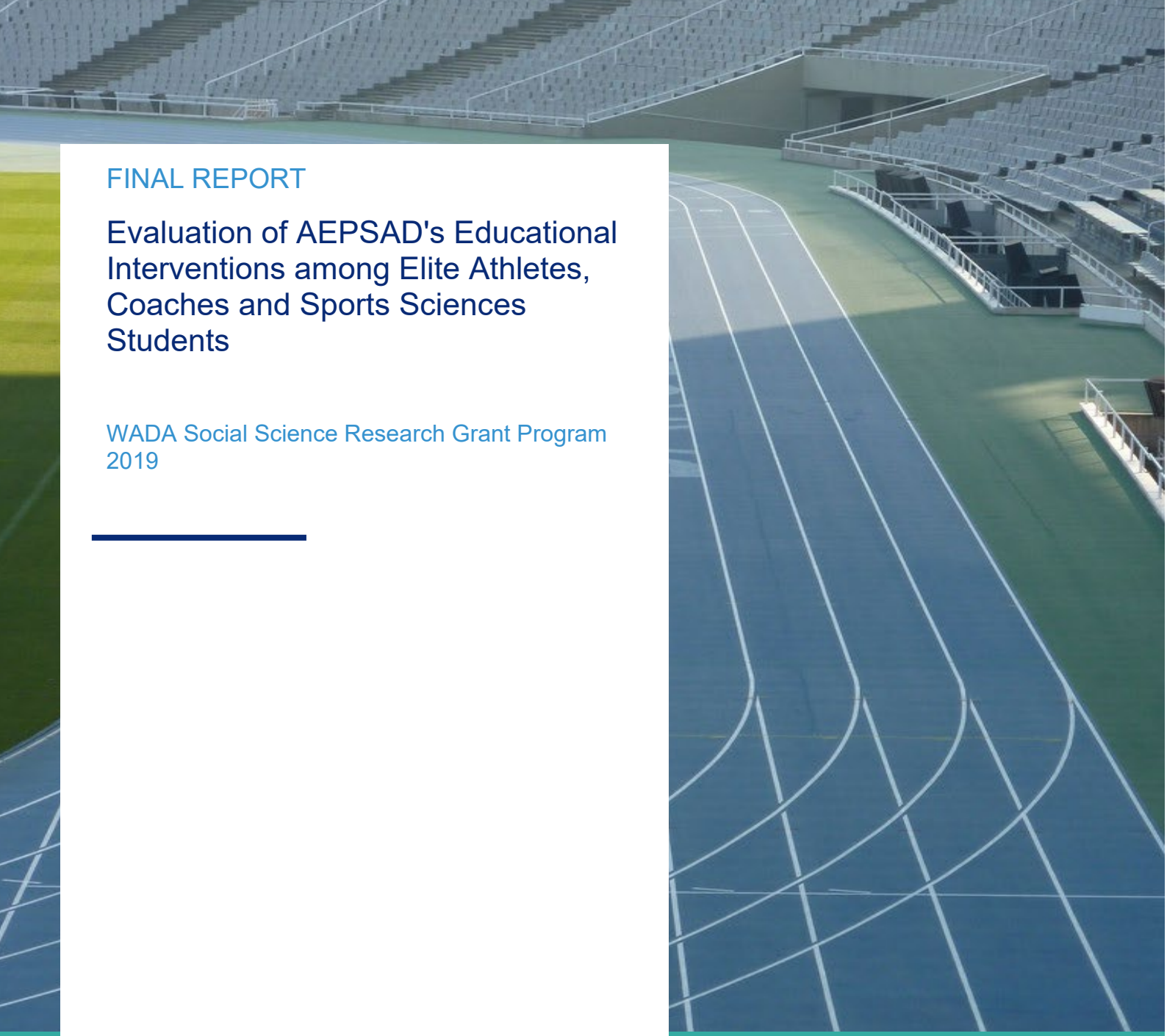

FINAL REPORT

Evaluation of AEPSAD's Educational Interventions among Elite Athletes, Coaches and Sports Sciences Students

WADA Social Science Research Grant Program 2019

SEPTEMBER 2022

UNIVERSIDAD EUROPEA DE MADRID

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Executive Summary

This research was commissioned by WADA to evaluate education programs organized by the Spanish antidoping authority, *Comisión Española para la Lucha Antidopaje en el Deporte* (CELAD, formerly known as AEPSAD) in under the Social Research Grants Program in the year 2019. These were, first, the program for athletes and athletes support personnel called *Dopaje Lo Que Debes Saber* (DLQDS, Doping What you Should Know) under its two formats, online seminars and an online course. Second, the course designed for Physical Activity and Sports Sciences (PASS) students called *Vive Sin Trampas* (VST, Live Without Cheating).

The project evaluated, using the questionnaire from WADA's Research Package for Anti-Doping Organizations, beliefs, attitudes, and behaviours of athletes and students before and after taking the courses offered by the Spanish agency.

The main results found were:

Dopaje lo Que Debes Saber seminars

- Athletes show a high degree of ignorance about the effects and damages of the consumption of doping substances.
- They also show ignorance about access to substances and little support in their environment to consume them.
- They are mostly against doping in any circumstance (89.7%).
- Only 0.6% of the participants stated that they intended to dope that season.
- Being very majority the rejection of doping before the intervention, there are no statistically significant changes after the completion of the seminar.
- A reduction in the lack of knowledge of doping damage is confirmed, but statistical significance is not reached.

Dopaje Lo Que Debes Saber online course

- There is a wide lack of knowledge among athletes about the effects and harm of doping substances.
- They show a broad rejection of the use of doping substances (97.5%) in any circumstance.
- They do not believe that their environment would support them if they decided to dope, or that they would help them if they wanted to do so.

- Only 0.6% of the participants showed an intention to dope that season and only 3% admitted having used diuretics at some point in their career.
- Since rejection of doping is so widespread from the outset, the effects of the educational intervention have not reached statistical significance.

Vive Sin Trampas

- Students who complete the course have less confidence in the positive effects of doping substances on performance (-10%).
- Students who finish the course show less ignorance about the effects of doping substances on performance (-11-43% in the 'I don't know' response rate).
- The students who finish the course consider the doping substances more harmful in the short term (+18-29%) and in the long term (14-29%).
- Students who complete the course do not increase their perception of control or severity in sanctions.
- Students who finish the course are more morally against doping (+9%) four months later (91%), although it cannot be said that this is a statistically significant increase.

1. Introduction

Doping is undoubtedly one of the greatest challenges facing the sport world in the coming decades (Mountjoy & Junge, 2013). Since the birth of WADA in 1999, important tools have been developed for the fight against doping, especially for the detection prohibited substances. Although the detection capacity and hence the deterrence capacity has grown, doping practices are still a reality in elite sport. That is why for some years now it has been certain that along with the detection-deterrence system it is necessary to set up a system of prevention and education that prevents athletes from falling into the use of doping substances. For this, it is essential to have a comprehensive knowledge of doping works, including psychosocial risk factors, the role played by the environment of athletes, as parents and coaches, and the economic and social context in which contemporary sport unfolds.

Regarding psychosocial factors, Ntoumanis et al. (2014) carried out an exhaustive meta-analysis that shows, first, that doping responds to a complex relationship of psychological and social factors, being impossible to identify none that stands out for its significance. In a natural way, those who have a positive image of doping, who minimize their risks and do not believe that they are socially condemned would be more likely to dope. Also, goal orientation has been shown to be positively related to doping practices, as well as moral disengagement. On the other hand, greater self-efficacy, and a belief in the ability to resist temptation reduce the likelihood and intention to dope. In the same sense, those people with greater respect for sport – i.e., sportsmanship – also correlated negatively with the intention to dope. Also, the use of nutritional supplements correlated positively with doping intention, supplement being seen more and more as gateways to doping (Backhouse et al., 2016).

The meta-analysis, however, could not analyze other social variables such as educational level, social class or place of residence. Other authors have also stressed that the social context as a whole should be taken into account, including the processes of commercialization and large-scale globalization suffered by the sport, together with the sports subcultures themselves (Blank et al., 2016; Smith et al., 2010).

Understanding doping behavior is fundamental to design successful educational interventions. For this, it is also necessary to develop adequate theoretical frameworks. Up to now, interventions put in place have had a limited effect, as shown by the latest systematic reviews (Bates et al., 2017). In the first place, because although research on

psychosocial factors is beginning to be generalized, there are still few studies evaluating the effectiveness of educational interventions.

The main conclusions of the review commissioned by WADA in 2016 (Backhouse et al., 2016) were that, first of all, doping takes place within a complex social context and depends on certain psychological factors that can promote or limit the probability of doping. Second, critical biographical events, both sporting and non-sporting, can act as triggers for the doping practice. Third, the social context and close people, such as classmates, friends, family, and coaches, are key, and can facilitate or limit the practice. Fourth, it is believed that the current means are barely able to detect doping, and at the same time there is a deep distrust in the detection-deterrence system.

Finally, in the fifth place it is observed that athletes and coaches know little about anti-doping and formal anti-doping education has hardly any impact. The review, therefore, recommends increasing knowledge on how to develop effective interventions and recommends doing so from a multidisciplinary and collaborative approach between academia, institutions responsible for anti-doping and educators (Backhouse et al., 2016). In addition, more research is needed to understand the interaction between different levels of prevention with respect to the social structures of specific environments or countries.

A subsequent review of the interventions (Bates et al., 2017) points out in the first place that the majority focused on young athletes and were educational and training interventions. In addition, it emphasizes the design of interventions, showing that many of those that have been carried out have not complied with the appropriate methodological requirements: they have not lasted long enough, they have not been based and designed according to theoretical models and they have been one-dimensional, focusing on educational aspects, so their effects have been moderate.

One of the biggest efforts to evaluate the effectiveness of the interventions has been carried out by the German anti-doping organization (Wippert & Fließer, 2016), the National Plan for the Prevention of Doping (NDPP). The research published in 2016, focuses on two studies, with a follow-up of four years, involving 213 students and 22 teachers. It examines, first, the degree to which the NDPP led to improve prevention efforts in sports schools' elite athletes, and second, the extent to which prevention activities recently developed by the national anti-doping agency, based on the NDPP, has improved knowledge among this population. They concluded that WADA's anti-doping activities generated greater knowledge about doping and health, something

beneficial for young athletes. In a prevention context, the degree to which the prevention of work is centralized, could be an important factor in the success of anti-doping initiatives in any country.

In the same line, interventions for the environment, such as coaches, also begin to develop. Ntoumanis et al. (Ntoumanis et al., 2018) have proposed a protocol for a randomized group study that aims to contrast the relative effects of a "motivation and anti-doping" intervention program for coaches against an anti-doping control program based on information. The intervention includes face-to-face workshops and weekly activities supported by printed and online material. The project aims to identify the communication strategies that coaches can use to support athletes' motivation in sports and also to promote self-determined reasons for athletes to comply with doping regulations.

In summary, current educational interventions are not being sufficiently effective, and evaluations of these interventions are also lacking. These gaps make it essential for WADA and its affiliated organizations to continue evaluating their programs and improving them, and that is why AEPSAD has decided to evaluate its programs with the collaboration of the Universidad Europea de Madrid, as well as to use the knowledge extracted from that evaluation to implement a plan to improve the interventions, which can be evaluated in turn.

2. Project Management

The objective of the project was to evaluate the effectiveness of the educational programs of the Spanish Anti-Doping Agency CELAD (previously known as AEPSAD) through an analysis of the changes in the perceptions of the participants about doping, together with a qualitative analysis of their experience as assistants to the courses in order to generate an improvement proposal.

This objective has been met by following the research project in general terms, although its management has had to be modified due to the impact of the pandemic.

The coordination of the project therefore followed what was designed, with the proposed division of tasks and quarterly coordination meetings. At the same time, a coordination protocol was developed with CELAD to carry out data collection. First, CELAD appointed a person responsible for coordinating with the research team. This person and the team shared a joint space in the cloud where the project information was updated: calendar of education actions, number of participants and contact information. In this way, the researchers could prepare the online questionnaires in advance and, subsequently, keep the number of responses updated as well as the time of sending the reminder emails.

Likewise, monthly meetings were held with those responsible for CELAD to coordinate the process and identify difficulties or possible improvements, until the data collection was completed. Subsequently, closing meetings were held in which the main research results were shared.

2.1. **Project modifications**

The initial project had to be modified due to the impact of the coronavirus pandemic, whose outbreak in Spain coincided with the projected start of the project. First, the CELAD training courses were cancelled in March 2020, so, in coordination with WADA, it was decided to delay the signing of the research agreement until sanitary conditions improved and CELAD activity resumed. For this reason, the agreement was signed in July 2020, upon learning that the educational courses would be resumed in September of that year.

In addition, CELAD modified by legal obligation the format of the courses to make them 100% online. Originally, CELAD had two educational projects underway. The first was a 90-minute face-to-face talks organized in collaboration with sports federations and designed for athletes and coaches, in which the fundamental information on anti-doping was given following WADA education standards. Local instructors went to training centres to give these talks. The pandemic forced these talks, although they maintained their content, to be offered exclusively online, through a platform. The federations offered the talks to their members, and they decided whether or not to it assist.

For the project, this modification had several impacts. The first was that it was not possible to know the number of participants before the talk took place. The second was that it could not be guaranteed that all the participants would fill out the questionnaire before participating, since there was no direct access. This also meant that the original plan to travel to the seminars was discarded (see budget section for subsequent modification). Finally, it meant that all interaction with the post-intervention participants had to be done through CELAD, which in turn forwarded the information and requests to the federations, which in turn sent it to the participants, making communication difficult and reducing the response rate.

For all these reasons, an online survey platform had to be contracted, and specific questionnaires created in the cloud for each of the participating groups. Three days before the course took place, the CELAD coordinator sent the link to the questionnaire to the head of the corresponding federation, who in turn sent it to all the invited participants. They could take the questionnaire until just before the course began. Each questionnaire began with the obligation to read the informed consent and give approval for participation in the study, following the ethical standards for online surveys.

One week after the seminar, the process was repeated, and the participants received an invitation to answer the questionnaire. A week later a second reminder email was sent, always through the federations. The project included a 4-months follow-up, and emails were sent to the participants following the same protocol. However, response rate was so slow that analysis of this sample had to be discarded.

The other course to be evaluated was a project specifically designed for Sports Science students. In this case, the original project consisted of an in-person seminar at the beginning, an online course, and a final full-day hands-on seminar at the end. Due to

the pandemic, both the initial and final seminars had to be held online, with the latter reduced in length to 90 minutes. Again, it also meant that all data collection had to be online and remote, making participation difficult.

Finally, CELAD, taking advantage of the online course platform, designed a new online course for high-level athletes similar to the one offered to students. This course was not in the original project, but it was decided to evaluate it as well to ensure the completeness of the evaluation. On this occasion, before starting the course, they were asked to fill in the questionnaire, and the same was done at the end of the course. The difference was that the questionnaires were accessed directly from the educational platform.

Along with the modification of the quantitative evaluation, it was also necessary to modify the qualitative data collection for the improvement plan. The initial idea was to hold focus groups after the seminars with the participants, ideally one or two days later. As there were no face-to-face seminars, and there were traveling restrictions that changed constantly evolving due to the pandemic, it was decided to change the discussion groups for online in-depth interviews, to guarantee the health of both interviewees and members of the project. CELAD was in charge of providing the contacts of the participants based on a sample design that guaranteed maximum representation in terms of gender, sports level, age, sport role and participation in the different courses. Methodological details are found in the Methods chapter.

Due to the pandemic, the initial outreaching event, in which the project was going to be presented, also had to be suspended. At that time, face-to-face actions were not possible, and the team lacked the technology and resources to develop an online event.

Regarding dissemination, the publication of 3 scientific articles was projected. So far one has been published, and the other 2 are in the process of being drafted. It was also planned to attend an international conference - INDR 2022 – and the annual WADA meeting. When it was identified that the latter could not be financed with the project, it was replaced by a second international congress – ISA-EASS 2022.

2.2. **Evaluated Programs**

Vive Sin Trampas

The Spanish national anti-doping organization, CELAD, designed and implemented an educational program specially designed for Sports Sciences Students called *Vive Sin Trampas* (Live Without Cheating, VST).

The program was developed by CELAD initially for high-school P.E. teachers and adapted later on to Sports Science students. It includes information on anti-doping regulations, doping history, doping consequences, sports values, sociopsychological doping variables and doping prevention. It was theoretically based on the Teaching Personal and Social Responsibility Model by Donald Hellison (1995) that has been widely used with young athletes and students before (Shen et al., 2022) to foster self-efficacy, respect and social skills.

The program took place between September 2020 and January 2021. Due to pandemic governmental policies, all the program was delivered online. It started with a 1-hour, live, introductory online seminar explaining the main features and milestones of the program. Then, students completed a 25-hour online course including activities and debates corrected and guided by an online instructor from CELAD. Finally, a last 1-hour live online seminar was delivered specifically focused on how to implement the Teaching Personal and Social Responsibility Model on doping.

Students finishing the course received and official diploma and their faculties recognized its completion as a 1 ECTS (European Credit Transfer System) for voluntary, out of program education valid to their academic curriculum.

Dopaje Lo Que Debes Saber

This program is aimed at the entire population of the federated sports environment, through the National Federations and Technification Centres, mainly athletes and their support staff.

The main objective of this programme is to provide information on the use of doping substances, possible violations, consequences, anti-doping controls, rights, and responsibilities. Also, prevention, so the first contact they have with the world of doping control is through education, so that when they have to pass a control they already know what their rights and obligations are.

They also learn the procedure to relate to the administration, that is, there are a series of tools (forms, applications, protocols...) that they must use to comply with their anti-doping obligations and in this way contact with the Agency is facilitated.

The contents are marked by article 18 of the 2015 World Antidoping Code.

- Substances and methods on the Prohibited List.
- Anti-doping rule violations.
- Consequences of doping, such as penalties and health and social harm.
- Doping Control procedures.
- rights and responsibilities of Athletes and their Support Personnel.
- Therapeutic Use Exemptions.
- Managing the risks posed by nutritional supplements.
- The offense that doping supposes for the sports spirit.
- Applicable location/whereabouts requirements for Athletes.

3. Objectives

The main objective of this research project was to evaluate the effectiveness of current educational interventions carried-out by Spain national anti-doping body AEPSAD and subsequently improve and re-evaluate these interventions.

This research takes part in current efforts to find the best possible theoretical framework and intervention delivery for anti-doping educational programs, which are one of the key instruments in a succeeding anti-doping policy as stated by WADA.

Therefore, the research objective was:

Are current educational interventions carried-out by AEPSAD Spain Anti-Doping agency effective?

Secondary objectives were:

Is the elite athletes' intervention improving the athletes' knowledge on doping issues and nutritional supplements?

Is the elite athlete intervention effectively influencing athletes' doping attitudes and behaviors?

Is the undergraduate students' intervention developing a moral attitude toward doping issues among these students?

How can we use the evidence from this evaluation to improve the programs' effectiveness?

Can we develop better suited and more effective intervention both for elite athletes and undergraduate students?

4. Methods

The research project was divided into two studies:

- Quantitative study: to assess the impact and effectiveness of the educational interventions VST, DLQDS seminars and DLQDS online course carried out by the Spanish Anti-Doping Agency CELAD.

- Qualitative study: to analyse and to propose improvements to increase the effectiveness and impact of the two educational interventions.

4.1. **Quantitative study**

Design

This was a quasi-experimental pre-/post-test study design for all educational interventions proposed. This allowed the comparation between punctuation of the group before of educational intervention (baseline) and after of that (post-intervention) to determine the overall impact of the educational intervention. In addition, a follow-up phase (4 months) was carried out when possible.

Participants

Data gathering took place during educational interventions from September 2020 through June 2021.

Vive sin Trampas:

The Spanish Anti-Doping Agency enrolled 16 Sports Sciences faculties, which offered the program to its students enrolled in the Sports Sciences grade in a voluntary fashion. 597 students initially signed-up, but only 145 actually participated and finished it. Students mean age was 21,4 years (17-41, S.D. 4,5) and 73,1% were men. They all answered the questionnaire before starting the course, while 54 (37,2%) answered it right after completion and 46 (31,7%) did it at the four months follow-up.

DQDS seminars:

Spanish Anti-Doping Agency CELAD offers anti-doping education seminars to national federations. These interventions were, due to the pandemic, online seminars during the project. Each seminar was organized for a specific federation, which invited its athletes

to participate in a voluntary fashion. In total, 305 athletes signed-in for the seminars and answered the full WADA questionnaire before attending it. Of those, 78 (25,6%) completed the questionnaire after the seminar. Four-months follow-up was limited to only 29 athletes (9,5%), preventing any meaningful statistical analysis, so this sample was discarded. Coaches' participation was also minimal, preventing statistical analysis.

DLQDS online course:

In the second modality of the Doping What You Should Know course, those athletes who were part of the monitoring group participated, that is, because of their high level they were subject to greater control. In total, 178 answered the questionnaire before taken the course, and 98 (55%) answered the post-course questionnaire.

Instruments

Instruments for both educational interventions were extracted from WADA's research package for anti-doping organizations (Donovan, et al, 2015). In this sense, we followed recommendations of the International Test Commission (Hambleton, 2005) in the process of translation and cultural adaptation to Spanish language of the instruments chosen.

Validity and reliability were tested by the suitable statistic tests (e.g., Cronbach Alphas, exploratory and confirmatory factor analyses).

The instruments administrated were:

- "VST": science sport students will fill out the Morality and Cheating measure, Beliefs about the Benefits of Doping measure and Beliefs about the Harms of Doping and the Consequences if Caught measure of the WADA's package.
- "DQDS": athletes will fill out the Standard Questionnaire of the WADA's package. This questionnaire contains two modules: Sport Drug Control Model Modules and Athlete Characteristics Modules. In the case of coaches, the questionnaire will be adapted for them.

Data analyses

Data analyses was similar for both programs. Data was analysed using SPSS 23.0 software, consisting of two parts: preliminary analysis and analysis of the effects of the training program. Initially, the descriptive statistics of all variables in the pre-test, post-

test and the follow-up phase were estimated, calculating the values of the total sample and according to the study group. Regarding to the analysis of the effects of the training programme, different ANCOVAs will be carried out with repeated measurements for each of the study variables, including an inter-subject factor (group) and two covariates (measurement and gender).

4.2. Qualitative study

Design

This part of the study followed a qualitative methodology. Qualitative methodology is an open, iterative process, and therefore this design proposal may be modified – number of interviews focus groups and participants' profile – depending on the needs encountered through the analysis.

As mentioned in the previous section, proposed methodology had to be modified to adapt to pandemic context. Therefore, focus groups were abandoned and semi-structures interviews adopted.

Participants

We designed a theoretical sample looking for maximum variability and representativity. We included type of course, gender, age, sport level and role – coach or athlete – as variables and interviewed participants representing all these characteristics. In total, 11 interviews were carried out.

Instruments

A script was developed integrating participants' perception of the programs and futures improvements they think can be adopted to improve their effectiveness and impact on future participants.

Data analyses

Interviews were recorded and transcribed. Then, transcripts were imported to Atlas.ti program. To identify mean themes, an inductive thematic analysis was conducted. Thematic analysis is a qualitative technique which unearths rich and complex accounts

of data allowing for social interpretations (Guest et al., 2012). The thematic analysis procedures followed the recommendations of Braun and Clarke (2006). These recommendations have been followed in other studies of the research team (López Chamorro et al., 2016).

5. Results

5.1. **Quantitative Study**

This research evaluated the effectiveness of three different educational programs: an online program designed for Sports Sciences students, a live webinar program for athletes, and an online course for high-level athletes.

In all of them, a version translated into Spanish of the WADA questionnaire for national anti-doping organizations designed by Donovan et al. (2015) was used, although with adaptations for the different populations.

The main results for each of these programs are shown below.

Vive Sin Trampas

To evaluate the PASS students' program, data on the sociodemographic variables of age and gender of the participants was collected, together with the sport practiced, years of practice and maximum competitive level. Subsequently, a selection of the questionnaire's dimensions was selected following our theoretical hypothesis: perceived effects of the PESM on performance, perceived health effects of short-term and long-term use of PESM, severity of the antidoping controls and effectiveness of the sanctions, and moral positioning towards doping.

The majority of the students were young people under 25 years of age (87%), and following the usual distribution in these schools, the majority were men (73%).

Figure 1. VST Participants' age

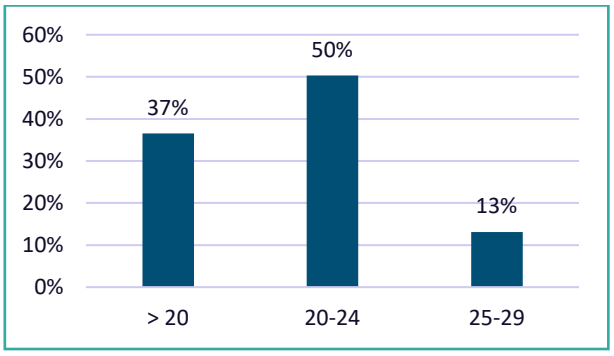
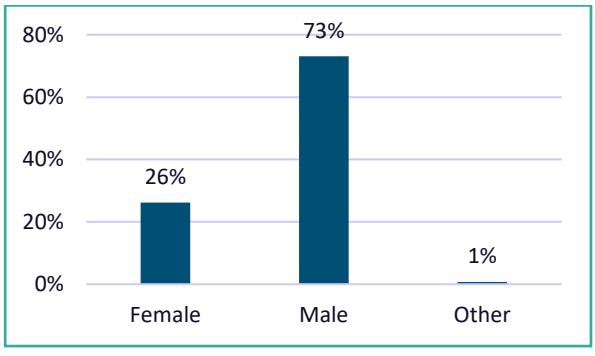


Figure 2. VST Participants' gender



Regarding the main sport practised, football (43%) and other team sports were the majority, although a great heterogeneity was observed. Although there were

participants who had reached high competitive levels, many had not reached the national level (66%).

Figure 3. VST Participants practised sport

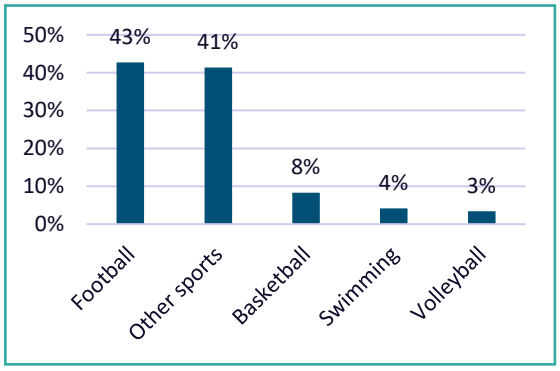
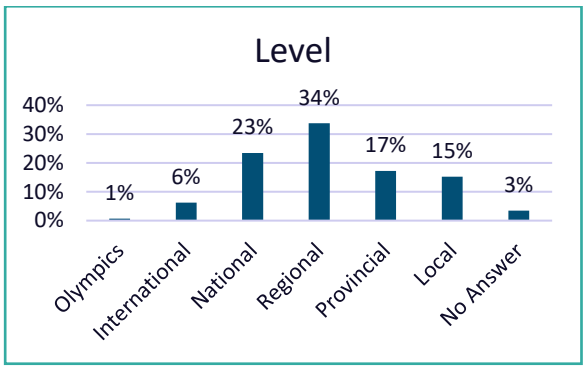
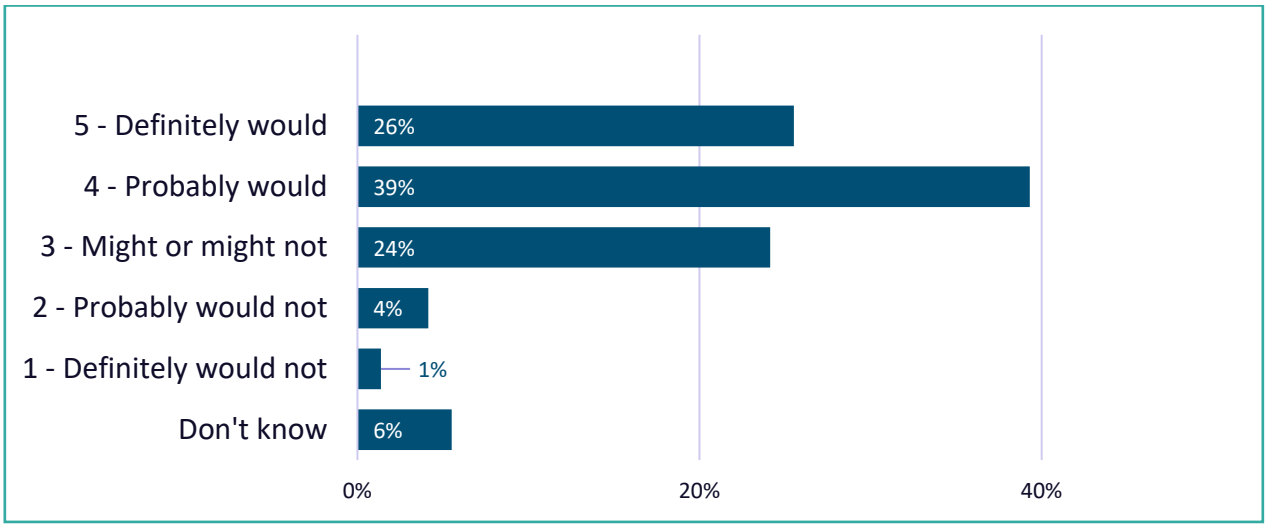


Figure 4. VST participants sport level



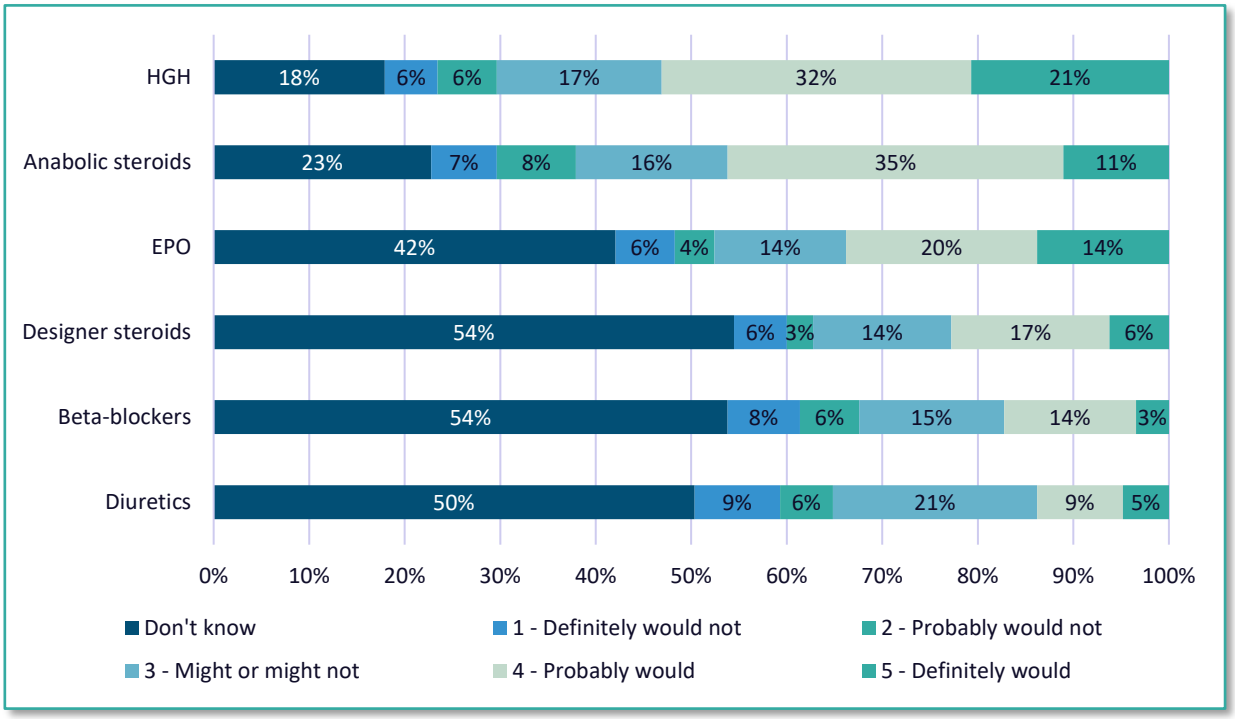
Thus, what was your view of doping before taking the course? We can start by looking at the perceived benefits to performance. In general, the majority consider that the consumption of doping substances would improve their performance for sure (66%) or could do so (24%).

Figure 5. Participants of VST program's perceived likeness of improvent through PESM use of their choice



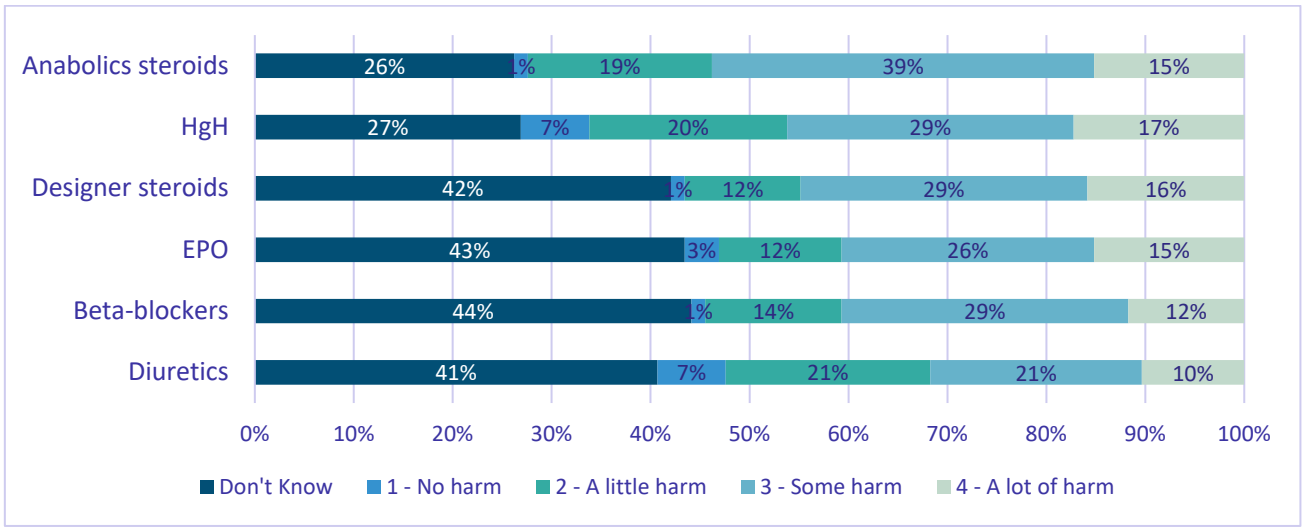
However, when asked about specific substances, they show a lack of knowledge. They are surer of the benefits of HgH (53%) and anabolic steroids (46%) or EPO (34%), but most don't know about the benefits of designer steroids (54%), beta-blockers (54%) or diuretics (50%). That is, there is a general image of effectiveness, but a lack of details.

Figure 6. Participants of VST program's perceived likeness of improvent through especific PESM use



Regarding the perception of damage to health, when asked about a 2-month use, again we observed high percentages of ignorance, although most of them perceive a serious harm to health. The substances of which more knowledge and more damage is perceived are anabolic steroids and growth hormone.

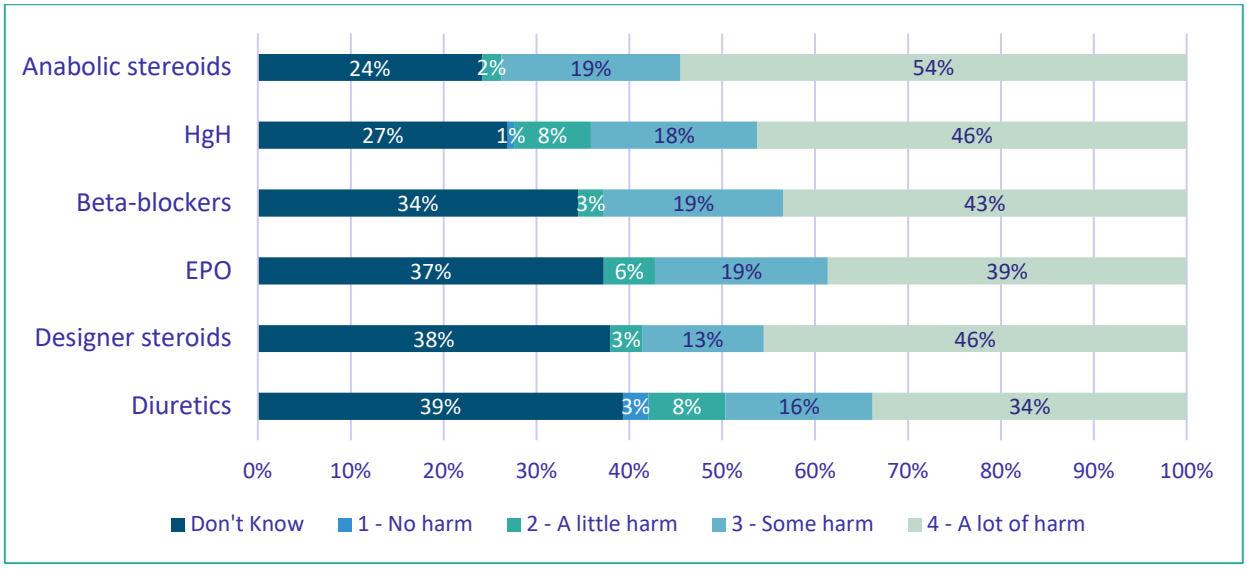
Figure 7. Participants of VST program's perception of harm caused by a short time use of PESM



Despite possible ignorance, the overall perception is that long-term consumption causes serious damage to health. 73% of students believe that regular steroid use causes a some or a lot of harm. The least harmful substance, diuretics, is due to greater

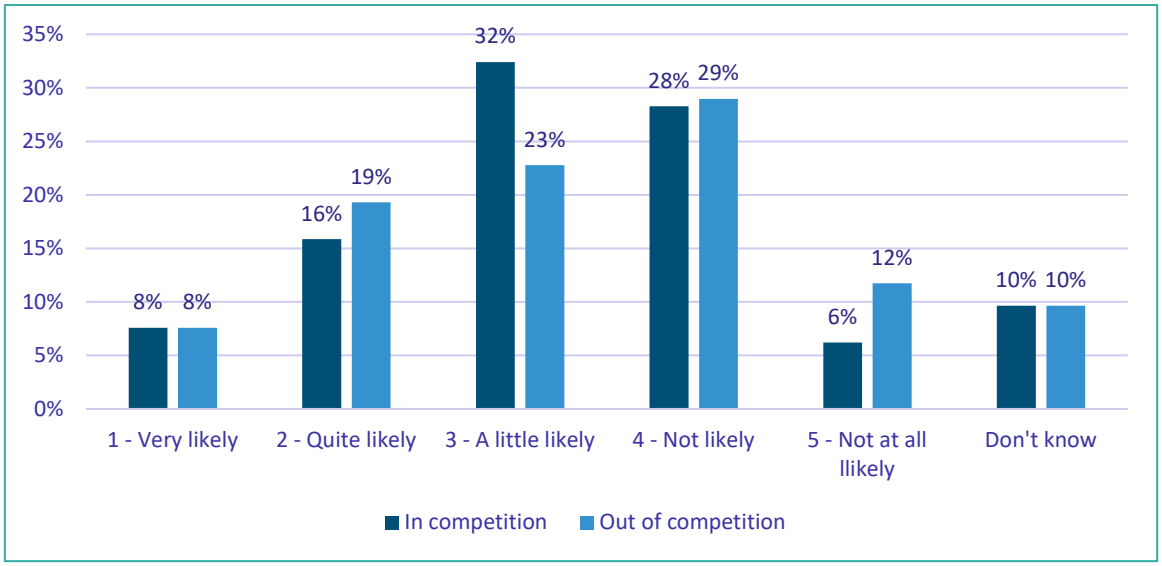
ignorance (39%) and even so, half of the sample believes that it causes a some or a lot of damage.

Figure 8. Participants of VST program's perception of harm caused by using PESM regularly



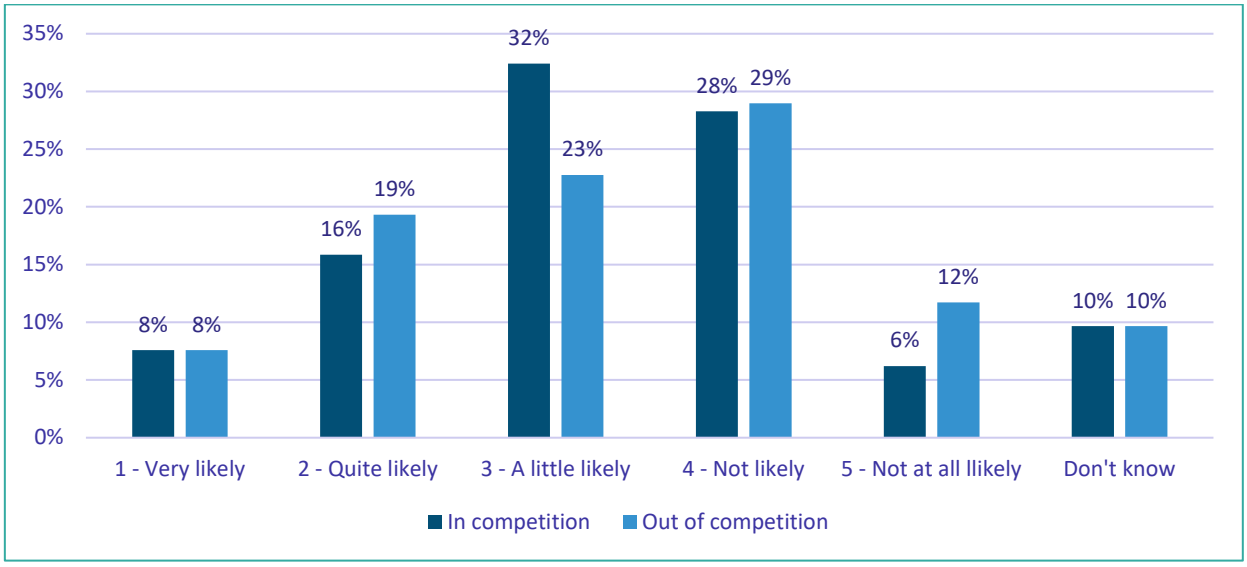
The possibility of being selected for an antidoping control is perceived as unlikely in most cases, especially out of competition. It is consistent with the declared sporting level, but also indicates that at lower sporting levels the perceived risk is low.

Figure 9. Participants of VST program's likeness of being tested once a year at their level



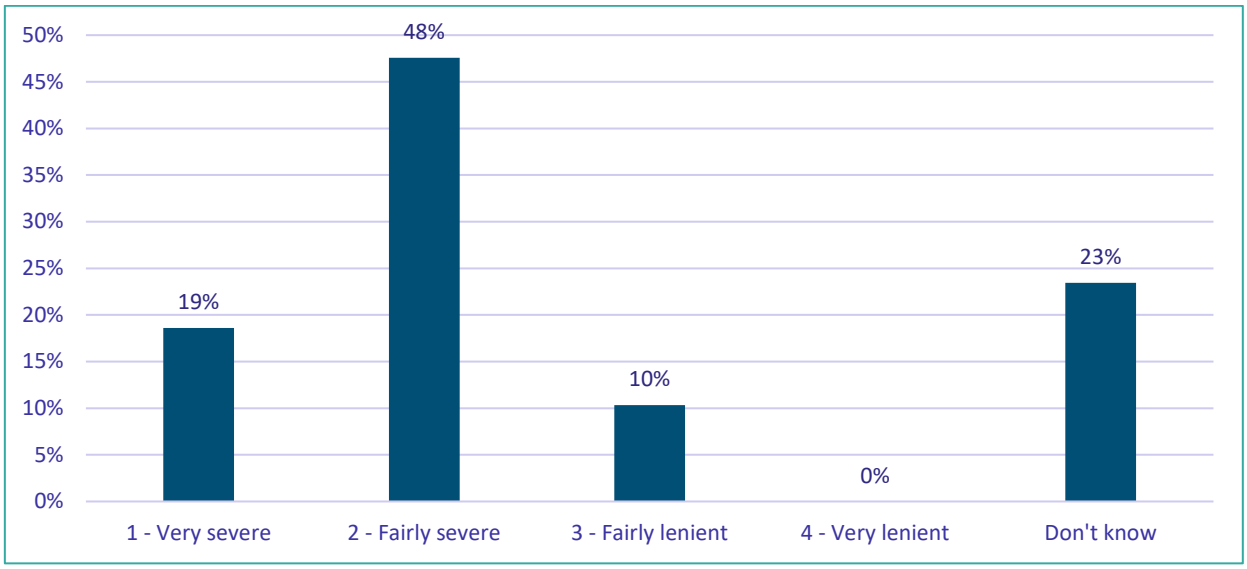
Although it is commonly believed that there are ways to avoid testing positive, most students find it difficult for an athlete to do so, especially if they consume during competition.

Figure 10. Participants of VST program's perceived likeness of getting away with PES use in a test



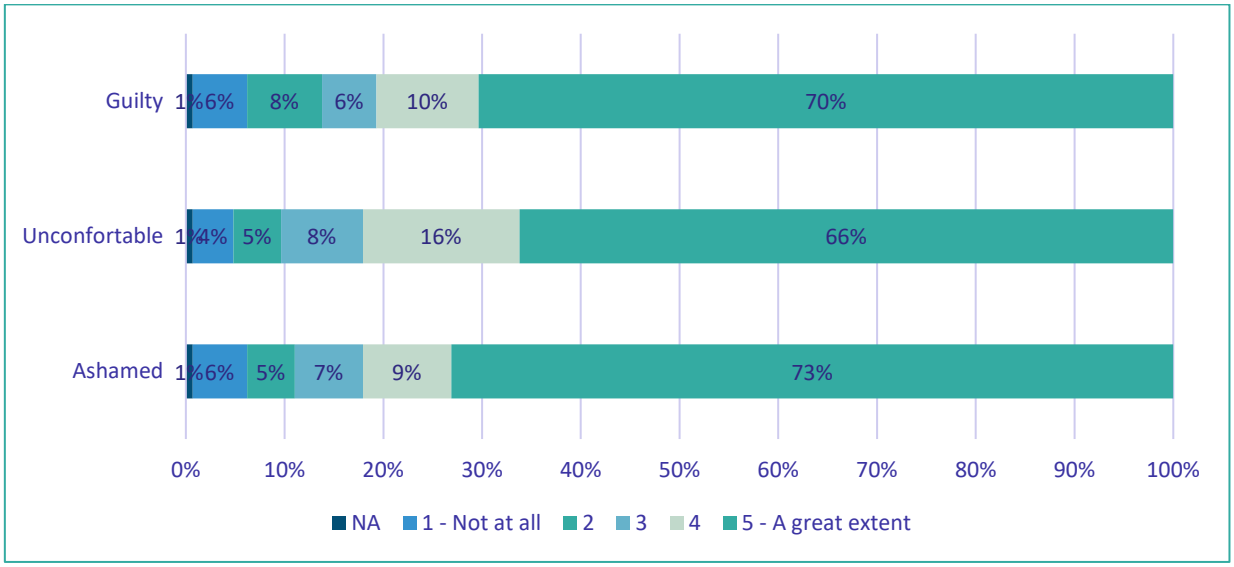
Regarding the severity of the sanctions, the majority believe that they are quite or very severe (67%), although there is a significant number who do not know it (23%).

Figure 11. Participants of VST program's perceived severity of doping sanctions



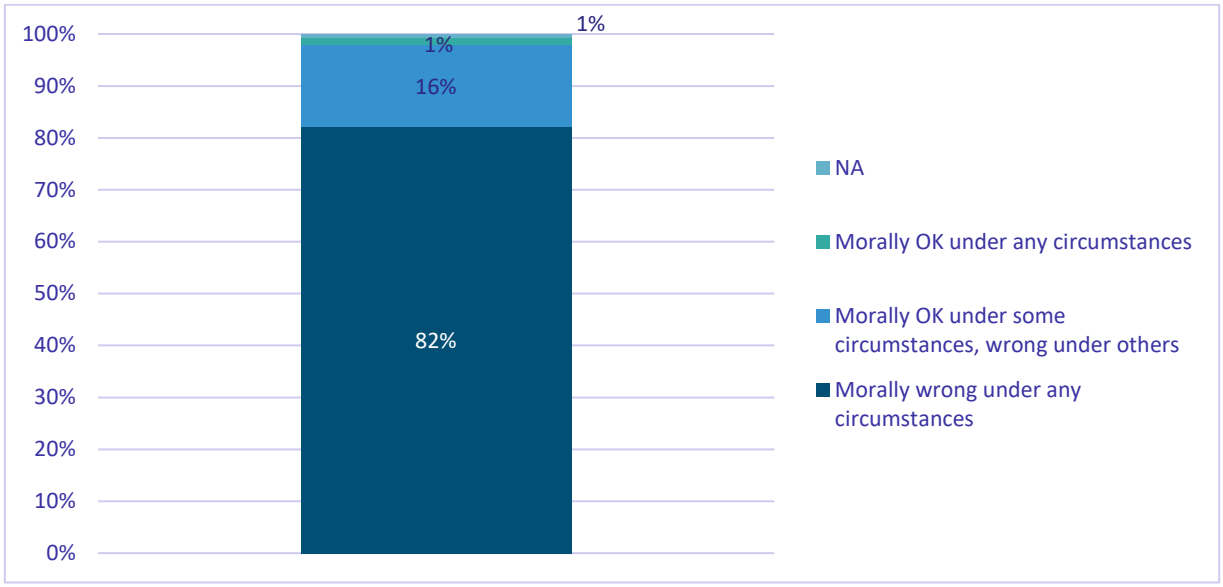
Beyond benefits, risks, and sanctions, how would they feel if they were caught using a prohibited substance or method? The vast majority would feel guilty, uncomfortable, and ashamed, without there being great differences between the three states.

Figure 12. Participants of VST program's feelings if they were caught using banned PESM



Ultimately, what is the opinion of students about doping? The vast majority consider it morally wrong, but a significant percentage see it as justifiable under certain circumstances (16%). Those who justify it in any situation represent a very minority group (1%).

Figure 13. Participants of VST program's moral opinion about doping

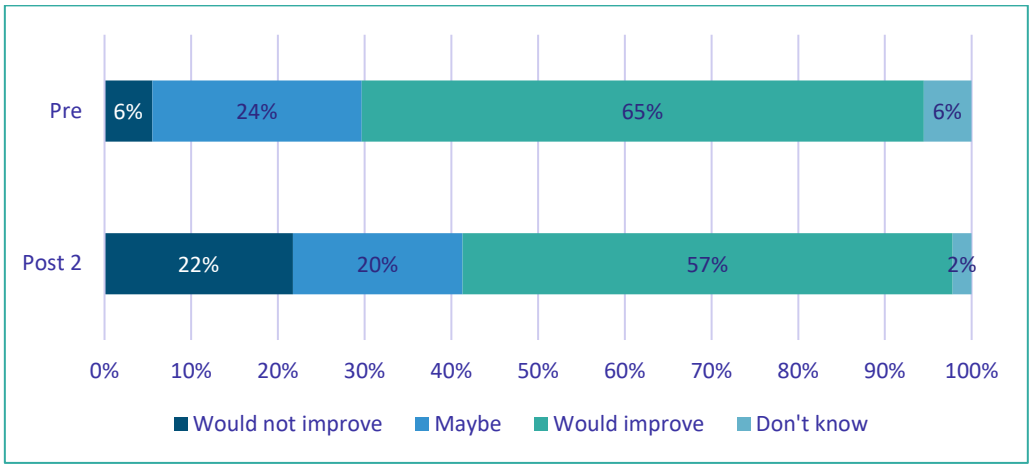


Having determined the perceptions of the students before taking the course, we now move on to analyse its impact.

First, we focus on the perceived efficacy of doping to enhance performance. If we merge together those who believe that doping improves performance on the one hand (answers '4' and '5' in the Likert scale), those who doubt it (answer '3') on the other and

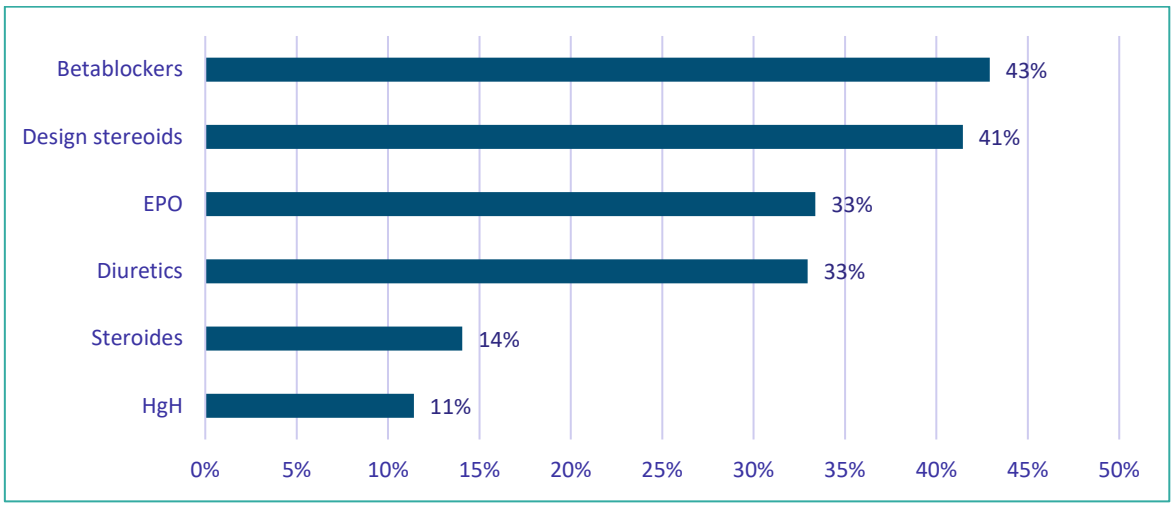
finally those who do not believe that it works ('1' and '2'), we observe that the percentage of students who believe in the performance benefits of doping remains stable after the course (67% vs. 65%) but drops to 57% four months later. In that same period, those who do not believe that they would obtain a better performance go from 5% to 22%. This change in perceptions is statistically significant, since the Fischer test for non-parametric samples defines it as such (p=0.018). That would mean that the course has reduced the perceived attractiveness of doping among the participants.

Figure 14. Participants of VST program's perceived benefits of PESM use Pre-Post 2.



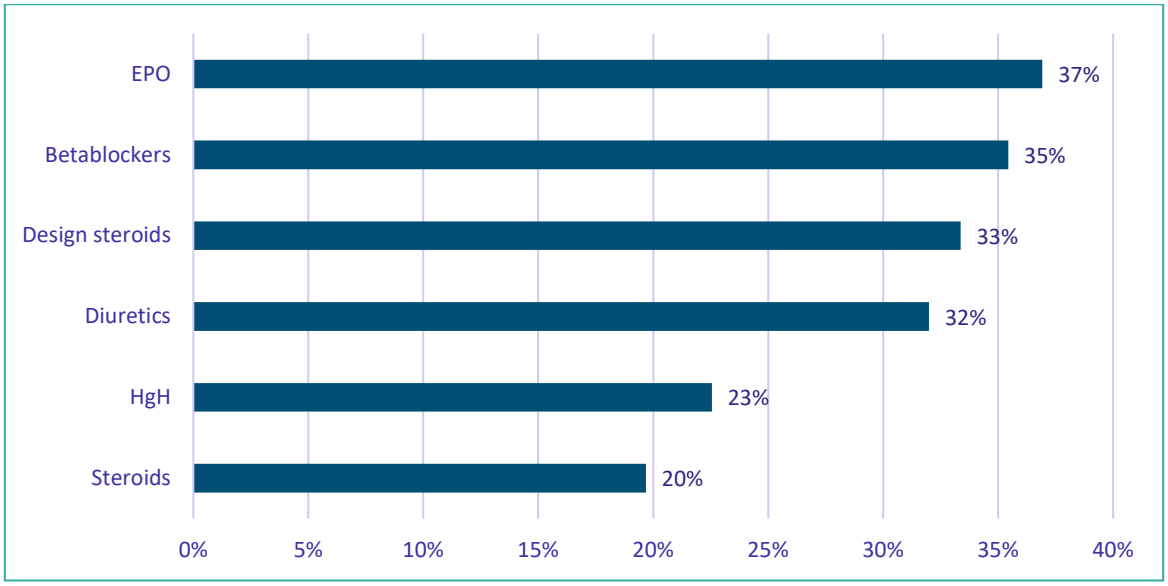
When we look at specific substances, we see that the main statistical change produced is the decrease in the rate of non-response, that is, of unawareness. This decrease is statistically significant for all substances and especially high for the lesser-known substances.

Figure 15. VST perceived benefits drop of 'Don't know' answer rate



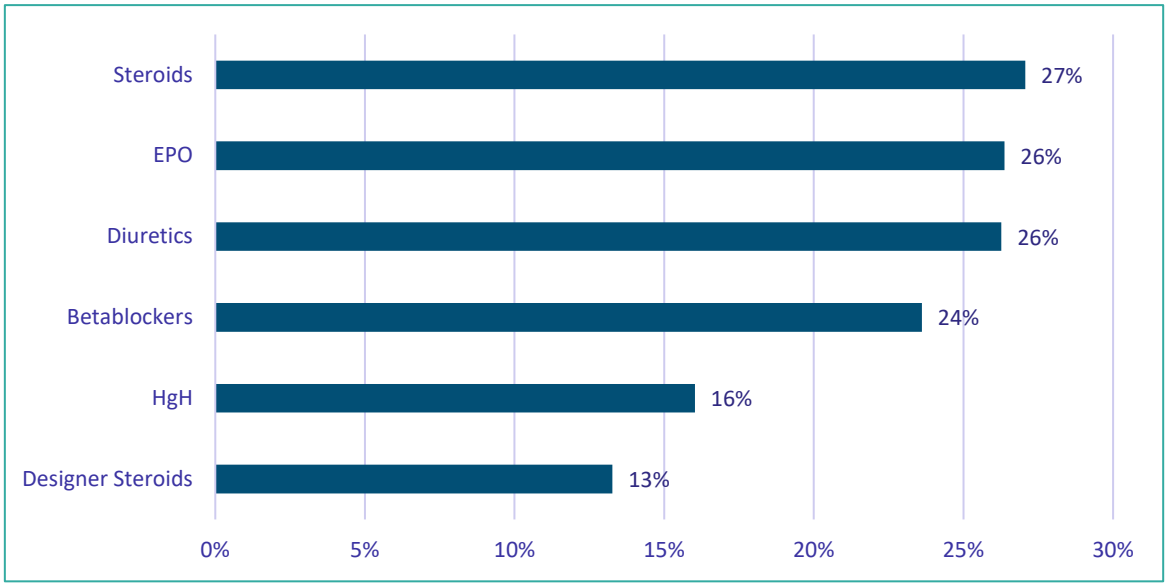
A similar decline in unawareness is observed when analysing the health damage of a limited use over time, which is also statistically significant for all substances.

Figure 16. Participants of VST program's perceived harm from short-term use of PESM drop in 'Don't Know'



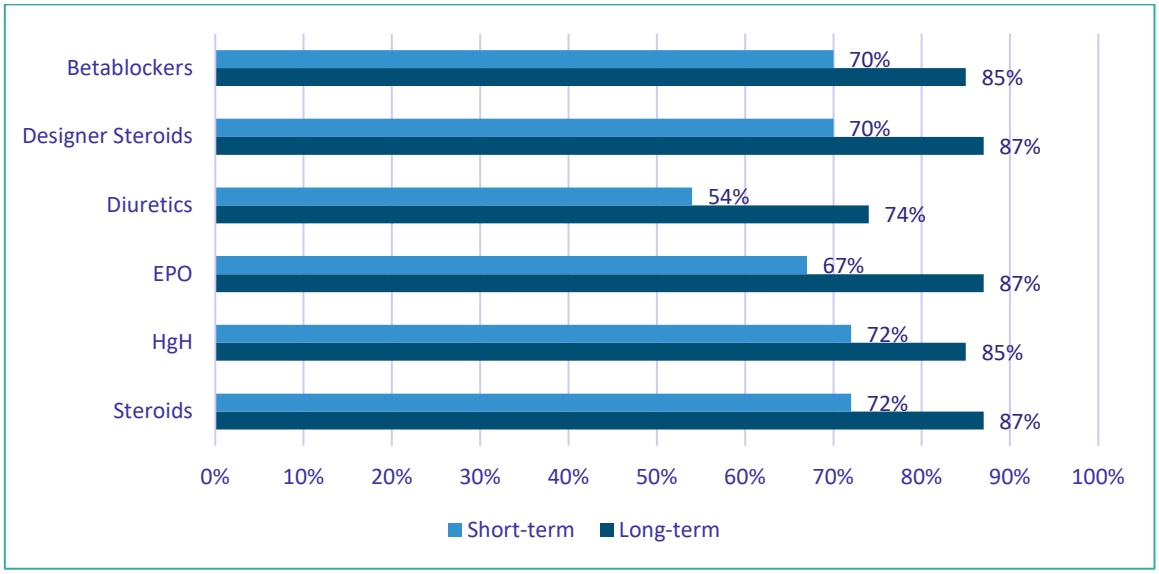
Finally, the same thing happens with the damage of continued use of doping substances: after four months the percentage of students who do not know their effects falls significantly.

Figure 17. Participants of VST program's perceived harm from regular use of PESM drop in 'Don't Know'



In general, it is observed that the vast majority of students finish the course considering that the use of doping substances has a harmful effect on health both in the short and long term.

Figure 18. Participants of VST program's perception of harm caused by PESM use at Post 2: some + a lot



On the other hand, there were no statistically significant changes in the perception of controls efficacy and sanctions severity, which were already high, as we have seen.

As for morality, we must highlight that the Kruskal Wallis test shows a significant positive effect of the educational program on moral judgment on PES use H(gl) = 8.46(2), p = .015. Post-hoc analysis carried on using the Games Howell test showed also that POST1 group scored higher on considering PES use always morally wrong (Mdn = 1) under all circumstances compared to the pre-intervention group (Mdn= 2, p = .002) 95% CI [.95, 2.25], with a moderate effect size, 1-β =.86, d =.05 (1-β= .86).

ANOVA tests also identified the effect of the program on participants' moral emotions – shame, embarrassment, guilt – F(2,241)= 3.103, p= .047, with a significant low size (η2 = 0.16). Post-hoc analysis using Bonferroni also showed that participants on POST2 scored significantly higher on moral emotions about PES use (M = 4.70, SD = .62, p= .03) 95% CI [4.51, 4.88] than the PRE group (M = 4.36, SD = 1.06) CI 95% [4.19, 4.54].

In conclusion, we must say that the course improved students' knowledge about doping, and this improvement turned into a higher rejection of PES use, which are both positive results.

Dopaje Lo Que Debes Saber (DLQDS) Seminars

We now turn to the athletes participating in the live, online seminars. Most of the participants were between 16 (minimum legal age) and 20 years old. Gender participation was basically balanced.

Figure 19. DLQDS seminars participants' age

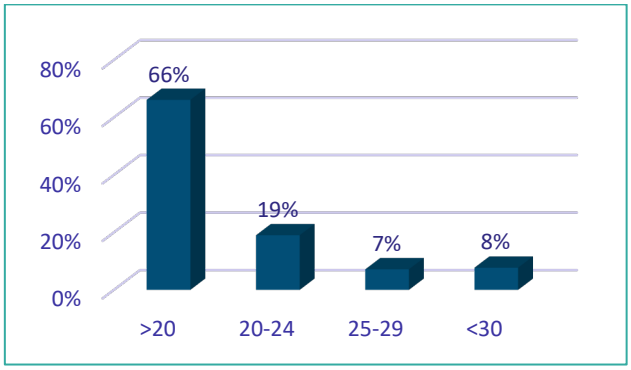
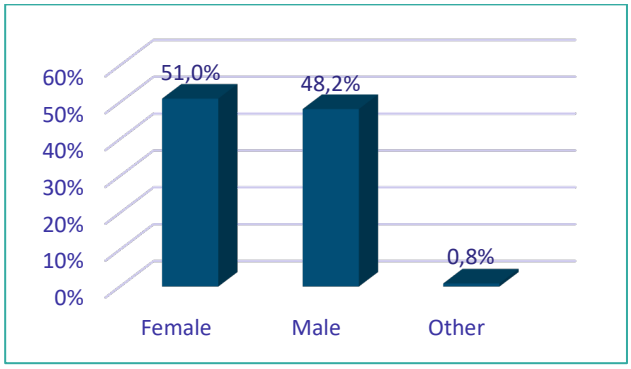


Figure 20. DLQDS seminars participants' gender



Most had been competing for more than 5 years (78.3%), at least at the national level, with 42% participating in international competitions.

Figure 21. DLQDS seminars participants' sport experience

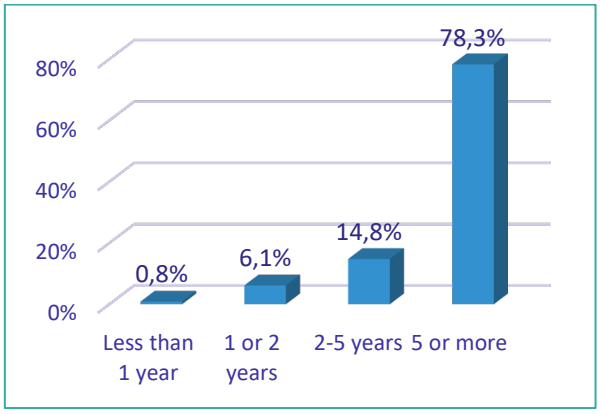
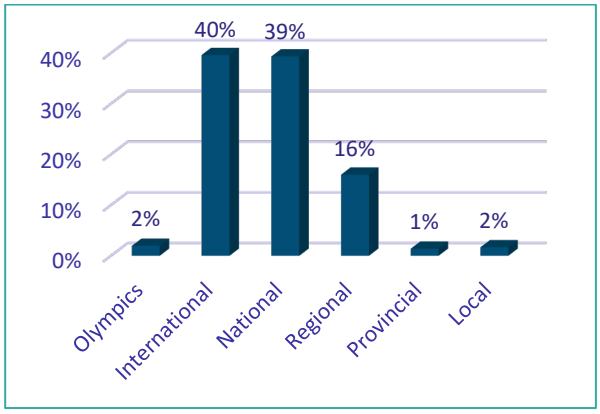
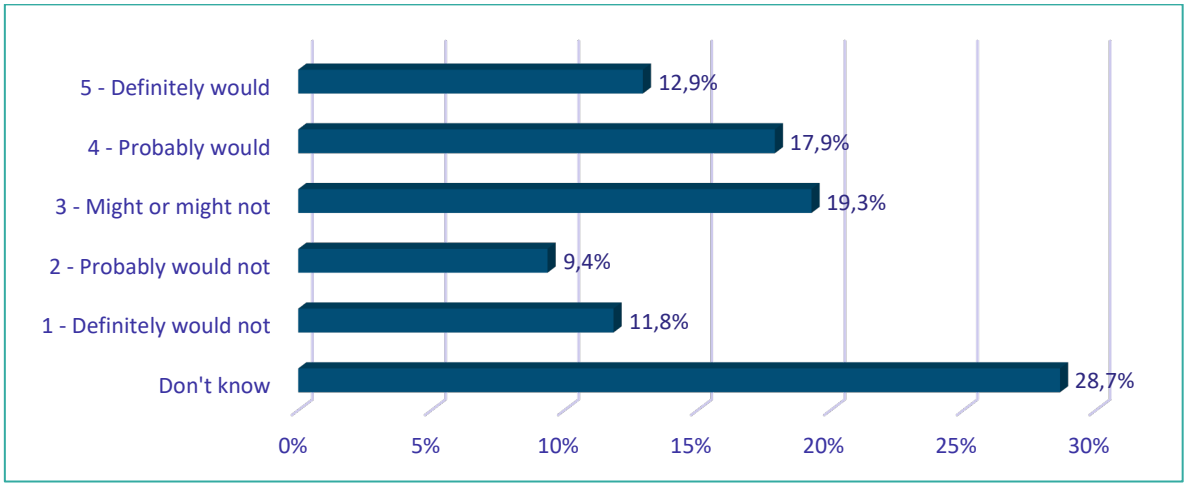


Figure 22. DQDLS seminars participants' highest sport level



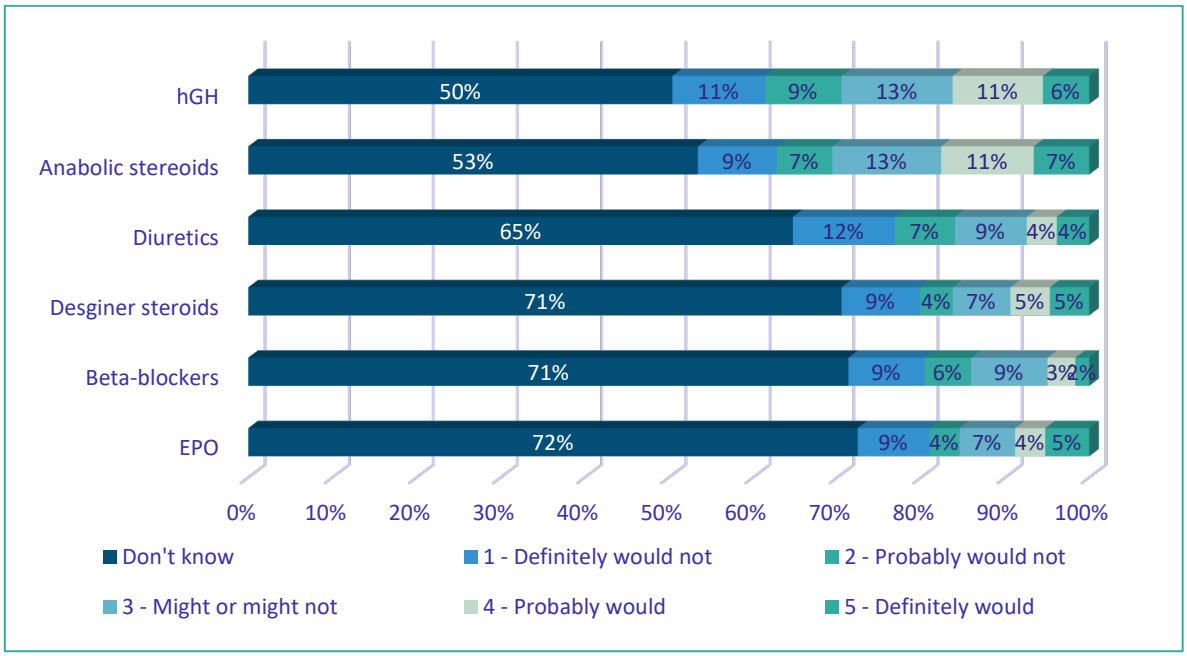
Thus, what was their view of doping before taking the course? Let's start with the generic benefits of doping. Those who believed that it would improve their performance were 30.8%, while those who doubted its effectiveness were 21.2%. The largest group was those who did not know if it would work (28.7%) along with those who believe that it might or might not (19.3%), since they account for almost half of the sample, 48%, indicating a high level of ignorance.

Figure 23. Participants of DQDLS seminars' perceived likeness of improvement through PESM use of their choice



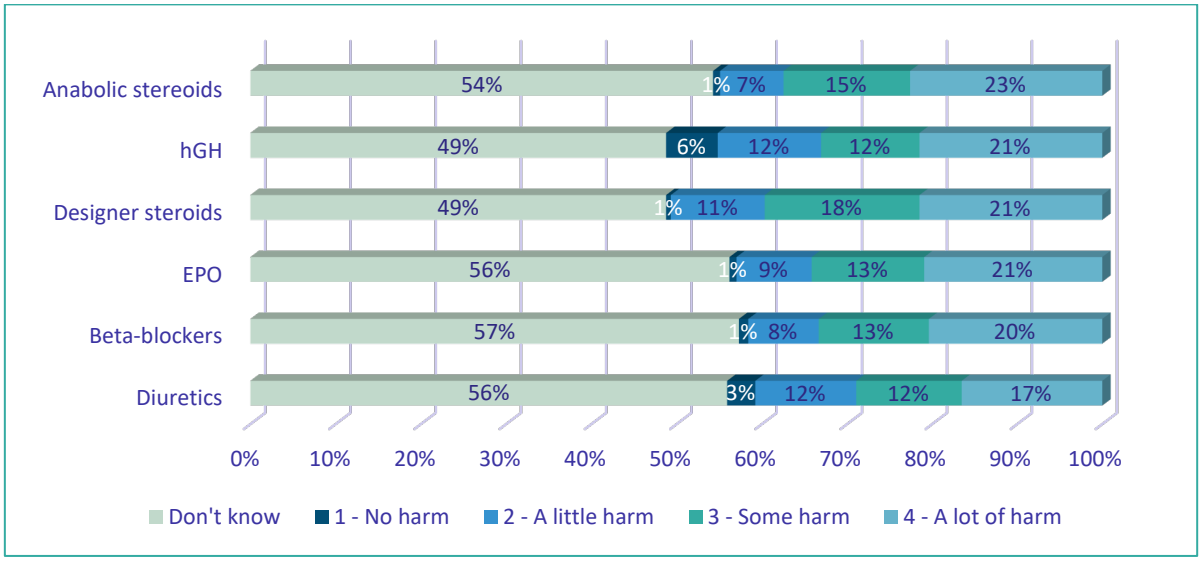
When athletes were asked about specific substances, lack of knowledge increased even further, reaching 72% of 'don't know' answers for EPO.

Figure 24. Participants of DQDLS seminars' perceived likeness of improvent through specific PESM



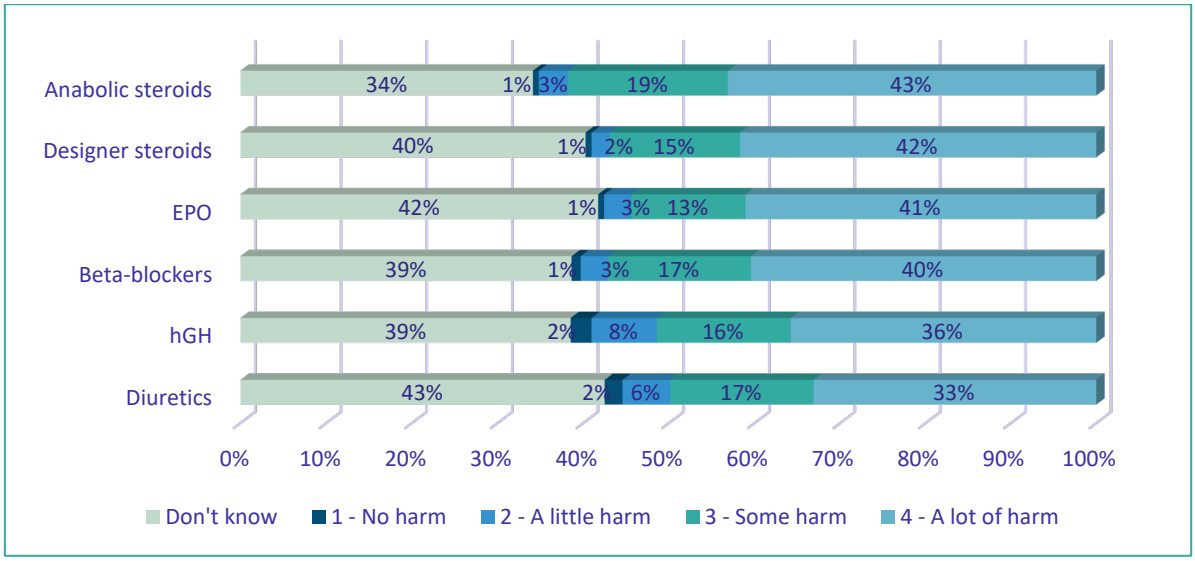
Asked about the damage of a 2-month use, the lack of knowledge of possible damage is around 50% for all substances. Within this, the most serious damage would be caused by steroids and hGh. Diuretics would be perceived as less harmful.

Figure 25. Participants of DQDLS seminars' perceived harm caused by short-term PESM use



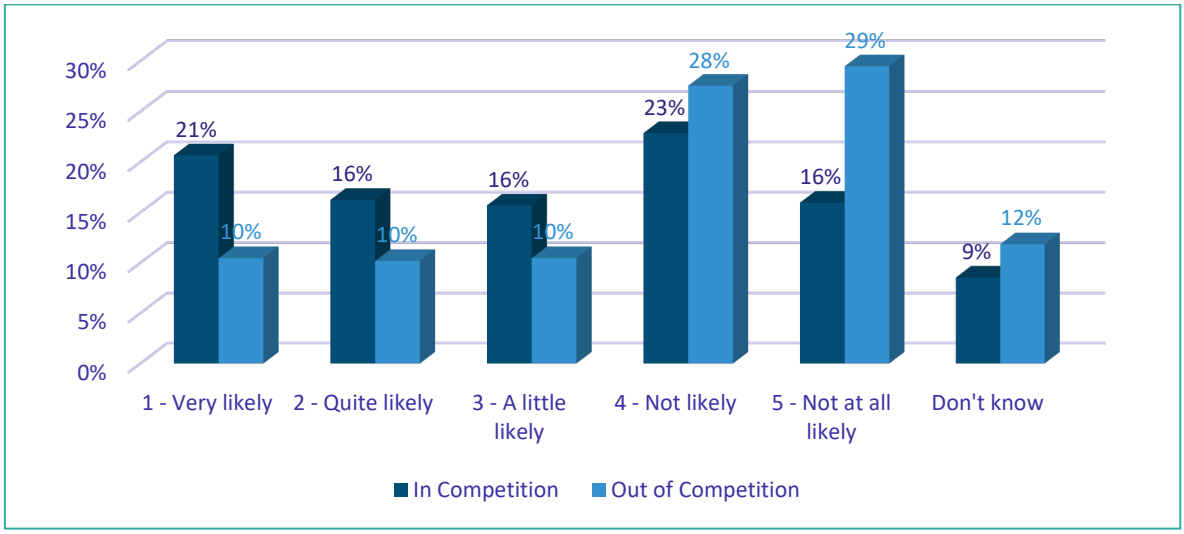
Regarding the long term, the lack of knowledge of the effects on health is considerably reduced and the perception of a serious impact on health increases. Those who believe that they cause little or no harm represent in all cases less than 10% of the sample**.**

Figure 26. Participants of DQDLS seminars' perception of harm caused by PESM regular use



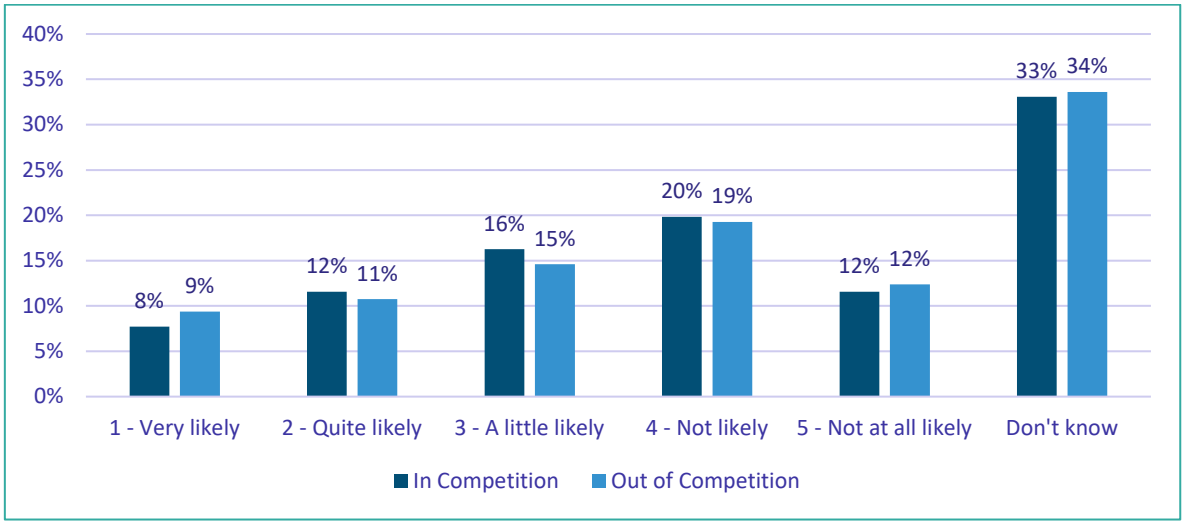
According to the Sport Drug Control Model, the possibility of getting caught is an important factor that athletes take into account as part of the risks of doping. Regarding anti-doping controls, there is a greater possibility of passing a control in competition (37%) than outside it (20%).

Figure 27. Participants of DQDLS seminars' perceived likeness of being tested once a year at their level



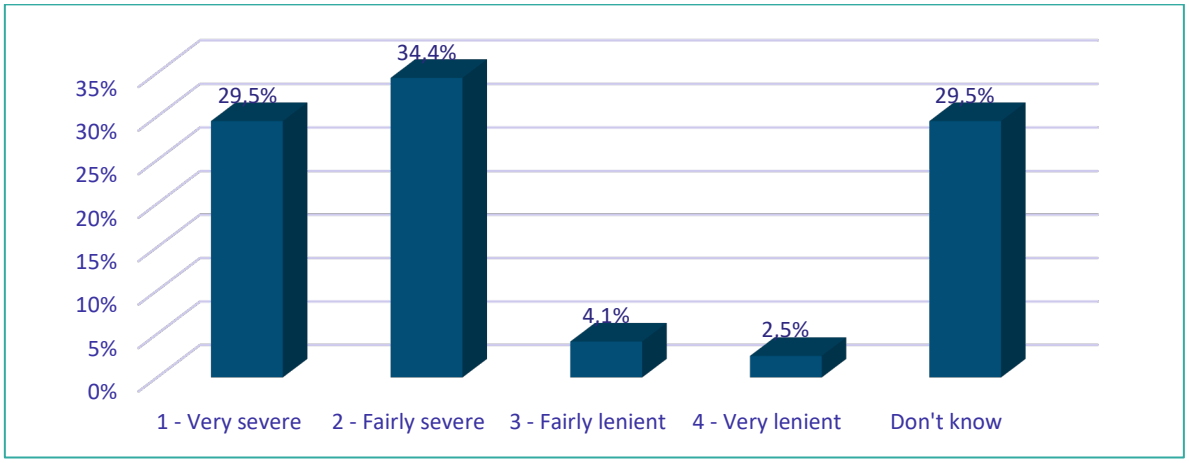
Asked if it is possible to avoid testing positive if you try, we can see that athletes have doubts about the effectiveness of controls both in competition and out of it. A third do not know if it is possible to avoid a positive, while only a third consider it very or quite difficult to deceive the controls.

Figure 28. Participants of DQDLS seminars' perceived likeness of getting away with PESM use in a test



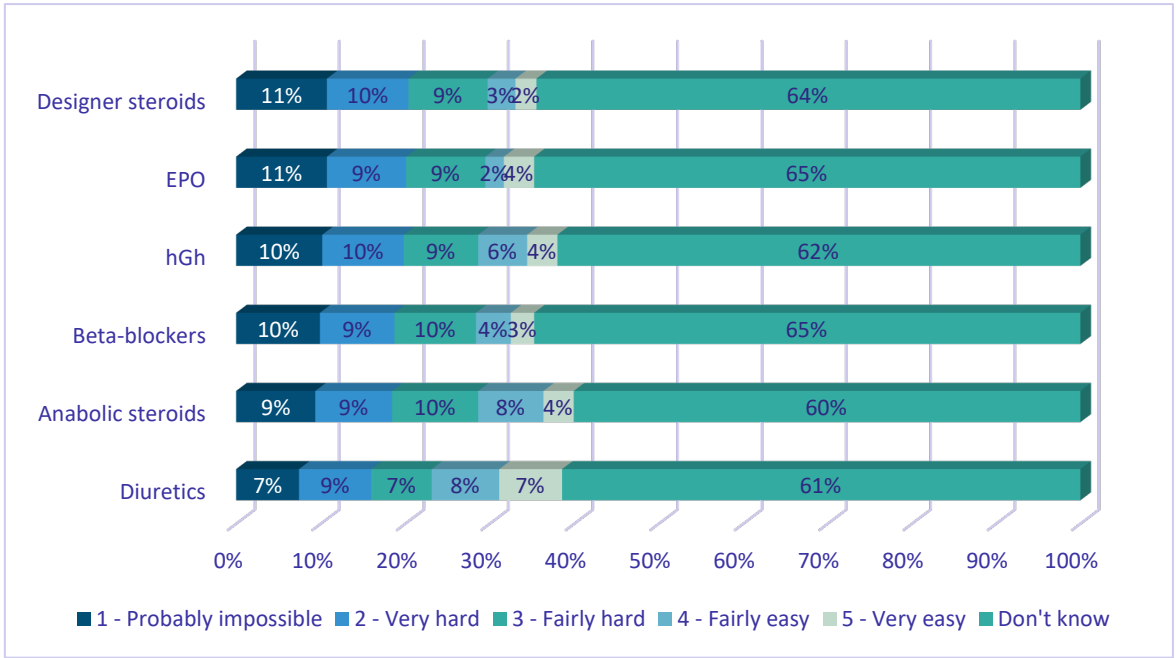
As for the sanctions, few athletes believe that the sanctions are mild, but many seem to be unaware of what they are and how serious they are (29.5%).

Figure 29. Participants of DQDLS seminars' perceived sanctions' severity



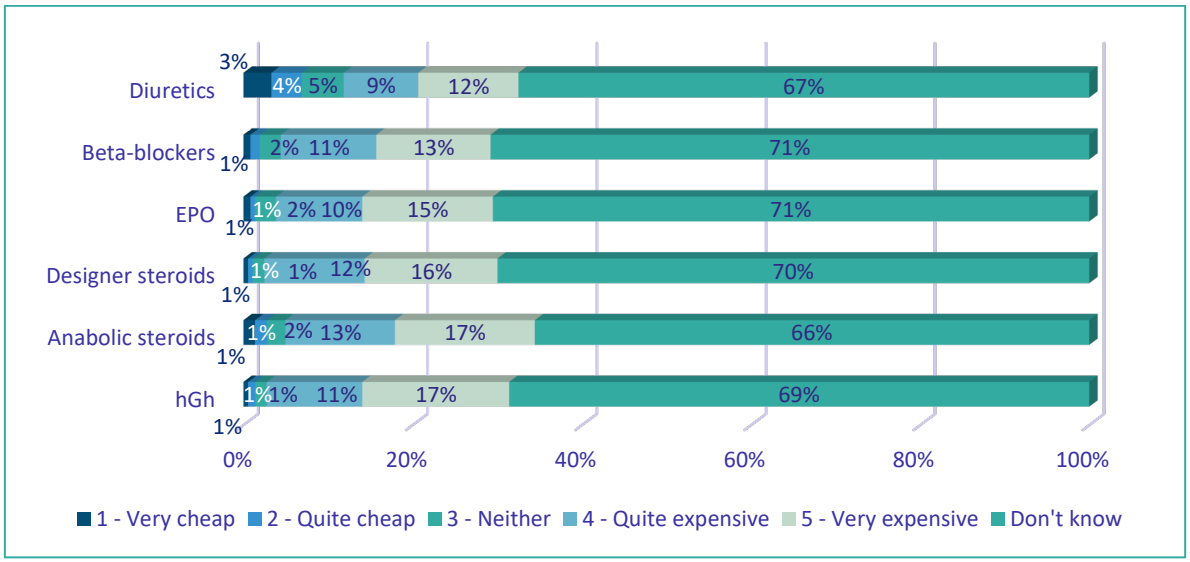
Accessibility, both economic and practical, is another key issue according to the SDCM. Therefore, in addition to deterrence, it is important to know whether athletes have access to substances. In our case, most don't even seem to know how to get them. Within the perceived difficulty, diuretics would be the most accessible ones, since up to 15% of the sample consider them easy to obtain.

Figure 30. Participants of DQDLS seminars' perceived difficulty to access PESM



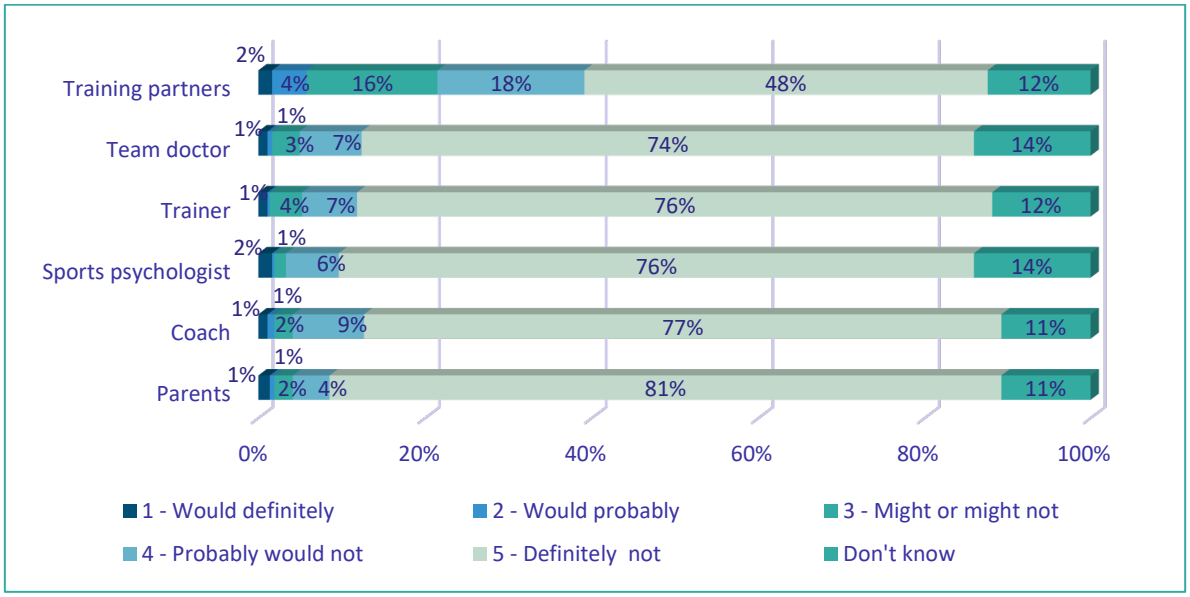
As for the economic difficulty, it is observed that diuretics are considered the cheapest. In any case, ignorance prevails.

Figure 31. Participants of DQDLS seminars' perceived expensiveness of PESM



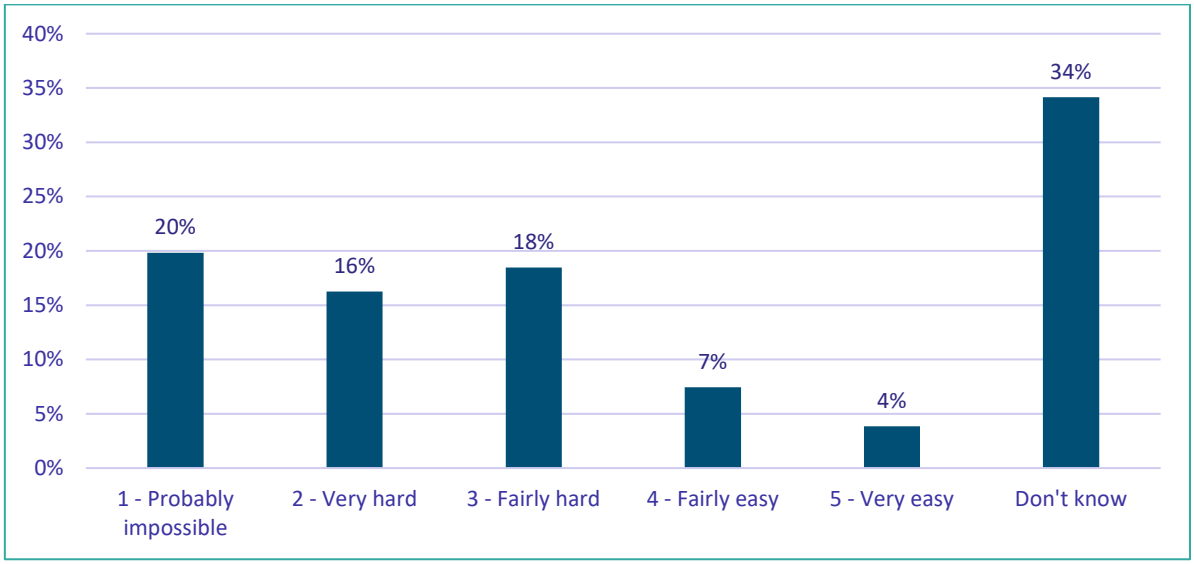
As for possible support to consume doping substances, the athlete's environment does not seem inclined to act as accomplices. The companions are, apparently, the ones who could perhaps collaborate the most.

Figure 32. Participants of DQDLS seminars' perceived likeness of help to access PESM



Out of their entourage, it would be difficult for most to find expert medical help to dope. However, 11% would consider it easy – they have access – and another 34% quite or very difficult, but only 20% consider it almost impossible.

Figure 33. Participants of DQDLS seminars' perceived access to medical advice to use PESM



A final form of deterrence is the work of the public authorities. Perceived commitment is greater than perceived efficacy: 29% of respondents believe police is very serious in fighting doping trafficking, but only 18% find them very effective.

Figure 34. Participants of DQDLS seminars' perceived commitment of authorities

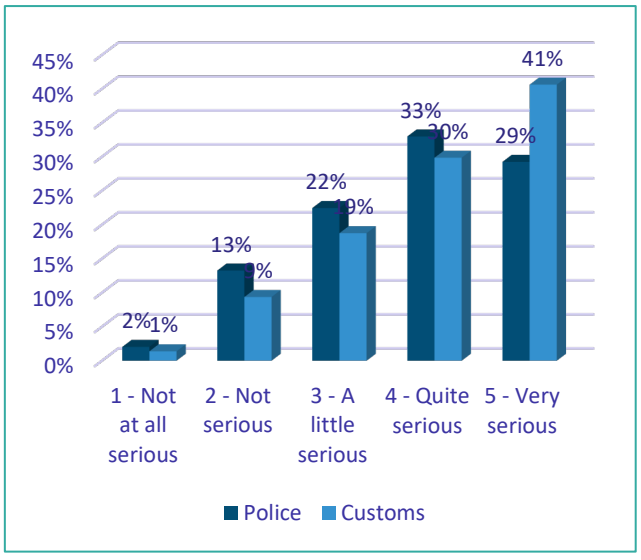
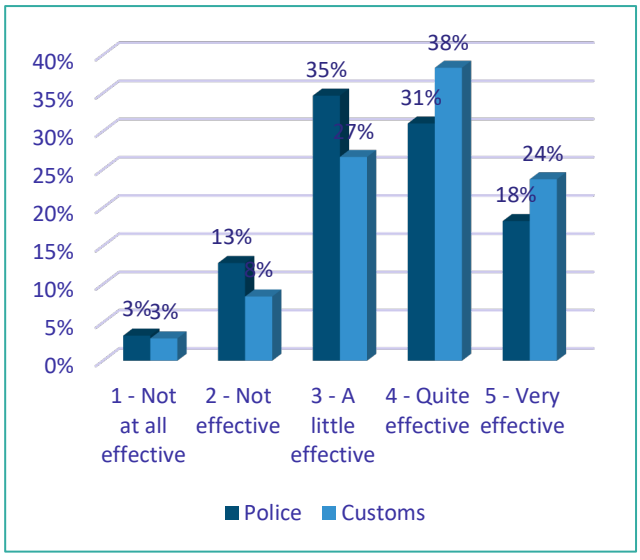
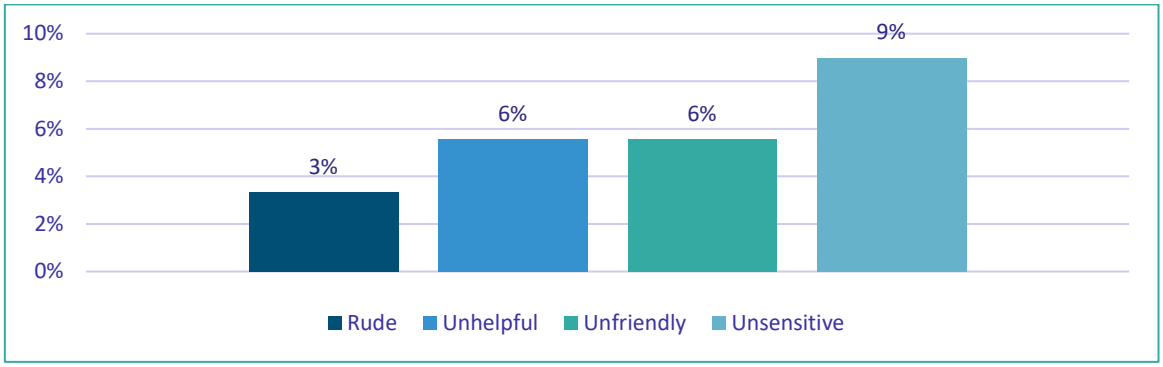


Figure 35. Participants of DQDLS seminars' perceived efficacy of authorities in fighting doping



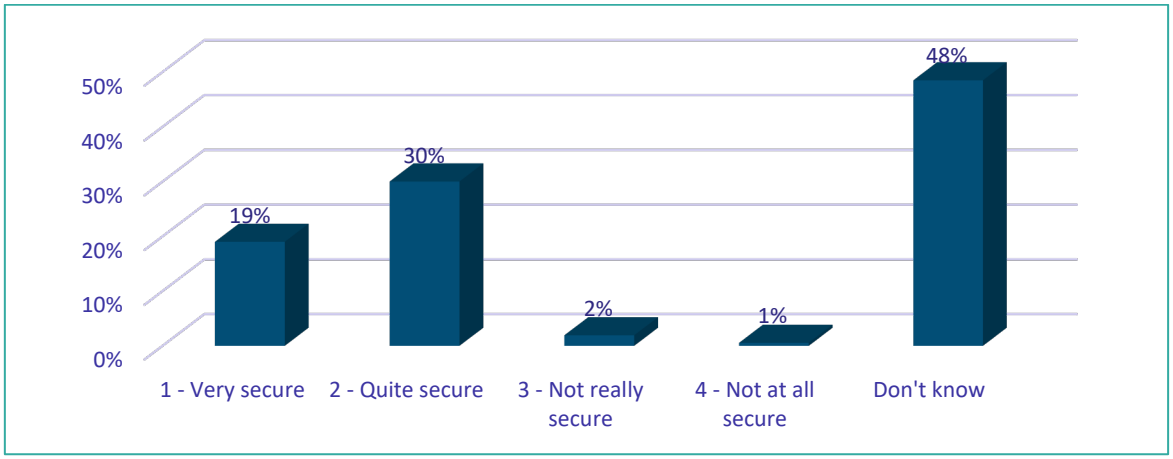
Perceived legitimacy of anti-doping policy is also important. A lack of legitimacy may foster doping behaviour, as athletes would not consider authorities morally entitled to fight doping. WADA questionnaire measure three dimensions of justice: distributive justice, i.e., accuracy of testing; procedural justice, i.e. fairness of anti-doping proceedings; and interactional justice, i.e. fairness of the people involved. Beginning with the later, most athletes who have gone through a doping test (72% of the sample) were satisfied with how officials treated them.

Figure 36. Participants of DQDLS seminars' perceived conduct of testing personnel in controls



As for distributive justice, most believe that everyone is treated fairly and that the controls are safe, although there is a lot of ignorance (48%).

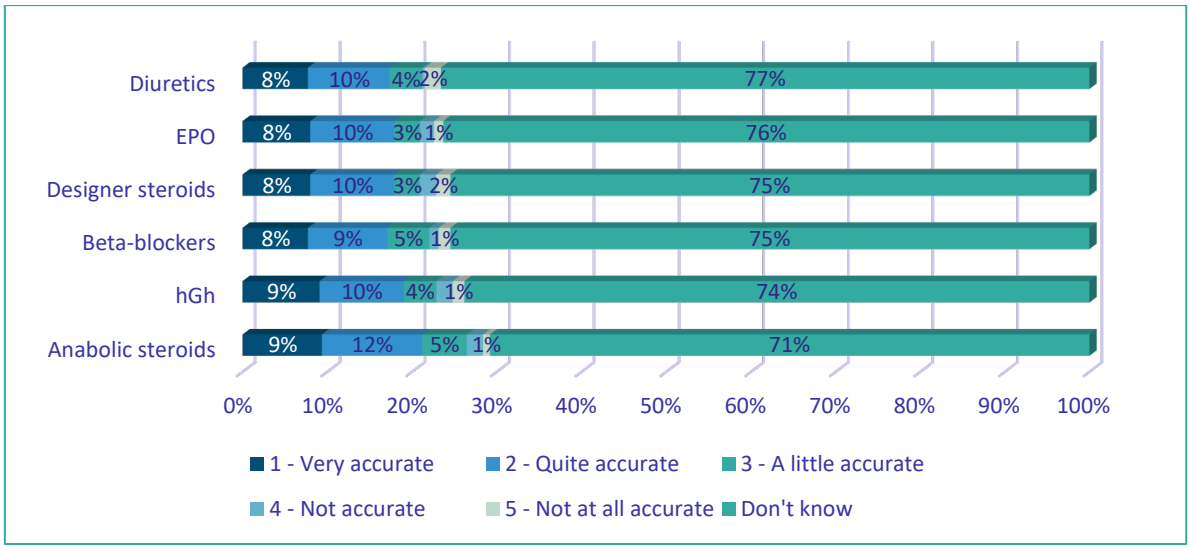
Figure 37. Participants of DQDLS seminars' perceived security of CELAD's drug testing procedures



Ignorance grows exponentially if we ask about the reliability of the antidoping controls.

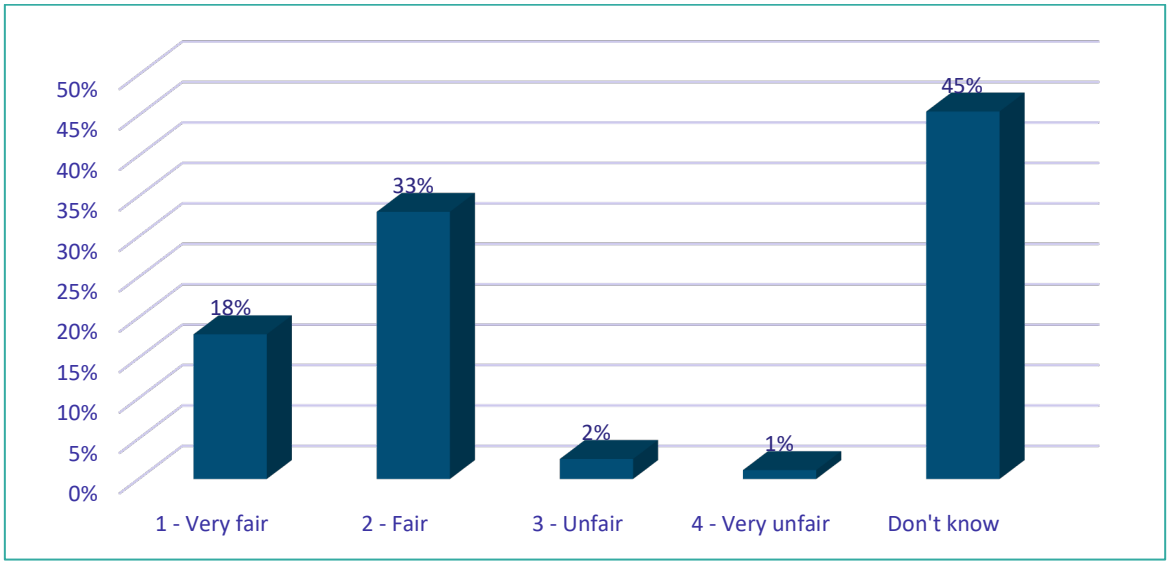
Regardless of the substance, the vast majority do not speak out due to ignorance.

Figure 38. Participants of DQDLS seminars' perceived accuracy of drug tests



Finally, confidence on doping authorities and legal systems – procedural justice – appears high. Most participants believe CELAD treats athletes fairly (51%), although 45% don't have an opinion.

Figure 39. Participants of DQDLS seminars' perceived fairness of CELAD treatment of athletes



Confidence in the procedures of the legal system coexists with widespread ignorance. Most feel satisfied with the legal protection for those sanctioned at the national level, in their sport and in the CAS. However, it is observed that athletes who are unaware of the situation are around 50% in all three cases.

Figure 40. Participants of DQDLS seminars' satisfaction with fairness at appelation hearings in Spain

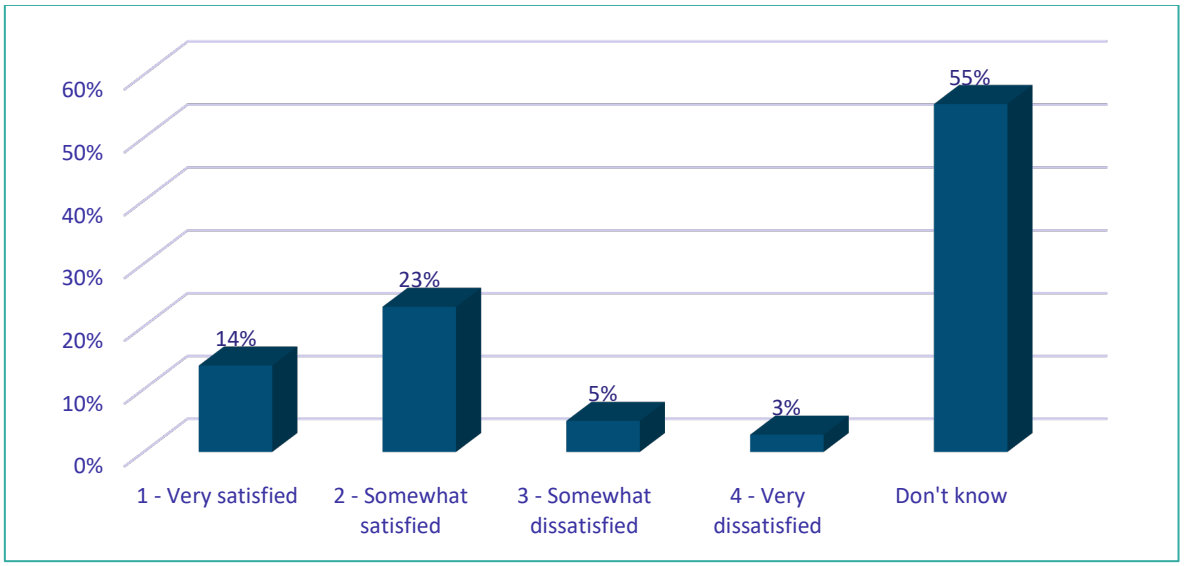


Figure 41. Participants of DQDLS seminars' satisfaction with fairness at hearings in their sport

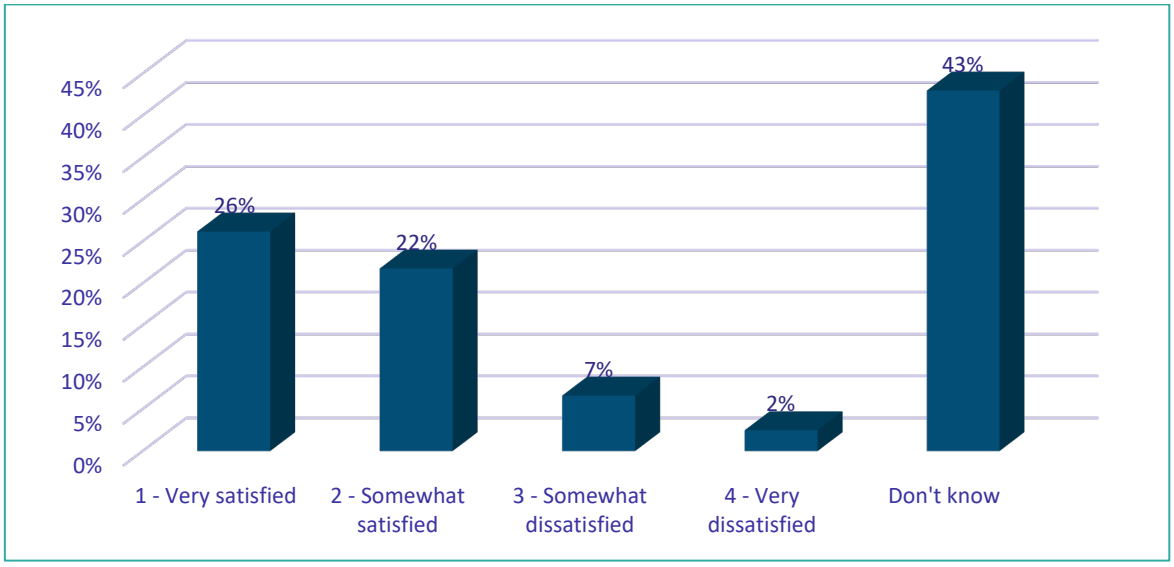
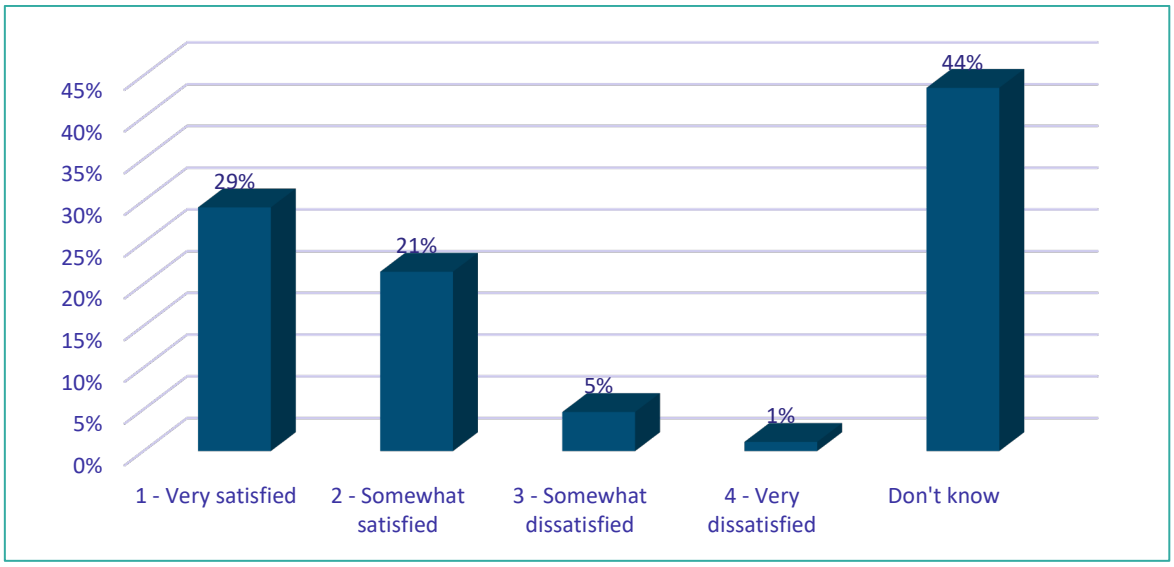
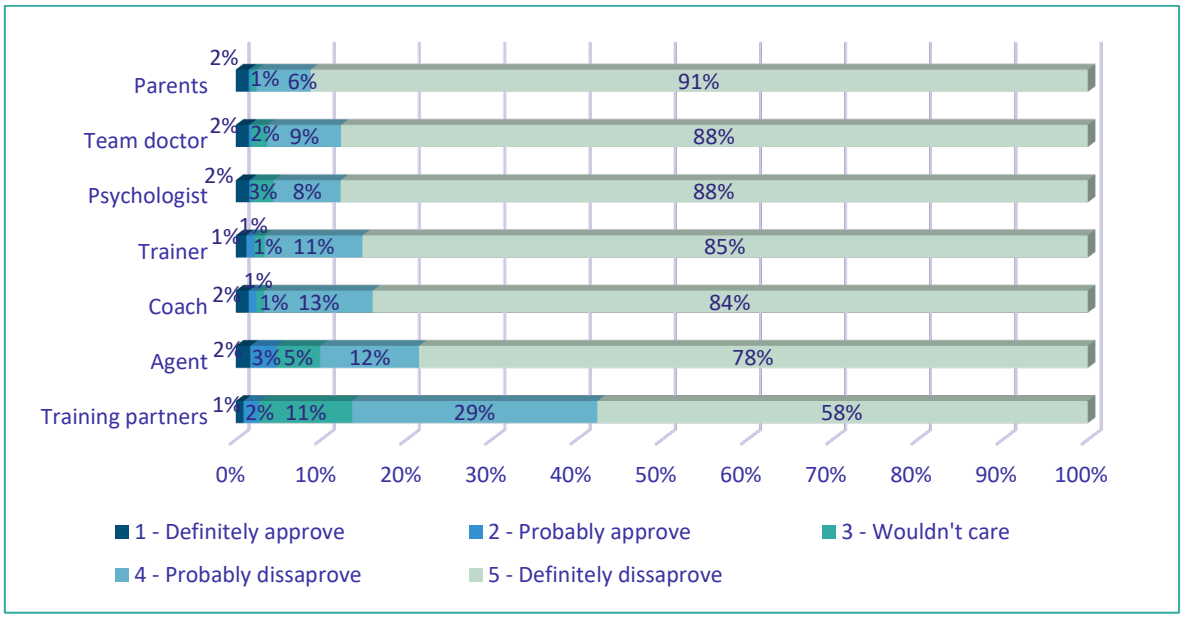


Figure 42. Participants of DQDLS seminars' satisfaction with fairness in CAS hearings



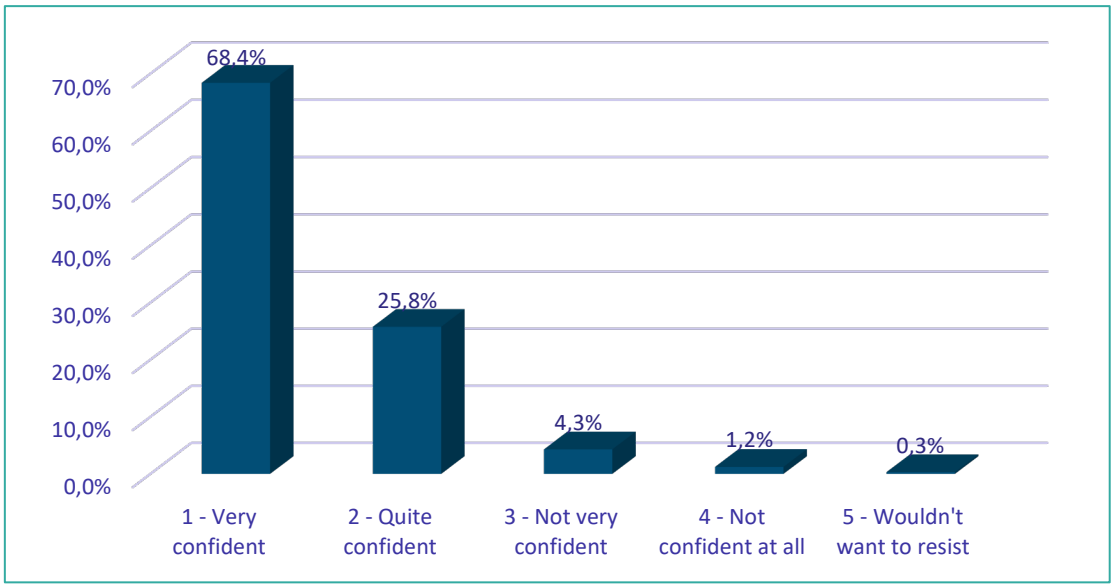
Having explored threats and benefits appraisal, access, and legitimacy, it is time now to move to psychosocial variables, starting with reference group appraisal. Group opinion is fundamental, since having a tolerant entourage is also positively correlated with doping consumption. In this case, athletes find very little support for doping in their entourage. More than 90% of participants think nobody would support their decision to consume PES, and they could only find some indifference among colleagues and agents.

Figure 43. Participants of DQDLS seminars' perveiveg ASPs approval of PESM use



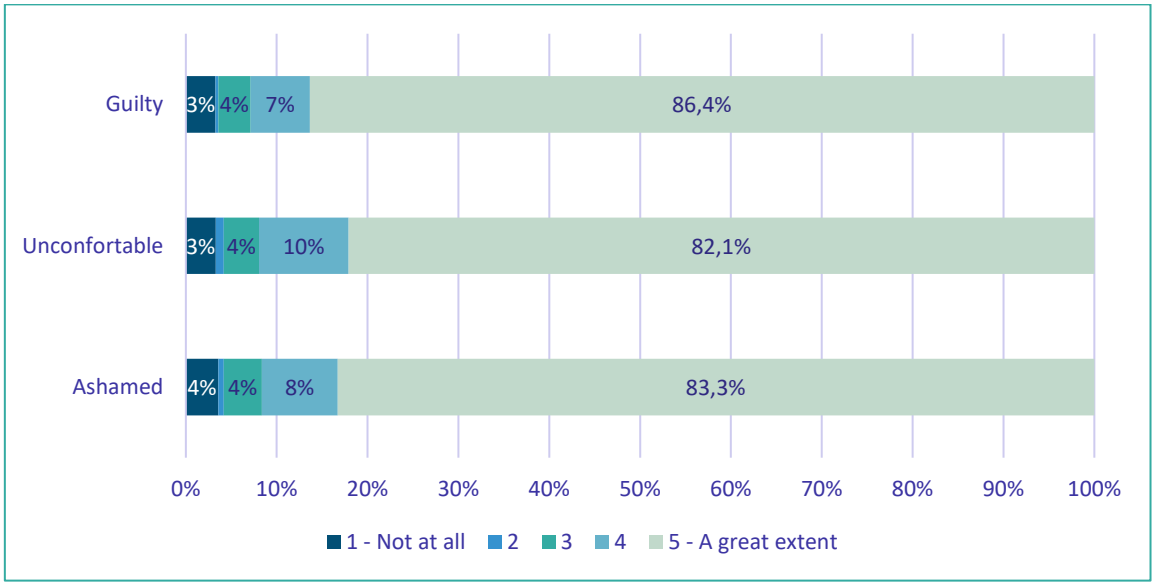
The questionnaire also included a question measuring self-efficacy through a hypothetical scenario: how sure would the athlete be to resist pressure from team mates to use a banned substance? In this sense, 93% feel very or quite sure of rejecting an offer.

Figure 44. Participants of DQDLS seminars' perceived confidence in resisting peer pressure



Finally, moral position is one of the most correlated variables with doping behaviour. Having a strong moral stance against doping is one of the most protective factors, and WADA's questionnaire measured moral affects and moral identity. More than 90% of participants considered they would feel ashamed, embarrassed, and guilty if caught.

Figure 45. Participants of DQDLS seminars' feelins if caught using PESM

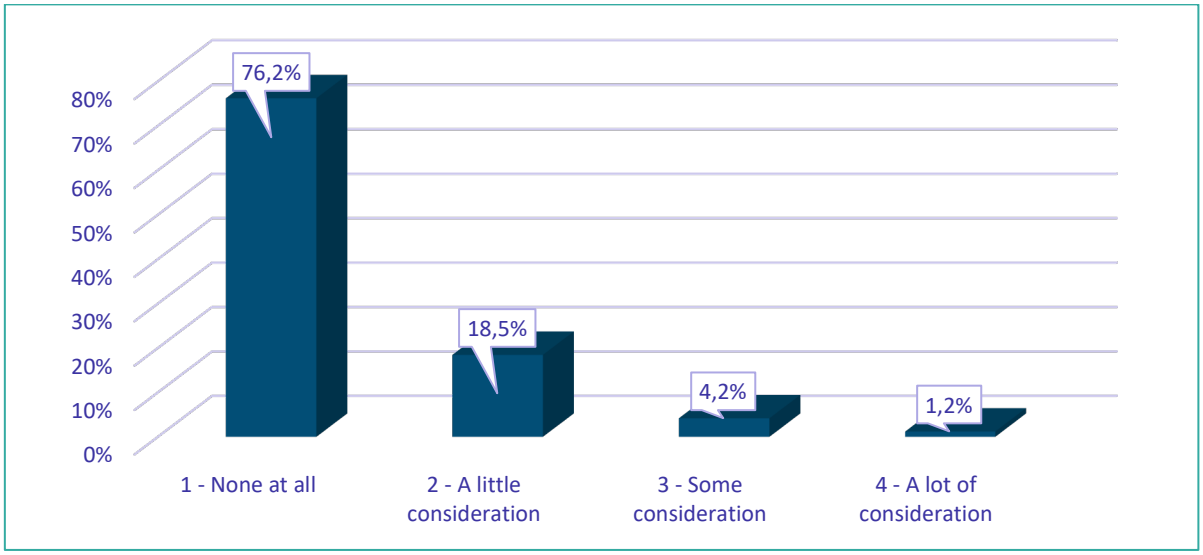


Finally, the general moral position was a rejection of doping in any circumstance, although 9,7% of participants considered that using banned substances could be justified under some circumstances.

Figure 46. Participants of DQDLS seminars' moral positioning on doping

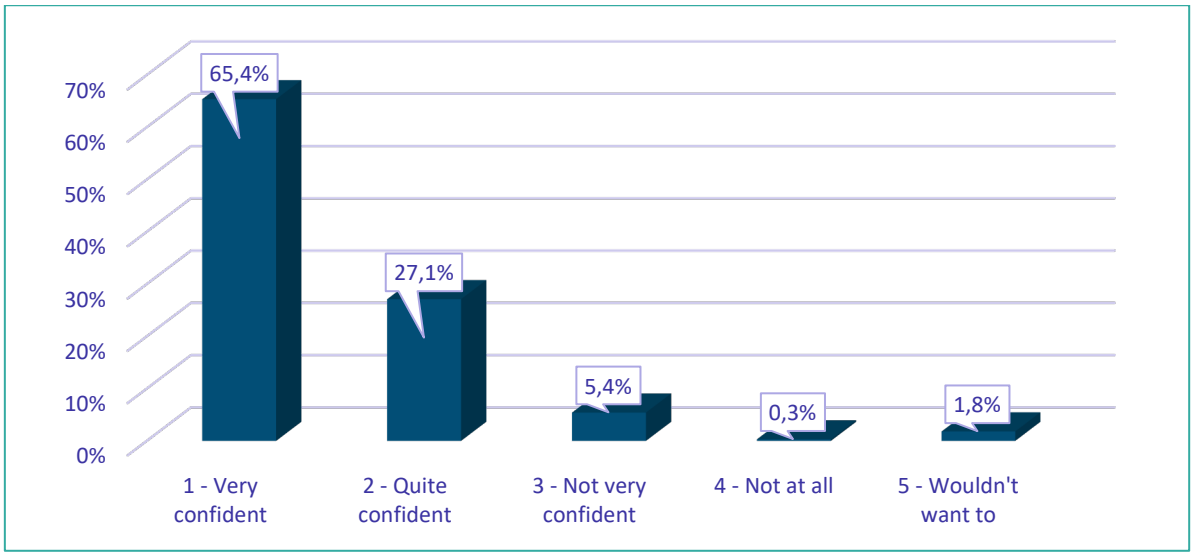
All these variables have been found to be correlated with doping behaviour: doping susceptibility, doping intention, and doping consumption. Participants were also asked about all these three variables. As for doping susceptibility, most would refuse to dope, even if they were guaranteed that it was harmless and undetectable. Still, as many as 24% would give the offer some consideration.

Figure 47. Participants of DQDLS seminars' consideration to an undetectable PESM under medical control



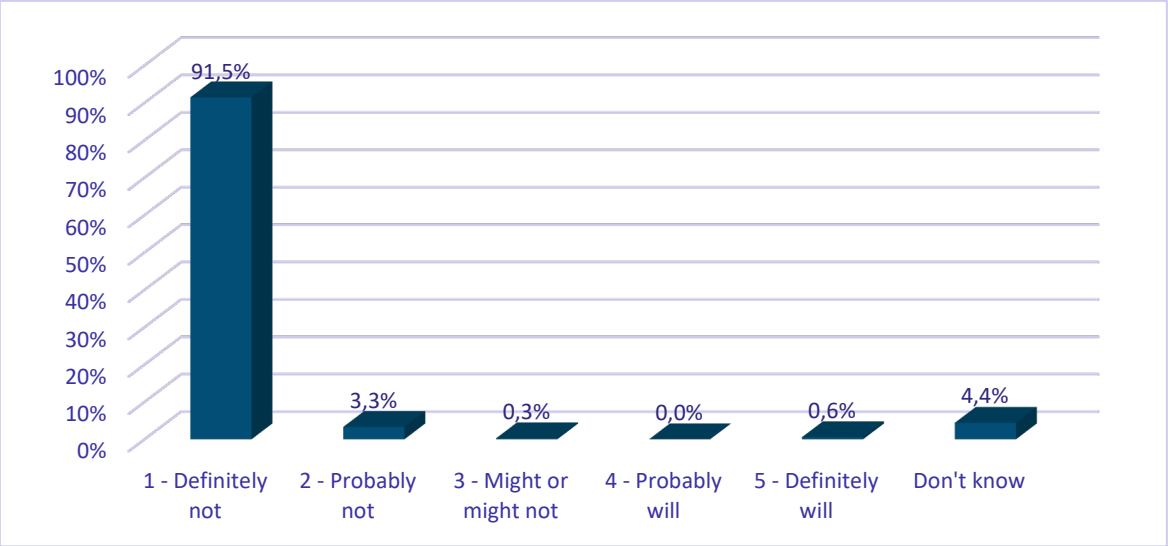
How confident would they be that they would be able to turn down this offer, considering the pressure to win? Most of them are very (65.4%) or quite (27.1%) sure, but there is another minority less sure of it.

Figure 48. Participants of DQDLS seminars' confidence on rejecting offer of an undetectable, safe PESM



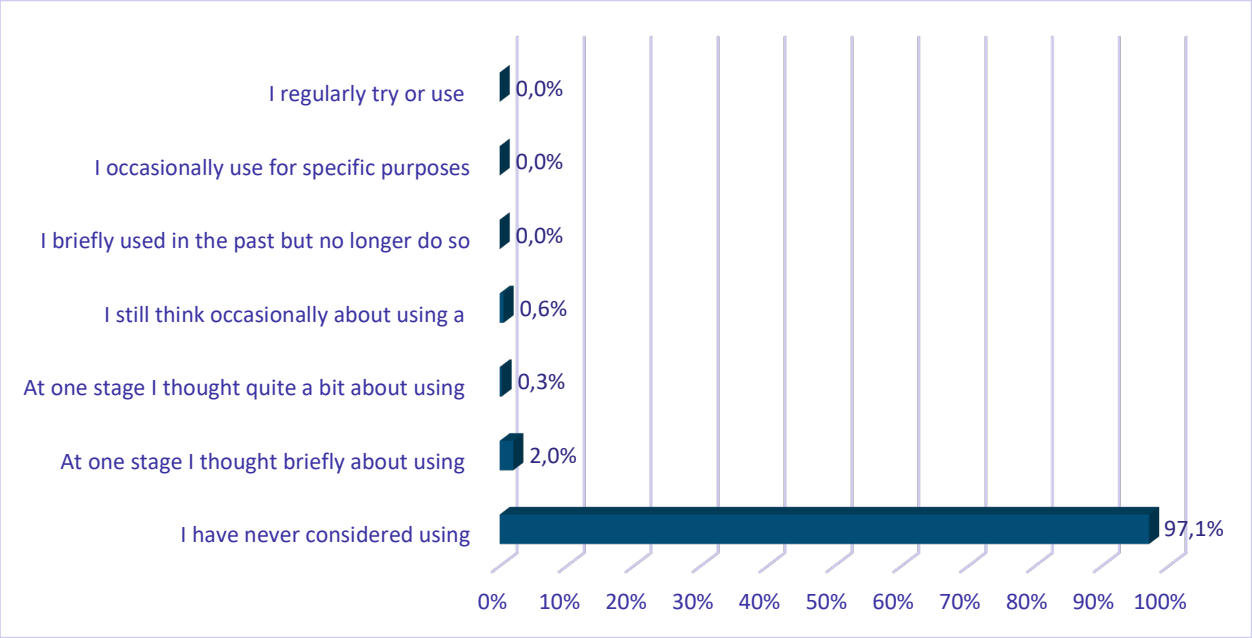
Beyond hypothetical situations, what percentage are considering doping in the near future? The vast majority have no intention, although 4.4% do not know and another small percentage expresses doubts.

Figure 49. Participants of DQDLS seminars' intention to use PESM this season



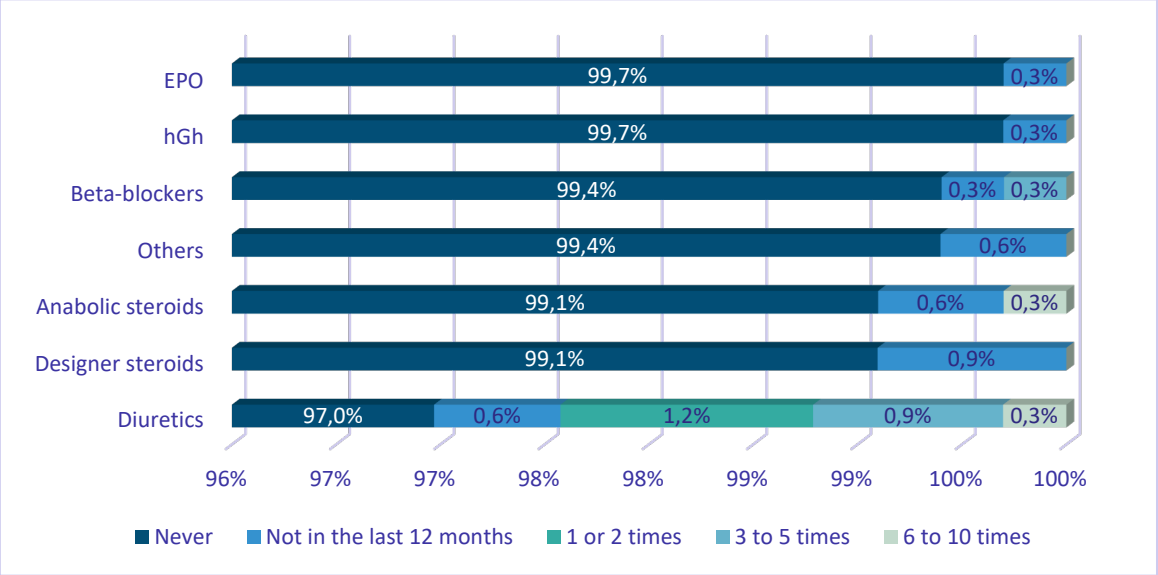
As for current and past behaviour, initially none admits to having used doping substances. Only a minority admits having thought about it or thinking about it today.

Figure 50. Participants of DQDLS seminars' past PESM use



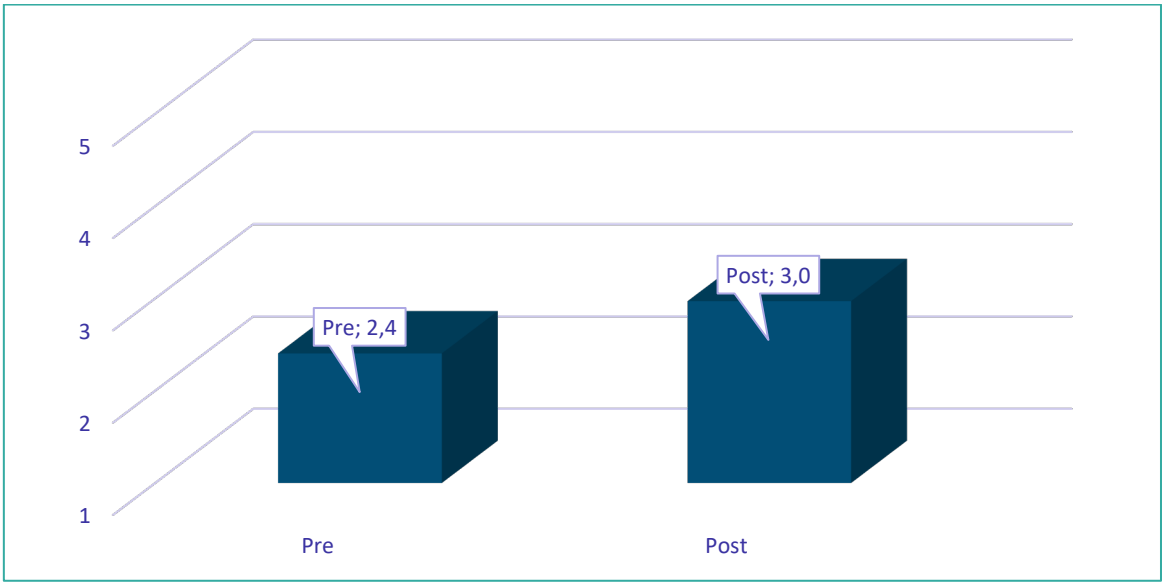
When asked about specific substances, however, a small minority does admit their use. Specifically, diuretics are the most present.

Figure 51. Participants of DQDLS seminars' past use of specific PESM



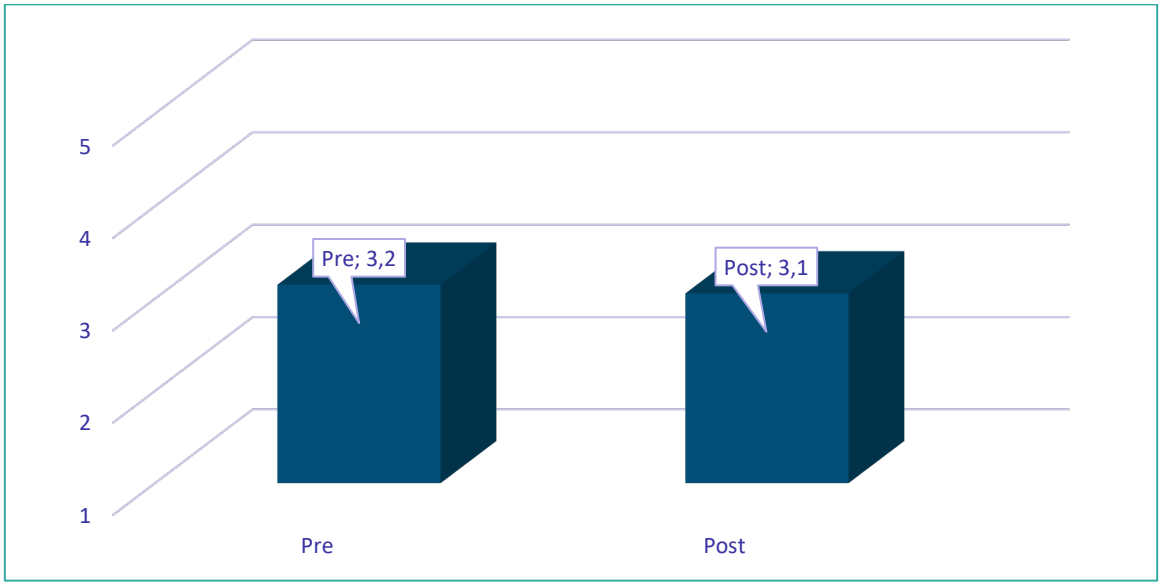
Once the values before the intervention are known, it is time to know if the online seminar had any effect on the participants. As for perceived benefits, if we group the 6 questions on perceived benefits of the different substances, we see that the perception of effectiveness has increased after the course. Being '1' 'surely it would not help me' and '5' 'surely it would help me', the mean goes from 2.4 to 3.0. This difference is statistically significant (ANOVA p=0.039).

Figure 52. Participants of DQDLS seminars' perceived likeness of improvent through specific PESM Pre-Post.



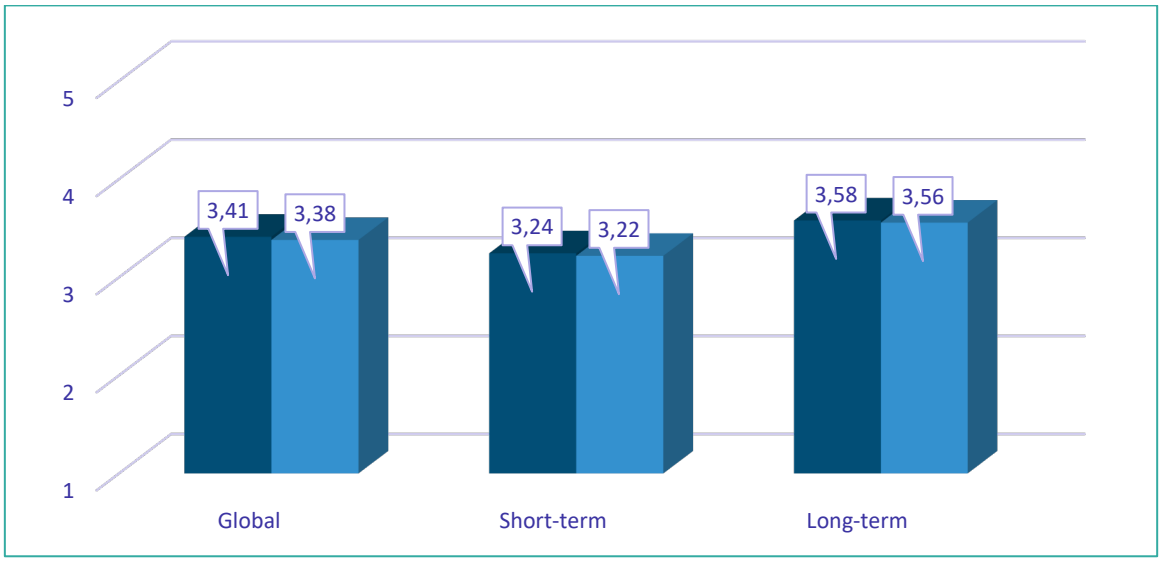
However, when asked about the general effectiveness of doping, the average remains similar. Being 1 'I'm sure it wouldn't help me' and 5 'I'm sure it would', the mean goes from 3.2 to 3.1, therefore remaining stable. The interpretation of the previous question must therefore be done with caution.

Figure 53. Participants of DQDLS seminars' perceived likeness of improvement through PESM use Pre-Post



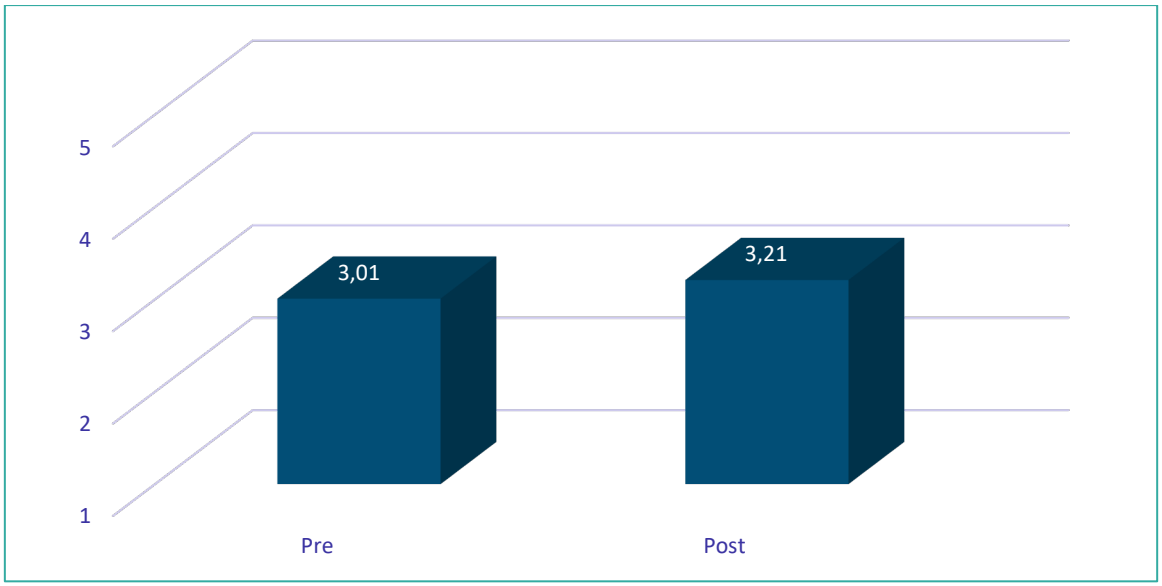
If we analyse the damage perceived in the short-, long-term and as a whole, we see that the perception does not change either. Being 1, 'no damage' and 5 'a lot of damage', the mean before the intervention is 3.41, and 3.38 afterwards, a non-significant difference. Although there are no changes in the distribution, there is a reduction in the 'I don't know' response rate. It decreases between 14% and 10% in all substances. However, this reduction does not reach statistical significance. Something similar happens with long-term damage. Ignorance is reduced, but without reaching statistical significance.

Figure 54. Participants of DQDLS seminars' perceived harm of short-term PES use Pre-Post



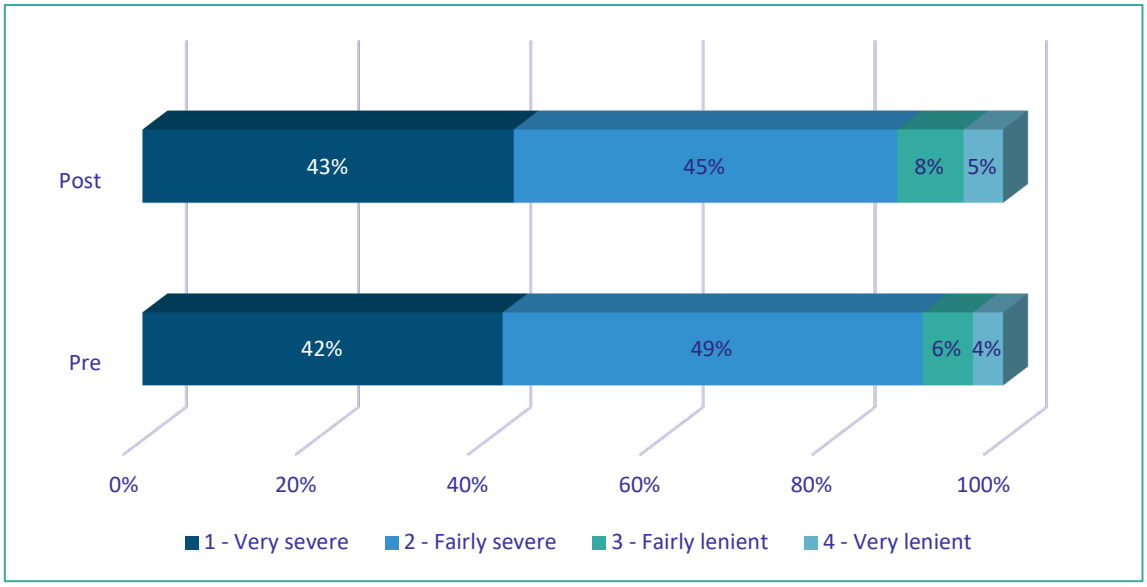
We now take together the probability of passing in-competition and out-of-competition controls, and the possibility of cheating doping tests. We see a slight increase in perceived effectiveness, which is not statistically significant. Therefore, no changes take place.

Figure 55. Participants of DQDLS seminars' perceived efficiency of antidoping controls Pre-Post



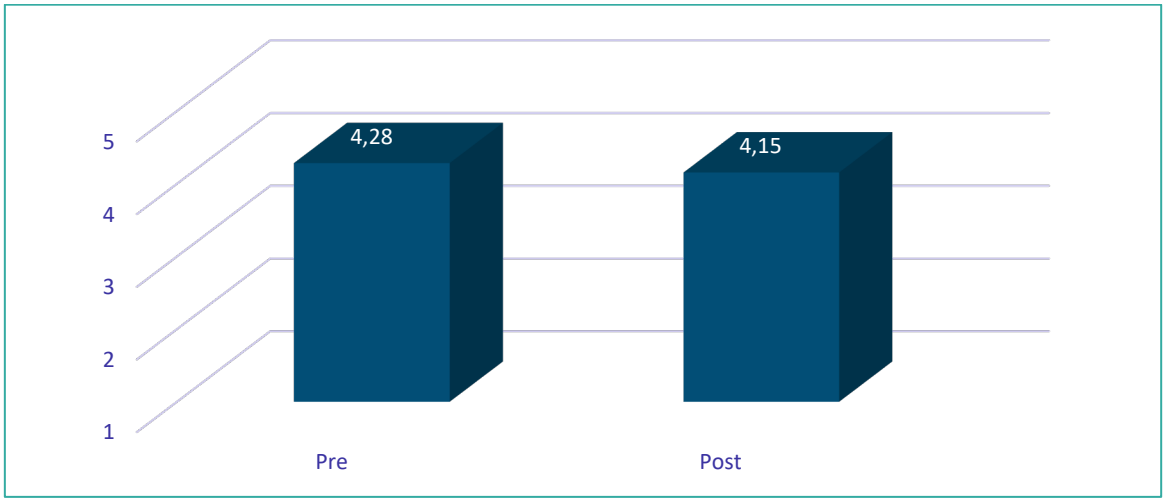
Regarding the harshness of the sanctions, the perception does not change either. The majority continue to consider that they are very or quite severe after the intervention (88%).

Figure 56. Participants of DQDLS seminars' perceived severity of sanctions Pre-Post



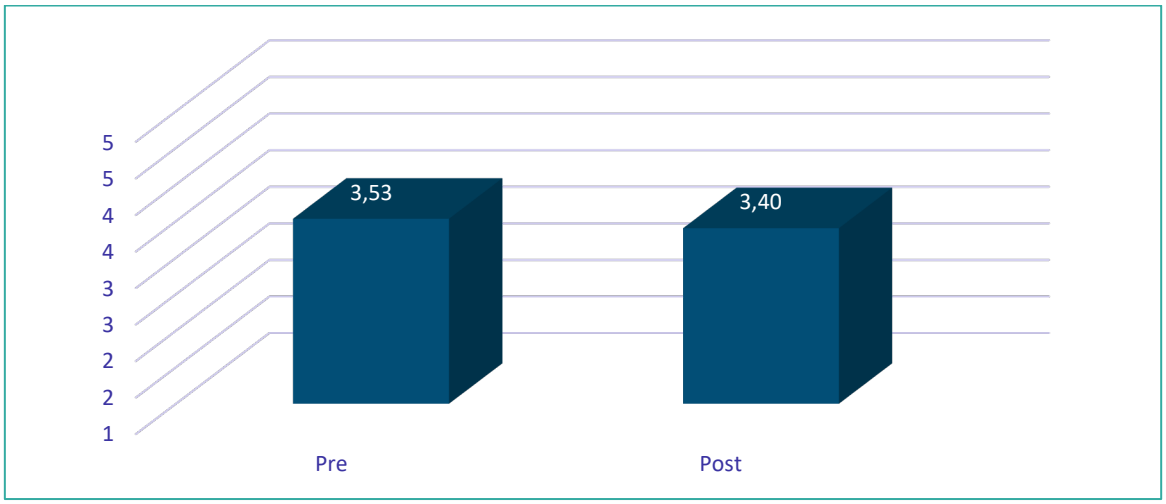
We now analyse how expensive they think it would be to get doping substances. Being 1 very cheap and 5 very expensive, the mean remains very similar, going from 4.28 to 4.15, which does not imply a statistically significant change.

Figure 57. Participants of DQDLS seminars' perception of expensiveness of PES Pre-Post



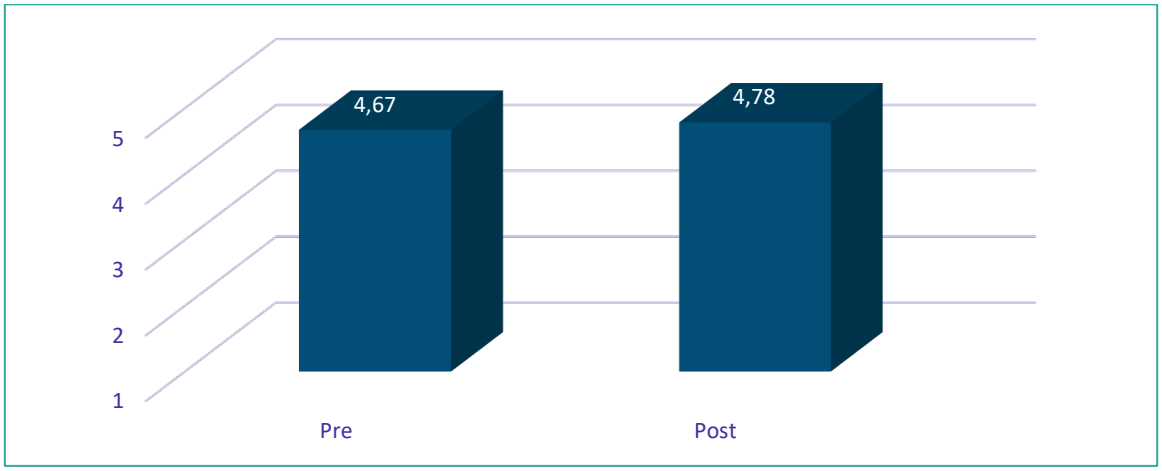
The next question is how easy it would be for him to get the substances. Being 1 very easy and 5 almost impossible, the mean goes from 3.53 to 3.40, which is not statistically significant either.

Figure 58. Participants of DQDLS seminars' perception of ease of acces to PES Pre-Post



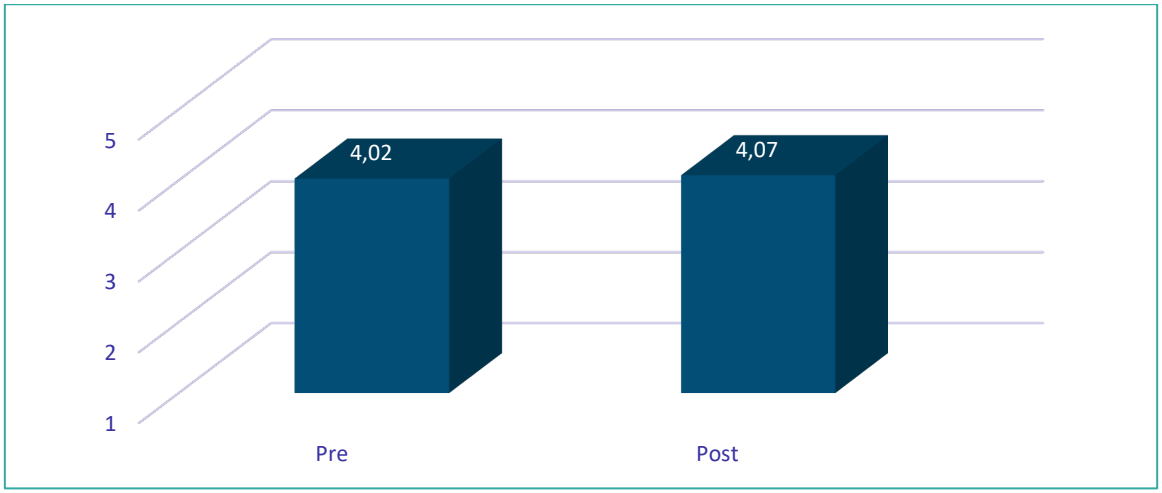
Now we look at whether their close circle (coach, teammates, etc.) would help them get the substances. With 1 being sure it would help me and 5 being sure it wouldn't, we went from 4.67 to 4.78, a non-statistically significant movement.

Figure 59. Participants of DQDLS seminars' perception of help by ASP to use PES Pre-Post



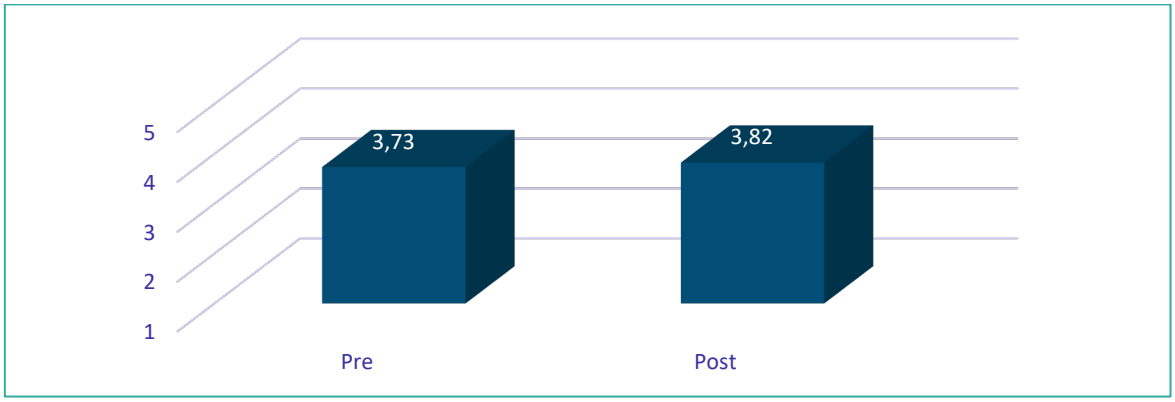
Finally, let us analyse the overall perception of accessibility taking into account price, access, and help. As could be predicted with the previous analyses, the perception of accessibility has hardly changed.

Figure 60. Participants of DQDLS seminars' global accesibility perception Pre-Post



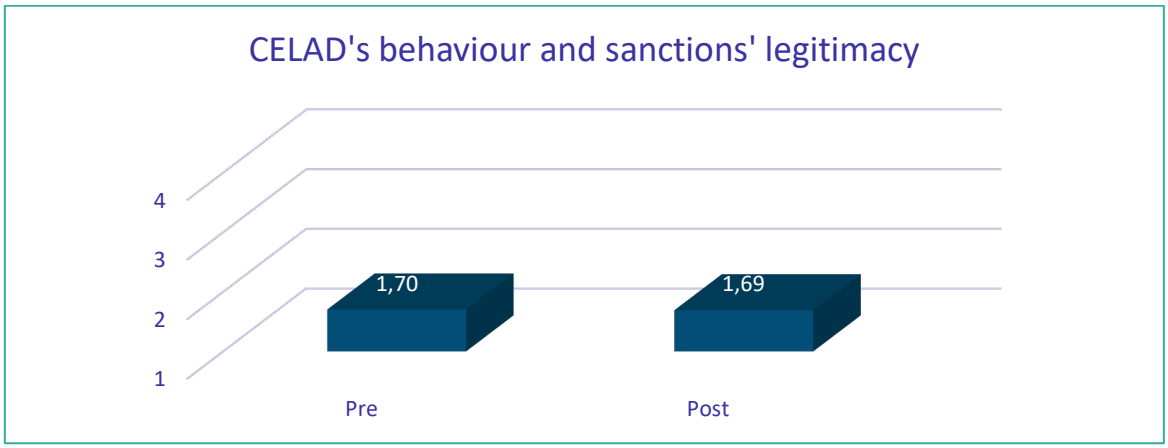
Perceived accessibility also depends on the work of the State authorities. Taking together the efficiency and seriousness of the police and customs officials, we see that, being already high, it does not experience significant changes.

Figure 61. Participants of DQDLS seminars' perceived efficiency of authorities agains doping Pre-Post



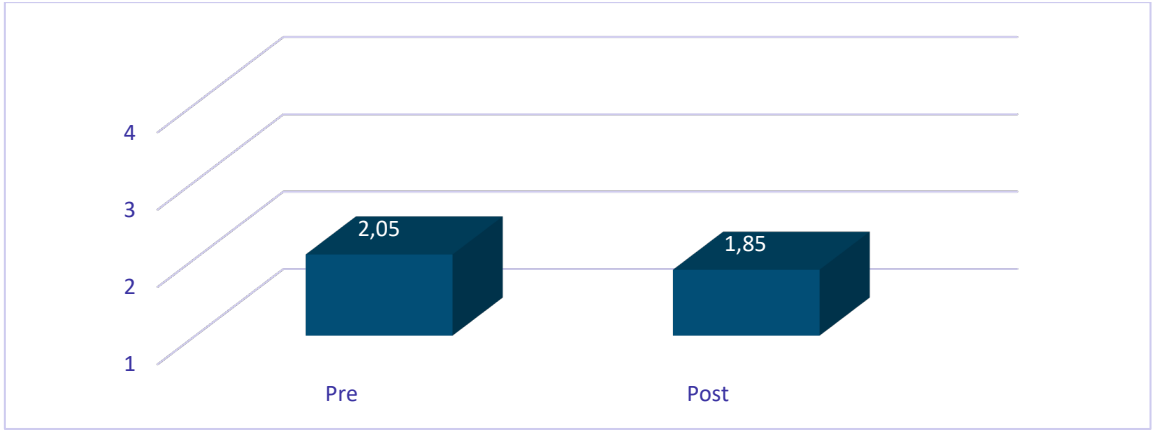
The next factor is the legitimacy of the work of CELAD and of the decisions of the justice system. Being 1 'very fair' and 4 'very unfair', the average remains practically the same.

Figure 62. Participants of DQDLS seminars' perceived fairness of CELAD Pre-Post



As for the accuracy of doping controls for different substances, being 1 'very precise' and 4 'not at all precise', the increase in precision is not statistically significant.

Figure 63. Participants of DQDLS seminars' perception of antidoping controls' precision Pre-Post



As for moral feelings, slight increases in embarrassment, shame and guilt are observed, which, however, do not reach statistical significance.

Figure 64. Participants of DQDLS seminars' embarrassement if caught using PES Pre-Post

Figure 65. Participants of DQDLS seminars' shame if caucht using PES Pre-Post

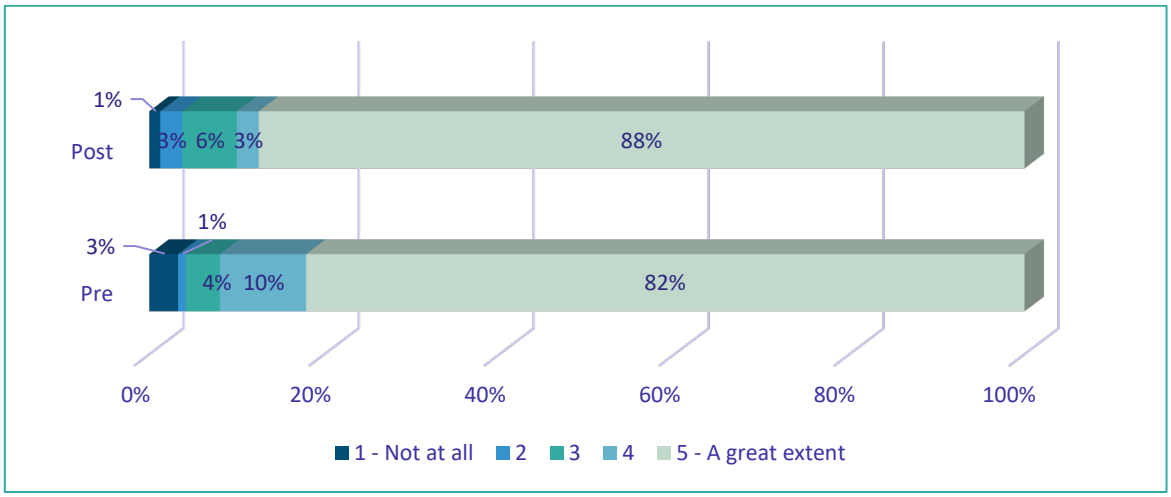
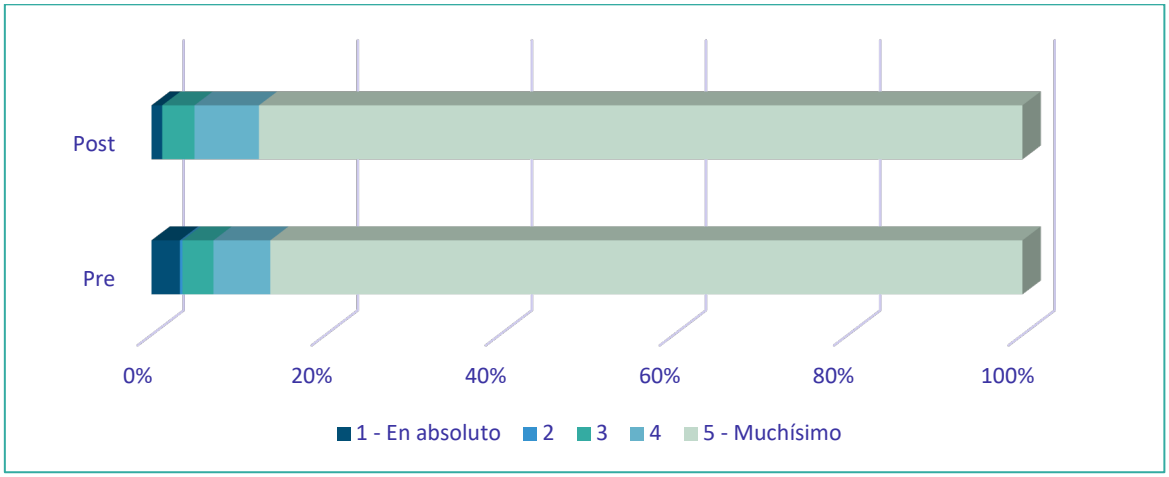
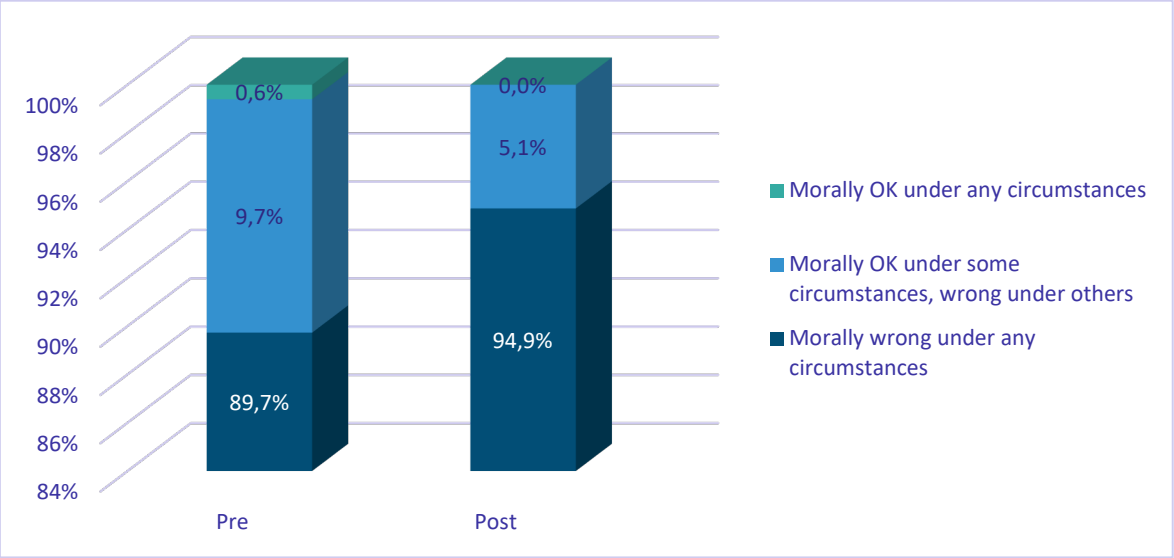


Figure 66. Participants of DQDLS seminars' guilt if caught using PES Pre-Post



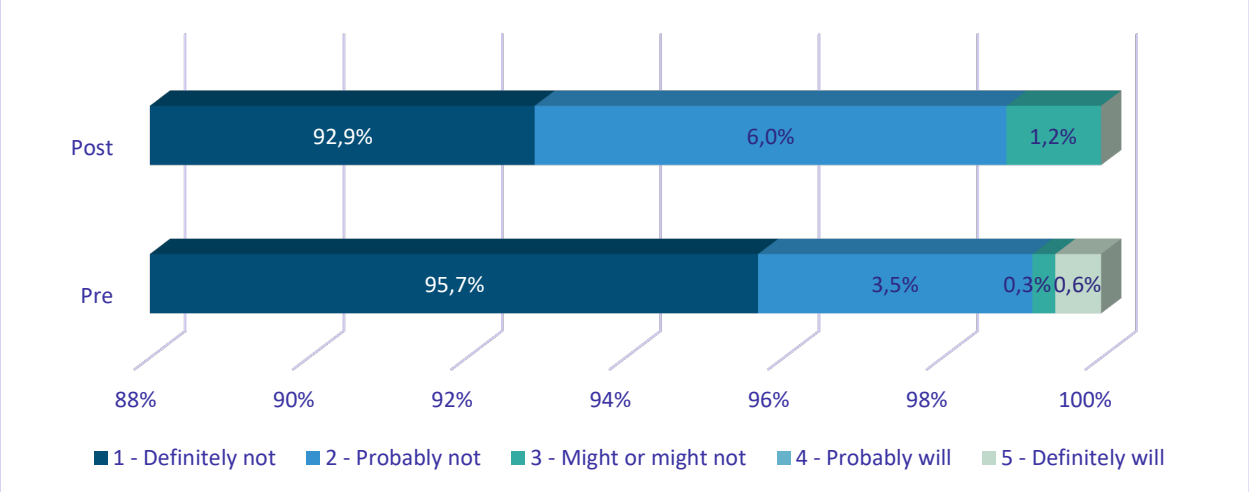
Ultimately, how has the opinion of athletes regarding doping evolved? There has been an increase in those who consider it morally wrong in any circumstance (+5%). That, however, is not statistically significant.

Figure 67. Participants of DQDLS seminars' moral positioning Pre-Post



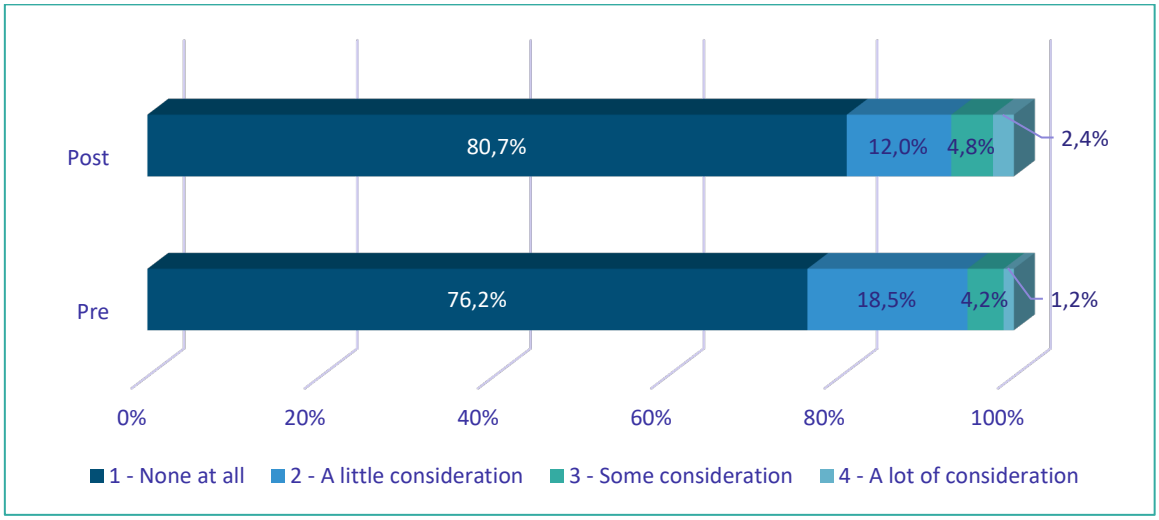
This rejection of doping is reflected in the direct intention to consume substances. Starting from a massive rejection, the evolution is not statistically significant.

Figure 68. Participants of DQDLS seminars' intention to use PES this season Pre-Post



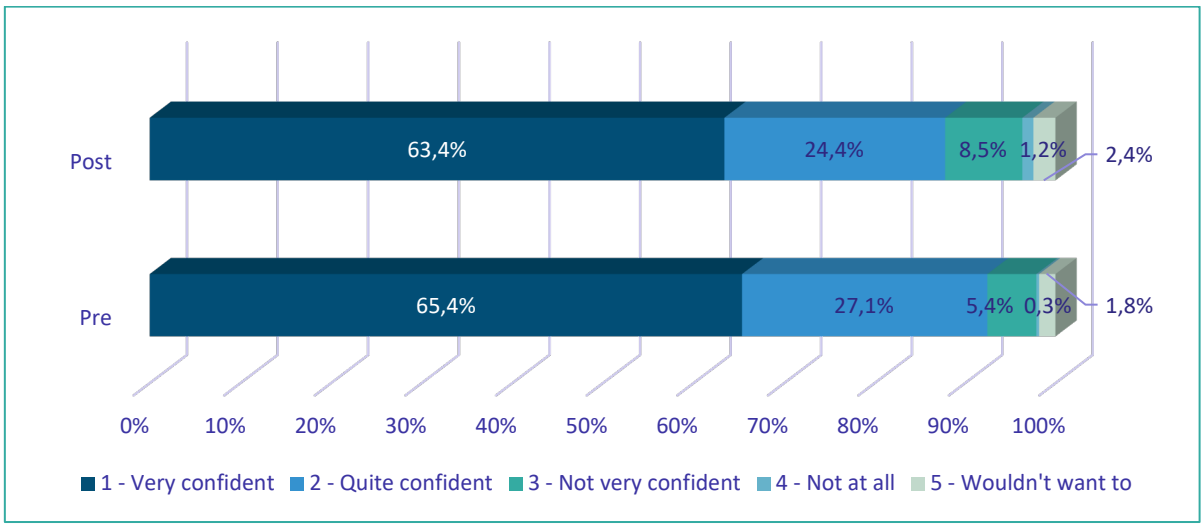
This rejection of doping is reflected in the direct intention to consume substances. Starting from a massive rejection, the evolution is not statistically significant.

Figure 69. Participants of DQDLS seminars' consideration of an undetectable PES under medical control Pre-Post



Likewise, the vast majority continue to feel very or fairly confident in rejecting the offer. Therefore, the changes shown are not statistically significant.

Figure 70. Participants of DQDLS seminars' confidence in rejectin the offer of an undetectable PES under medical control Pre-Post



Dopaje Lo Que Debes Saber online course

We now turn to the athletes who participated in the online course. In this case, the age distribution is very similar between the different age groups, with a gender balanced participation.

Figure 71. DLQDS course participants' age

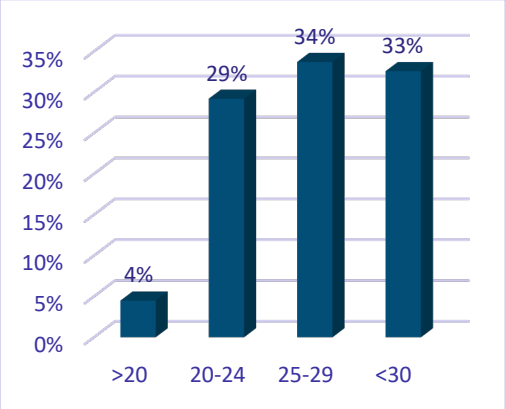
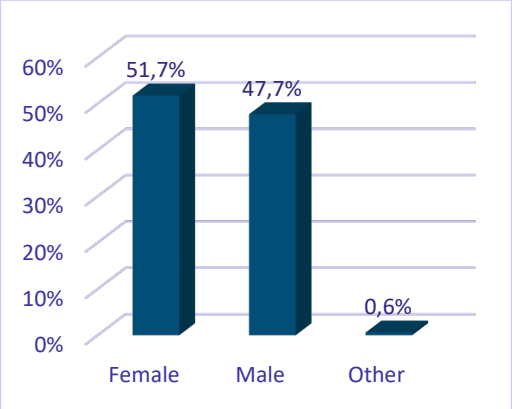


Figure 72. DLQDS course participants' gender



Almost all the participants had been competing for more than 5 years (92.5%). A fourth had already participated in an Olympics, and practically all of them had an international level.

Figure 73. DLQDS course participants' experience

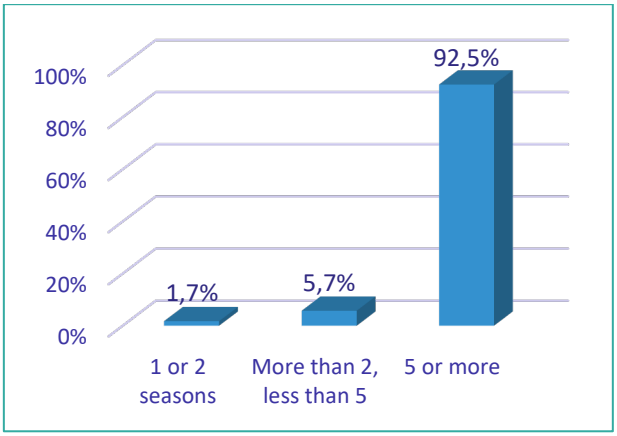
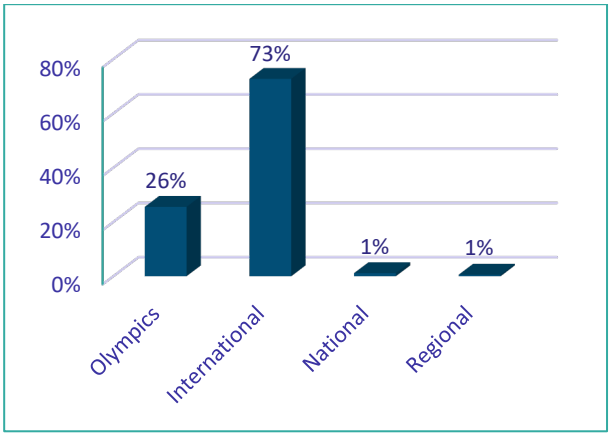
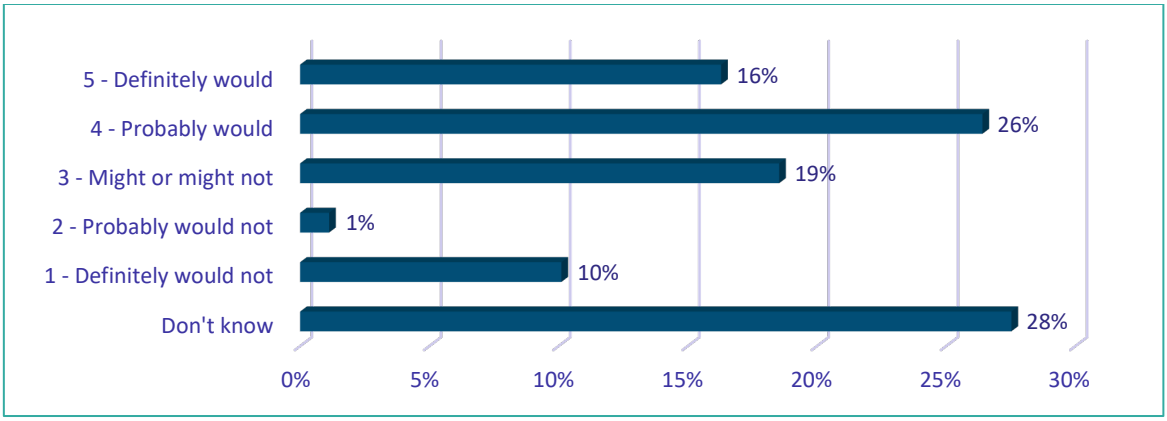


Figure 74. DLQDS course participants' sport level



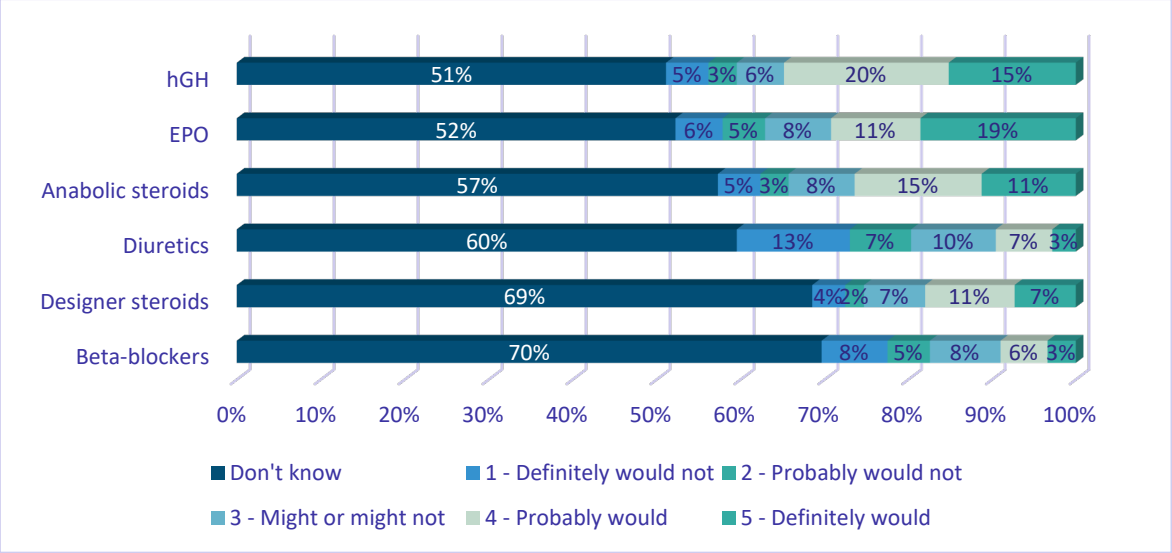
We start by looking at the generic perceived benefits of doping: 42% believe an improvement is possible, while only 11% believe the opposite. Finally, 28% are not sure of the possible effect.

Figure 75. Participants of DLQDS course's perception of likeness of improvement using PES of choice



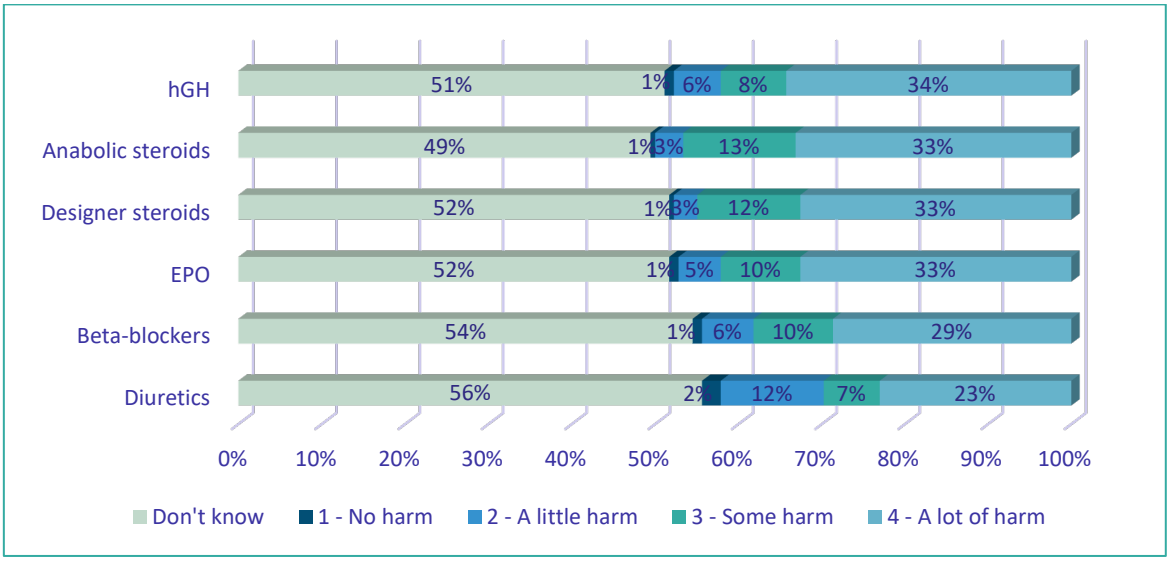
Ignorance increases a lot when asked about specific substances and does not fall below 51%. Still, human growth hormone and EPO are the substances perceived as most effective.

Figure 76. Participants of DQDLS course's perceived likeness of improvent using specific PES



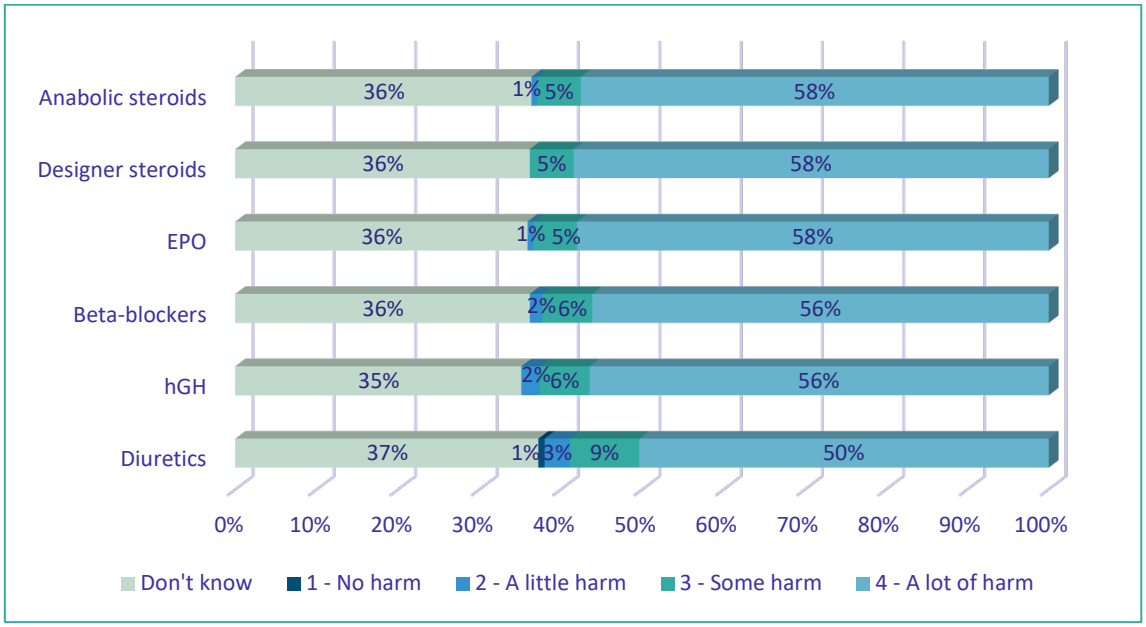
Asked how much harm it would do them to consume these substances for 2 months, about half of the participants are unable to answer. Among those who think, the majority believe that a lot or quite a bit of damage. No big differences between substances, except for the lower perceived harm of diuretics.

Figure 77. Participants of DQDLS course's perception of harm from short-term PES use



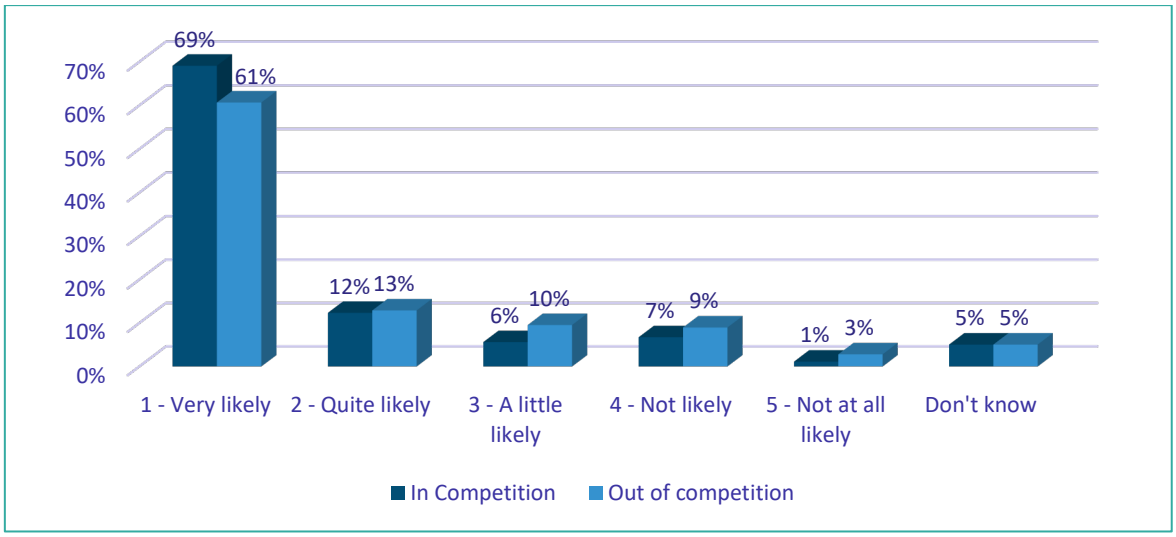
In the long term, it is considered that all substances would do a lot of damage. Ignorance regarding the short term is reduced. Steroids are perceived as the most harmful.

Figure 78. Participants of DQDLS course's perception of harm from PES regular use



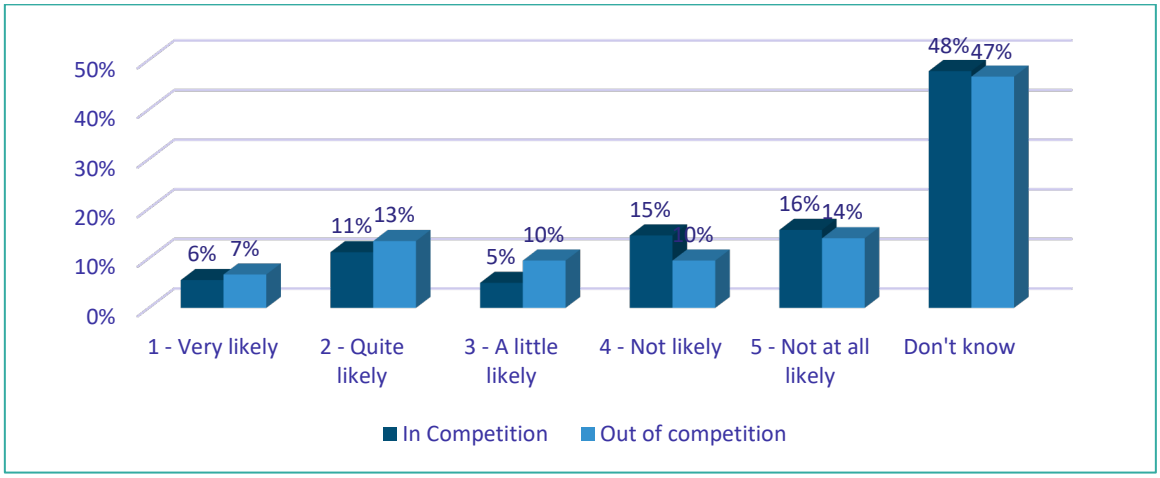
Introducing deterrence, the possibility of passing a control during or outside the competition is similar, and very high.

Figure 79. Participants of DQDLS course's perception of likeness of being tested once a year at their level



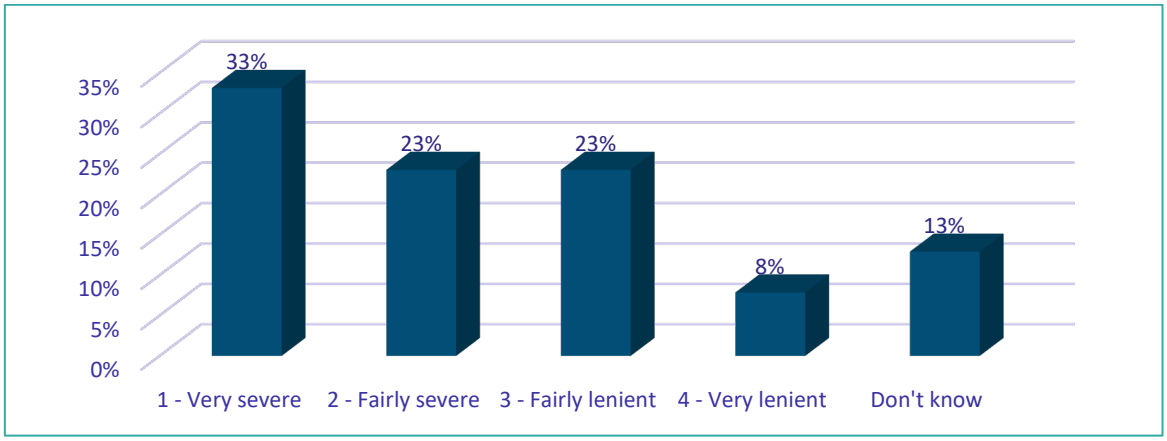
Asked if it is possible to avoid testing positive if you try, a large group arises who have doubts about whether it could be achieved or not. It could indicate certain doubts about the effectiveness of the controls.

Figure 80. Participants of DQDLS course's perception of likeness to avoid testing positive if using PES



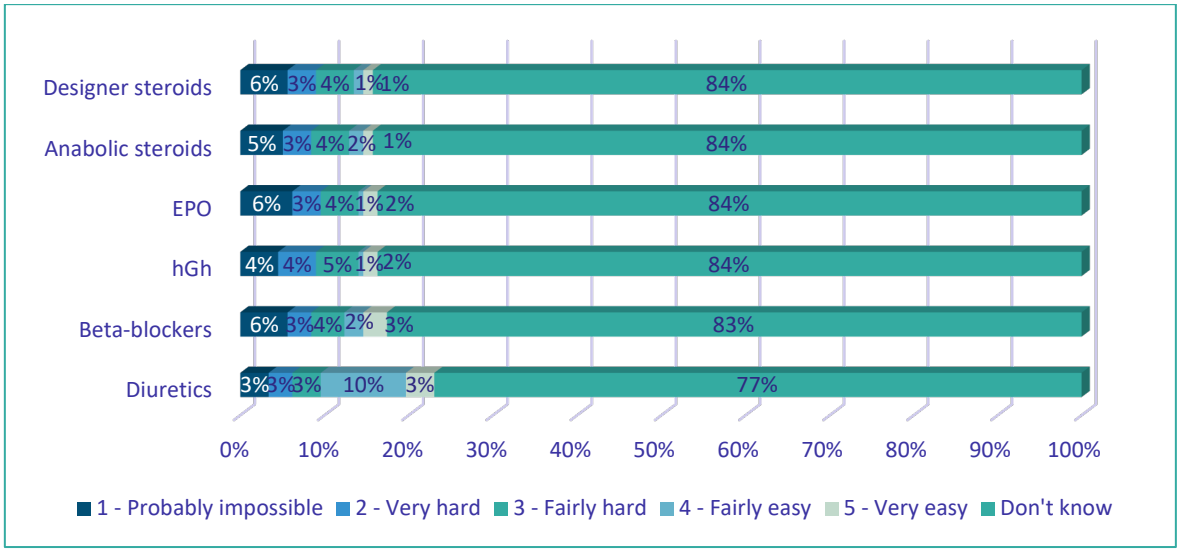
As for the sanctions, 56% consider positive sanctions very or quite severe, but 31% consider them very or quite light.

Figure 81. Participants of DQDLS course's perception of sanctions' severity



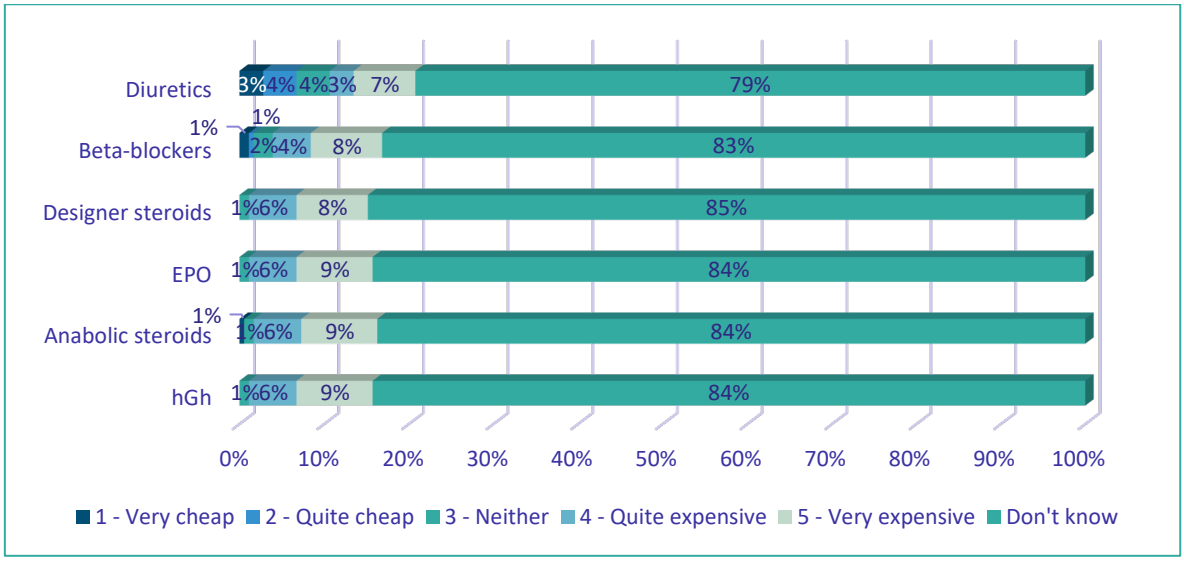
As for perceived accessibility, most do not consider themselves capable of even assessing their access. The most accessible substance seems to be diuretics.

Figure 82. Participants of DQDLS course's perception of accesibility of PES



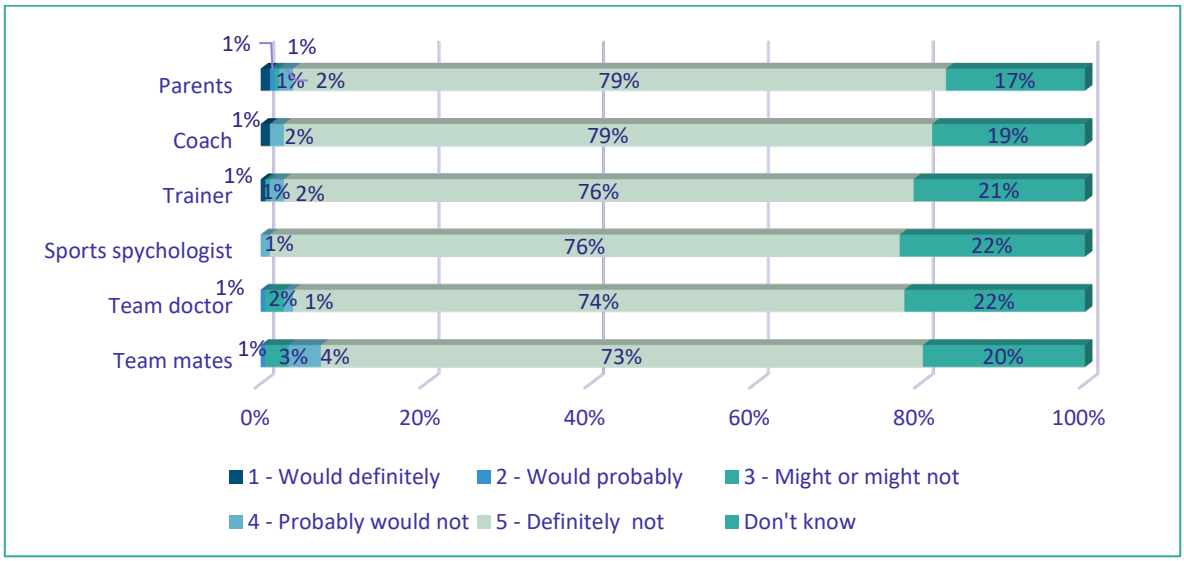
As for the price, ignorance prevails, with values around 80% in all cases. Diuretics appear to be the cheapest.

Figure 83. Participants of DQDLS course's perception of expensiveness of PES



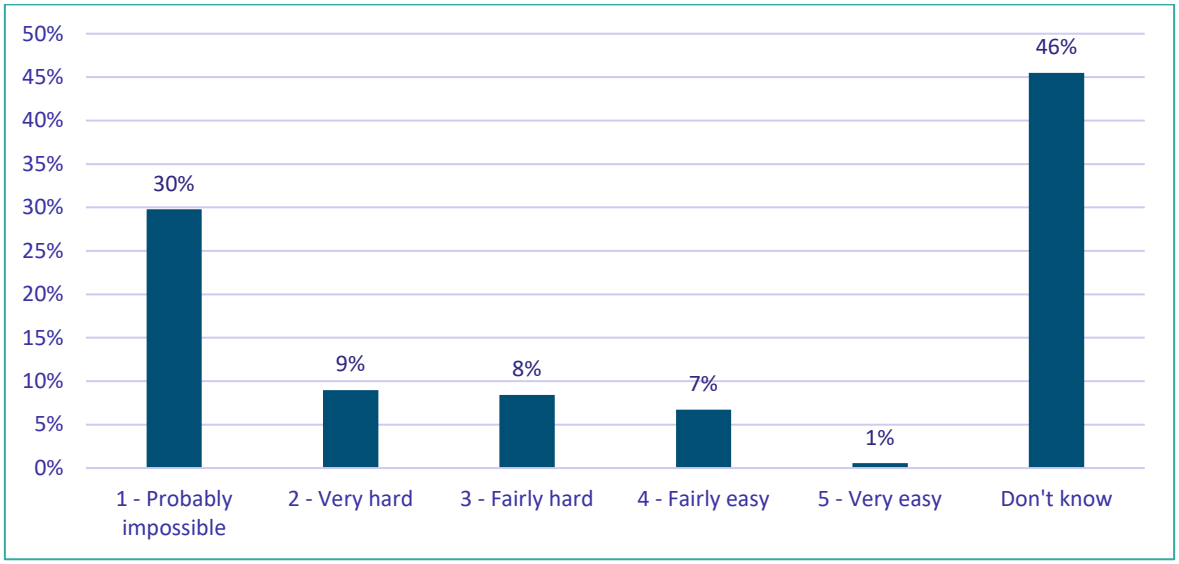
Most do not believe that their environment could help them dope. Colleagues are perceived as somewhat more likely to collaborate.

Figure 84. Participants of DQDLS course's perceived help from ASP to access PES



Outside their environment, 30% find it impossible to get medical help, and another 46% do not know. Only 8% believe they can get this type of help with some ease.

Figure 85. Participants of DQDLS course's perceibed acces to medical counselling tu use PES



A final form of deterrence is the work of the State. FCSE and customs are considered to be committed to the fight against doping but are considered less effective.

Figure 86. Participants of DQDLS course's perceived comittment of authorities against doping

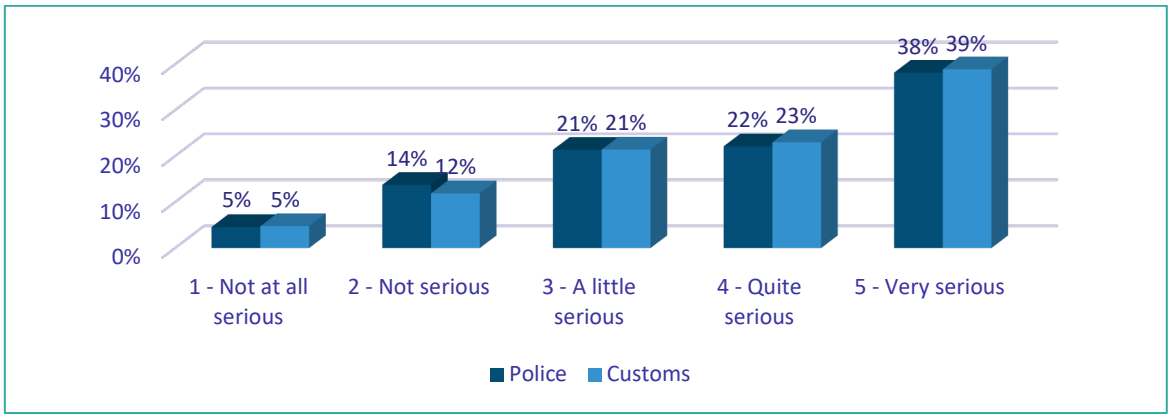
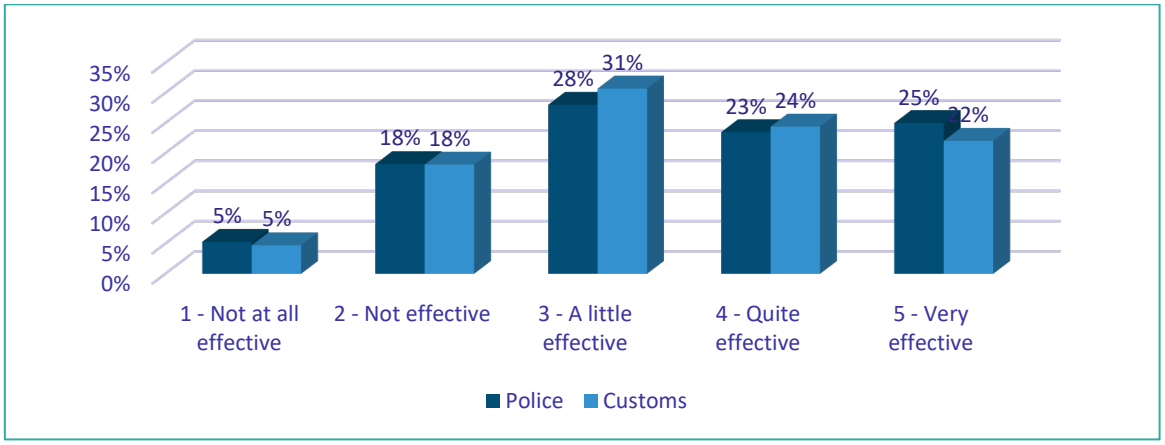


Figure 87. Participants of DQDLS course's perceived efficacy of authorities against doping



It is also important to know the opinion of athletes on anti-doping policy. Most believe that all athletes are treated fairly, and testing is safe.

Figure 88. Participants of DQDLS course's perceived CELAD's fairness

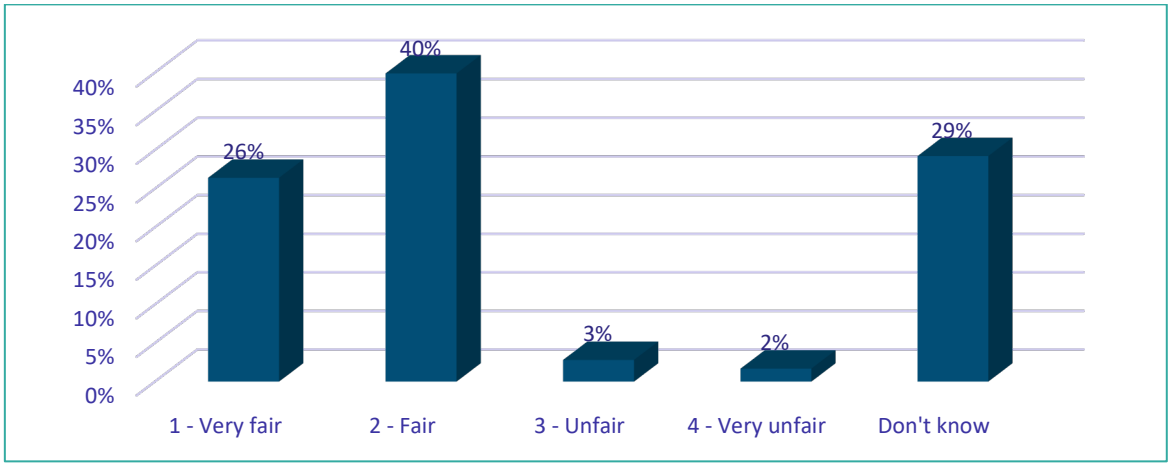
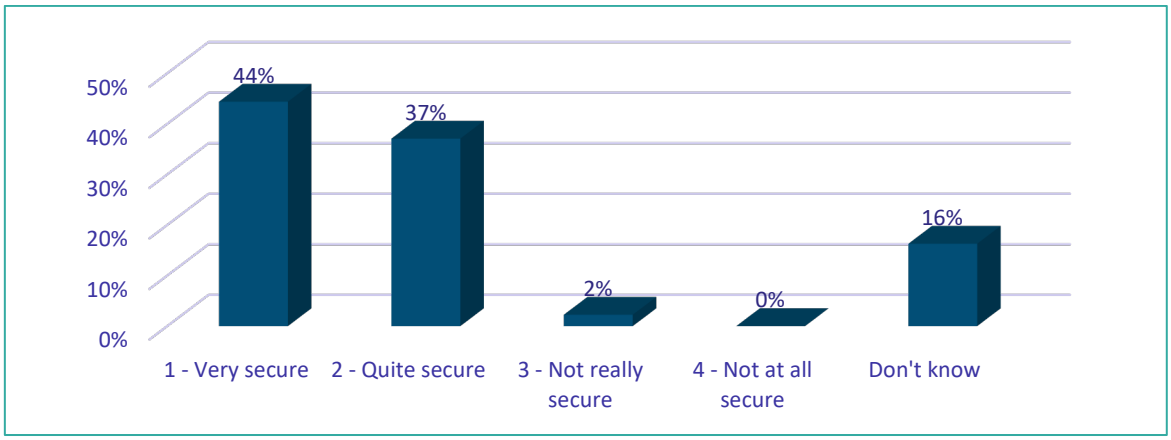
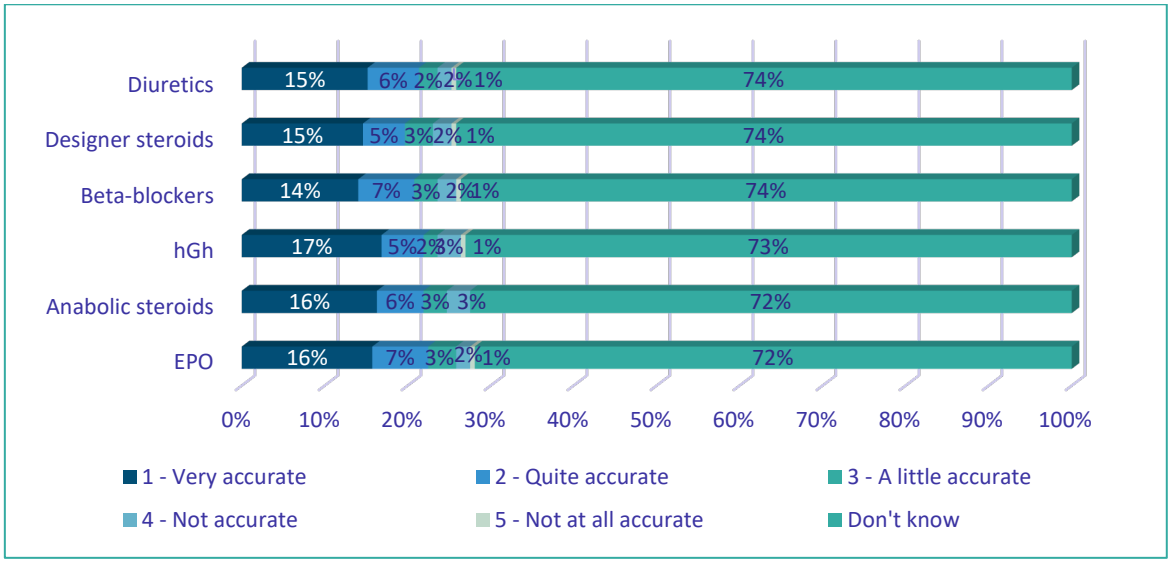


Figure 89. Participants of DQDLS course's perceived security of doping controls in Spain



Anti-doping controls are trusted, but most participants show a lack of knowledge about their accuracy.

Figure 90. Participants of DQDLS course's perceived accuracy of testing for specific PES



Most athletes do not give their opinion on the judicial treatment of those sanctioned. The TAS receives greater confidence than the Spanish processes. There is a significant group that shows dissatisfaction: up to 21% with the treatment received in Spain's appeal processes.

Figure 91. Participants of DQDLS course's satisfaction with treatment in appeals in Spain

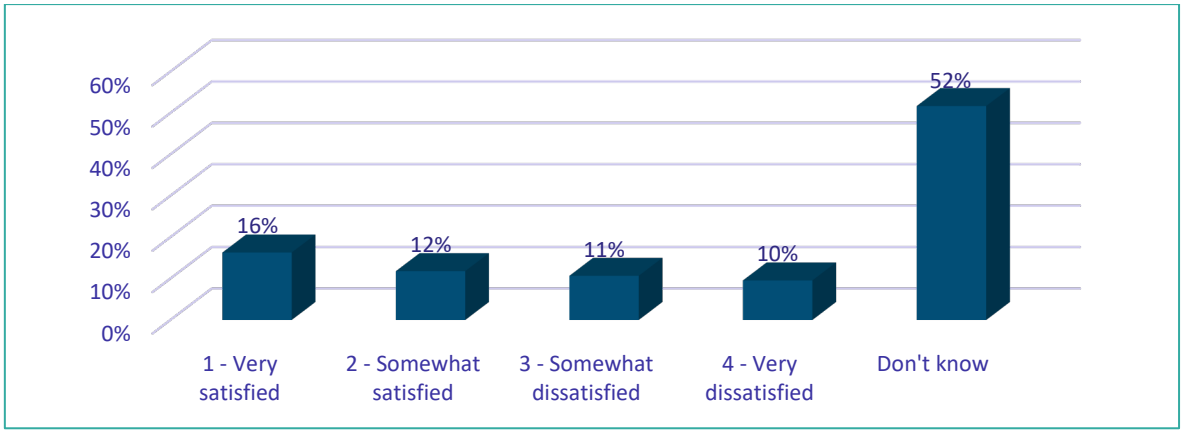


Figure 92. Participants of DQDLS course's satisfaction with fairness in appeals in their sport

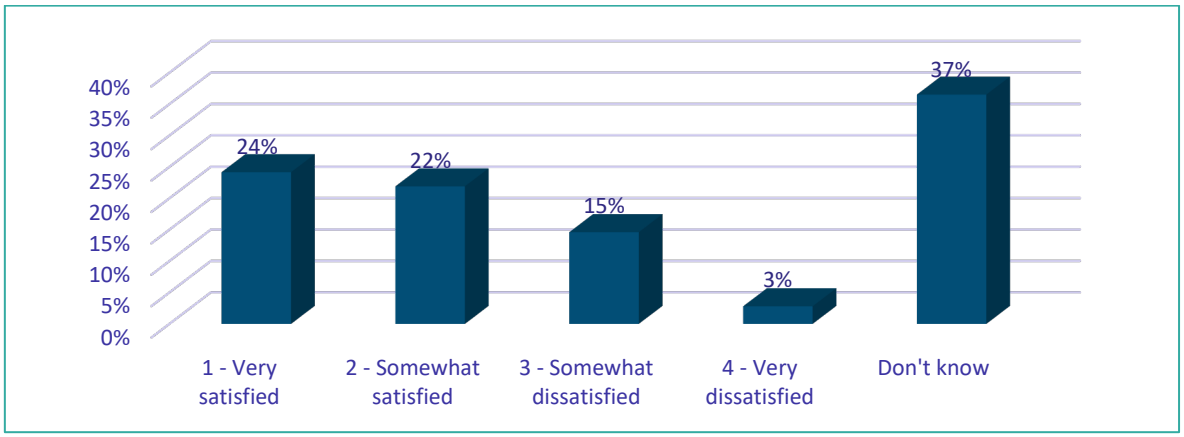
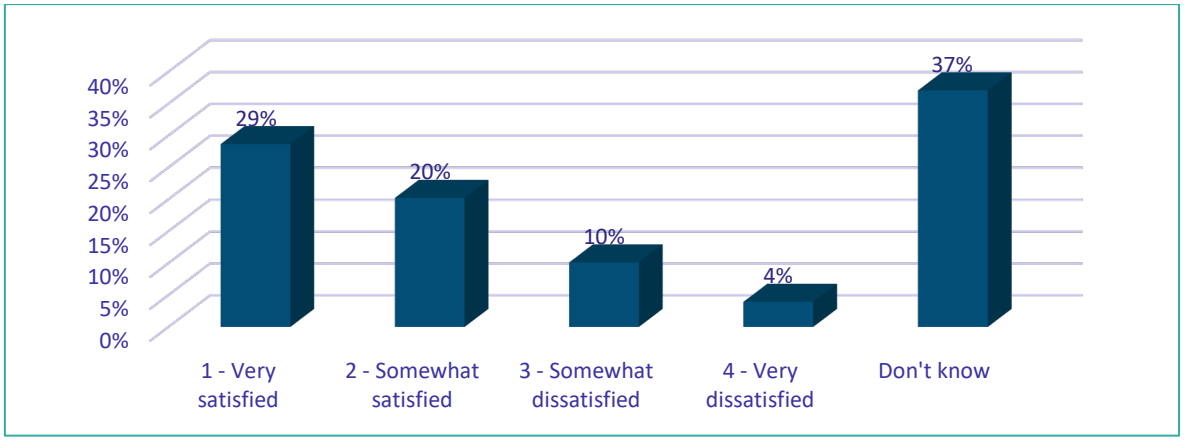


Figure 93. Participants of DQDLS course's satisfaction with fairness in CAS appeals

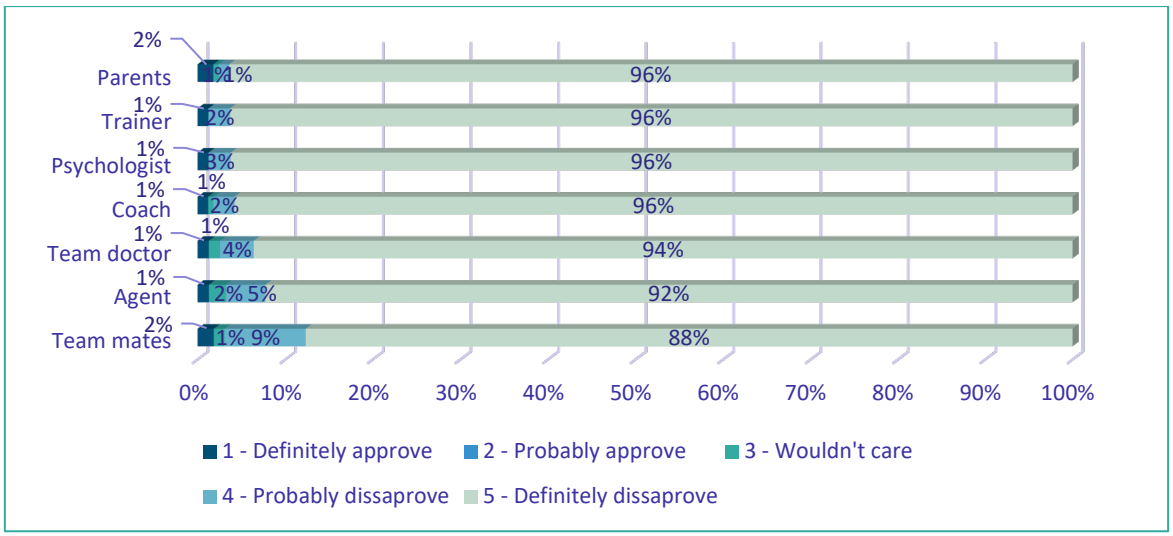


Finally, almost all participants (98,9%) had gone through a doping control. The interaction with officials was adequate in the vast majority of cases, only a minority

having experienced unpleasant circumstances: 0,6% found the officials ‘unhelpful’ and ‘unsensitive’.

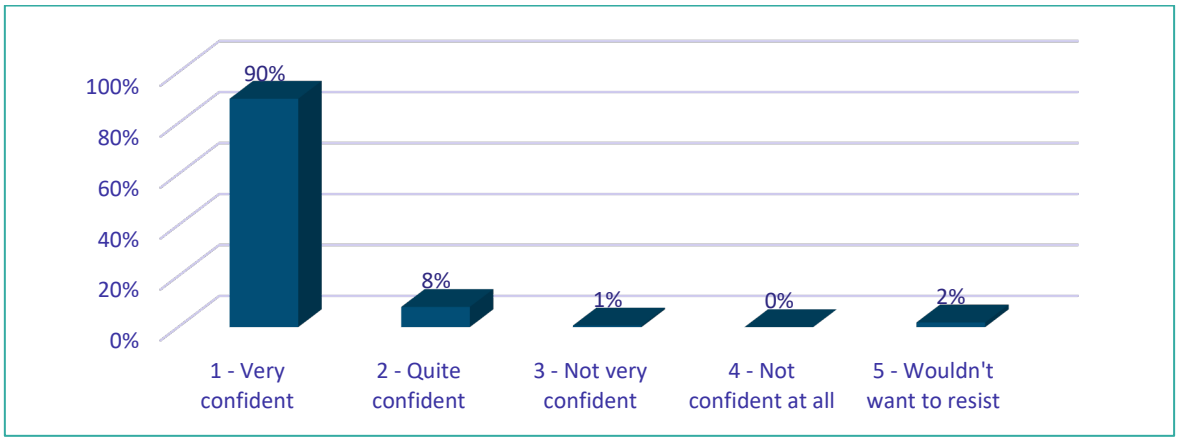
As for the reference group appraisal, the overall majority is that they would not found support in their support personal.

Figure 94. Participants of DQDLS course’s perception of approval by their ASP of PES use



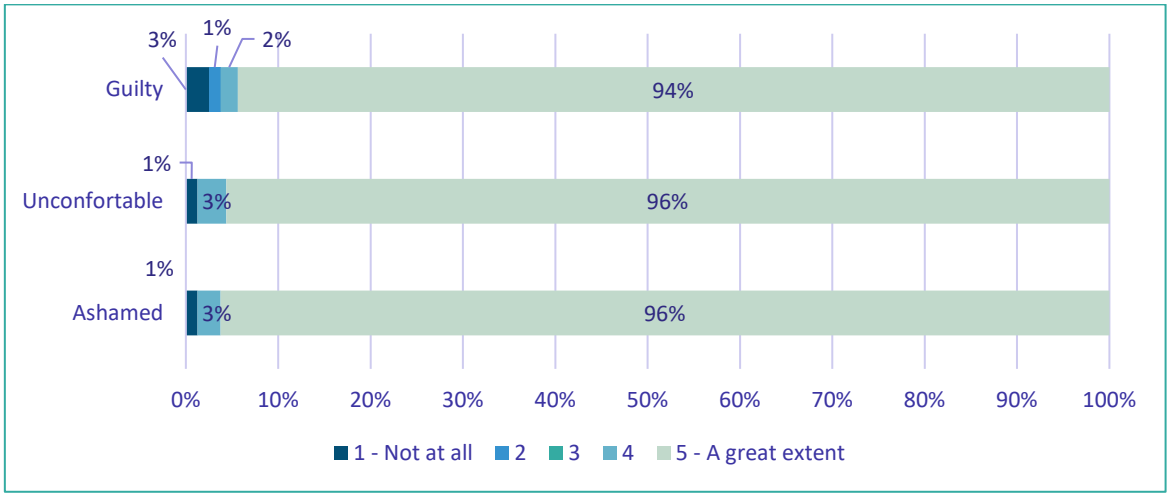
As for self-efficacy, the ability to reject a doping offer by their team mates, 98% are very sure of rejecting it.

Figure 95. Participants of DQDLS course’s perceived confidence to reject peer preasure to us PES



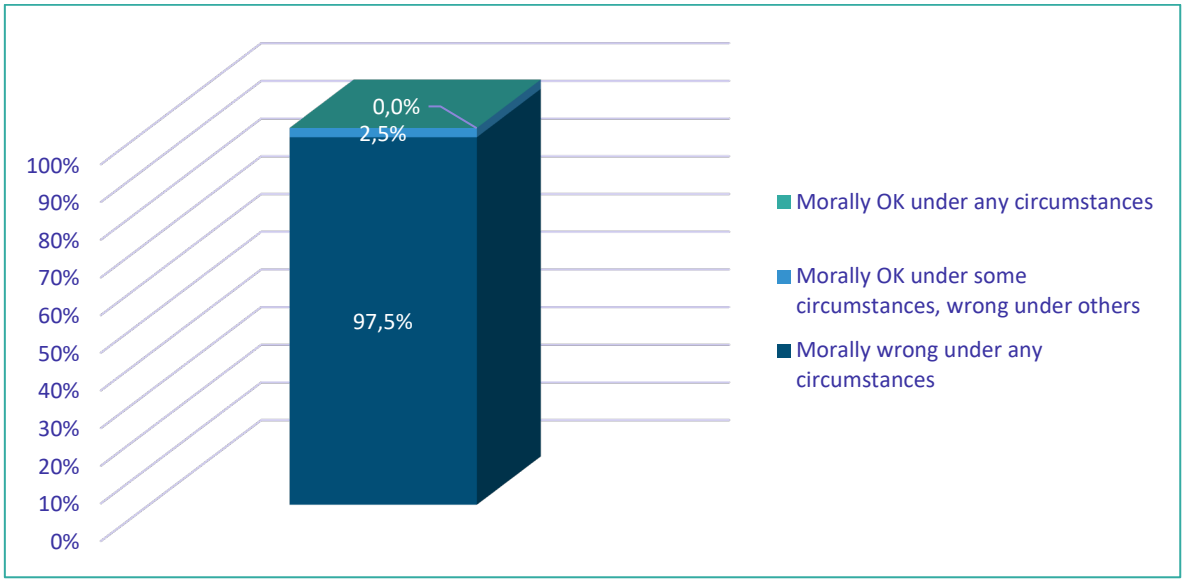
Ultimately, morality is decisive. Moral sentiments being unconscious emotional reactions, more than 90% would feel guilty, uncomfortable, and ashamed.

Figure 96. Participants of DQDLS course's feelings if caught using PES



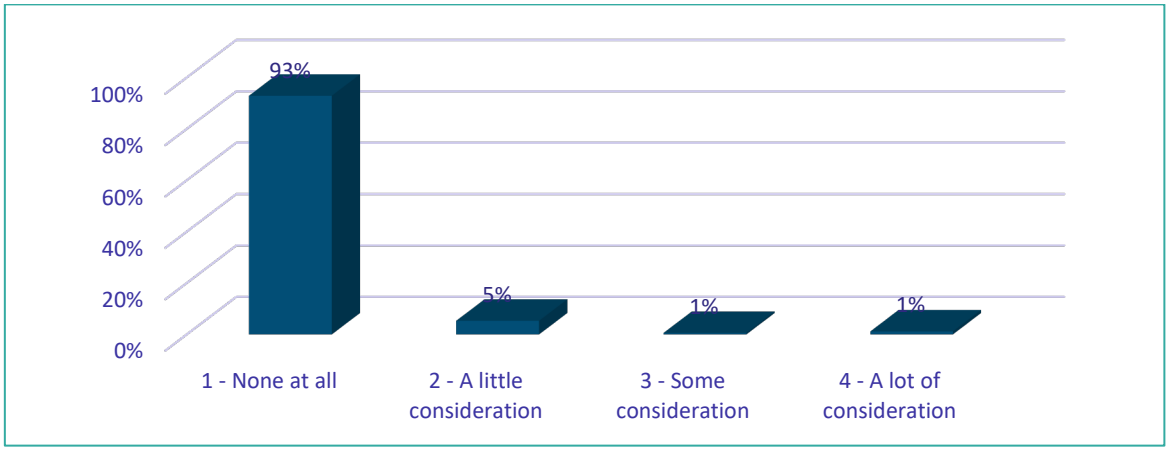
Finally, do they think doping is morally right or wrong? A minority of 2.5% justifies it in some circumstances, but nobody considers it morally correct.

Figure 97. Participants of DQDLS course's moral position on doping



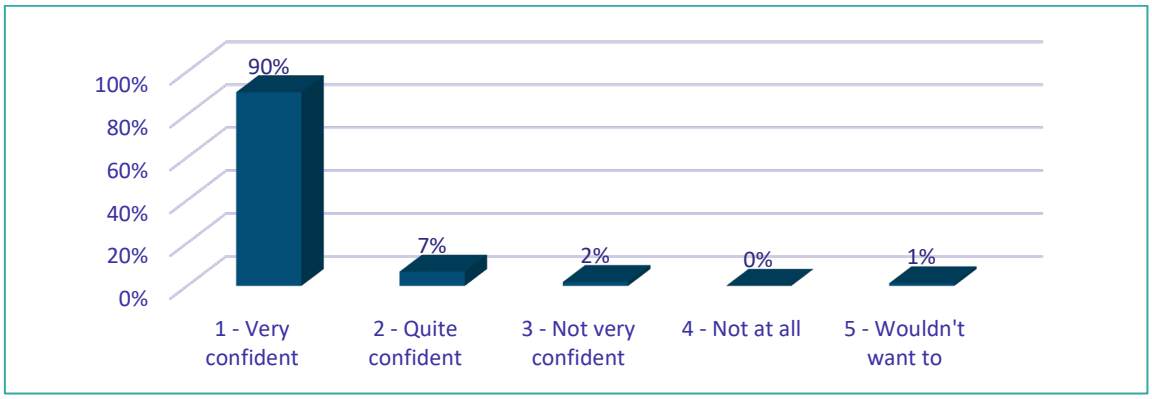
Having described their sociodemographic, sporting and sociopsychological characteristics, it is time to present their doping behaviour. Susceptibility was measured by asking about an offer of a safe and undetectable substance. In this case, 93% maintain that they would not take it into consideration.

Figure 98. Participants of DQDLS course's consideration of an undetectable PES under medical control



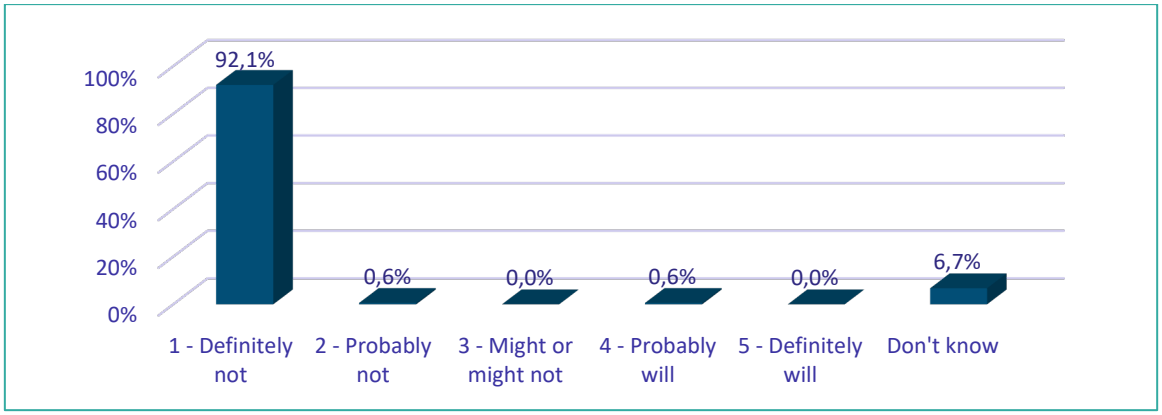
If we measure self-efficacy in this new scenario, the results are similar: 90% are very sure to reject the offer.

Figure 99. Participants of DQDLS course's confidence in rejecting undetectable PES under medical control



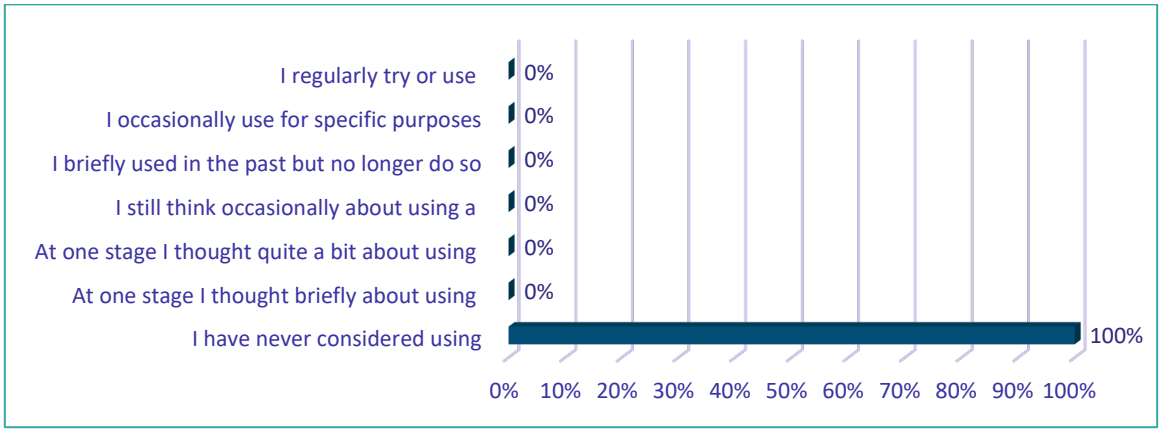
Ultimately, do they intend to use PES during this season? Of all participants, 92.1% deny it, and only 0.6% express their intention. Only 6.7% remain who refuse to speak out.

Figure 100. Participants of DQDLS course's intention to use PES this season



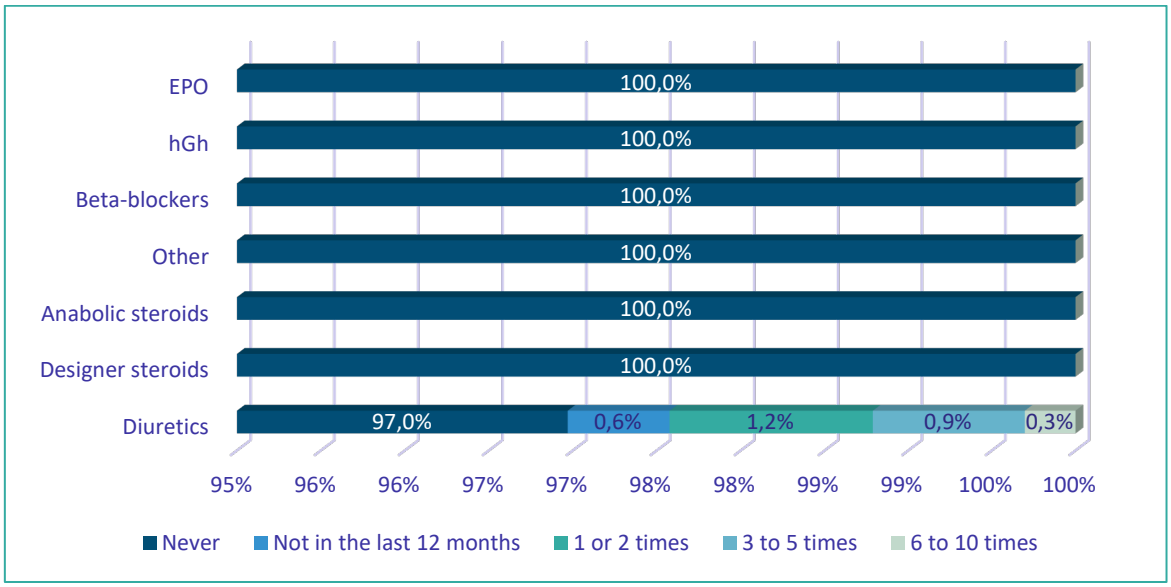
As for consumption, no one admits having ever consumed or ever thought of consuming.

Figure 101. Participants of DQDLS course's past use of PES



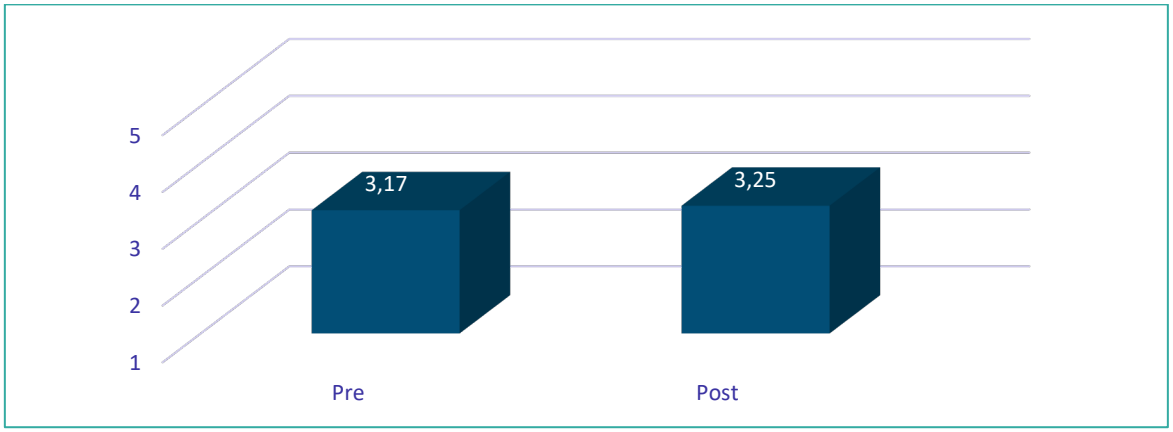
The answer is very similar when asked about specific substances. Only a minimal consumption of diuretics appears.

Figure 102. Participants of DQDLS course's past use of specific PES



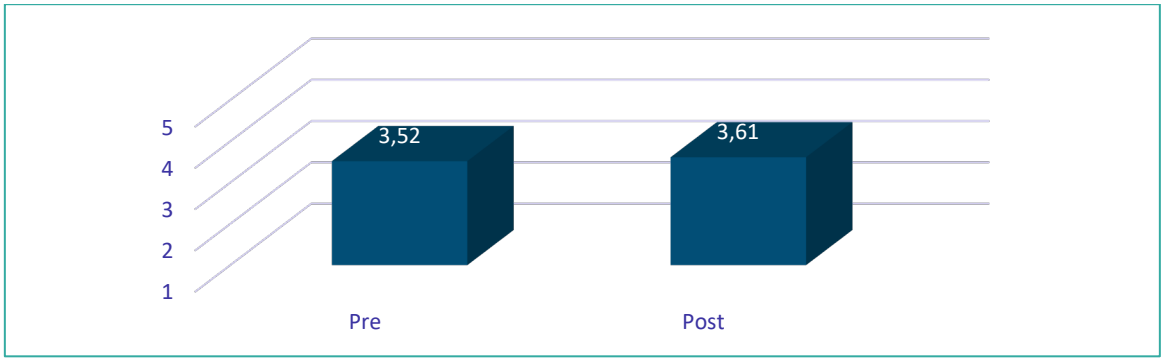
We turn now to the effects of the intervention, i.e., the online course. To find out the evolution in terms of the positive effects of substances, we grouped the opinions about all of them into a single factor. Being 1 'surely it would not help me' and 5 'surely it would help me', the mean goes from 3.17 to 3.25. That increase, however, is not statistically significant.

Figure 103. Participants of DQDLS course's perceived likeness of improvement through PESM use Pre-Post



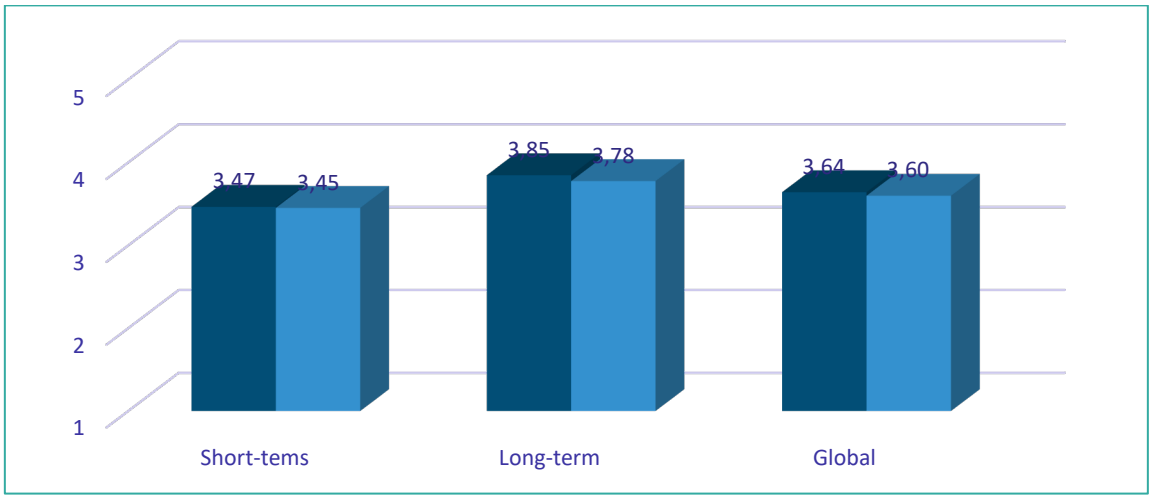
Generically asked about the effectiveness of doping, the average remains similar. Being 1 'I'm sure it wouldn't help me' and 5 'I'm sure it would', the mean goes from 3.52 to 3.61. That small change is not statistically significant.

Figure 104. Participants of DQDLS course's perceived likeness of improvement through PES of choice use Pre-Post



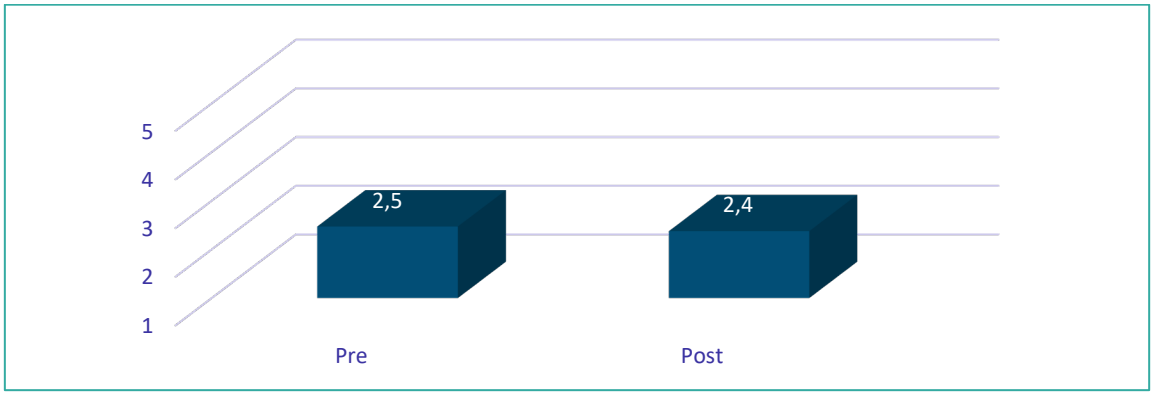
We carried out the same operation with the perceived damages. We unite in a single factor the responses of all substances. Being 1, 'no damage' and 5 'a lot of damage', the global averages remain high and stable. None of the observed changes is statistically significant. Unawareness is also not significantly reduced.

Figure 105. Participants of DQDLS course's perception of harm from PES use Pre-Post



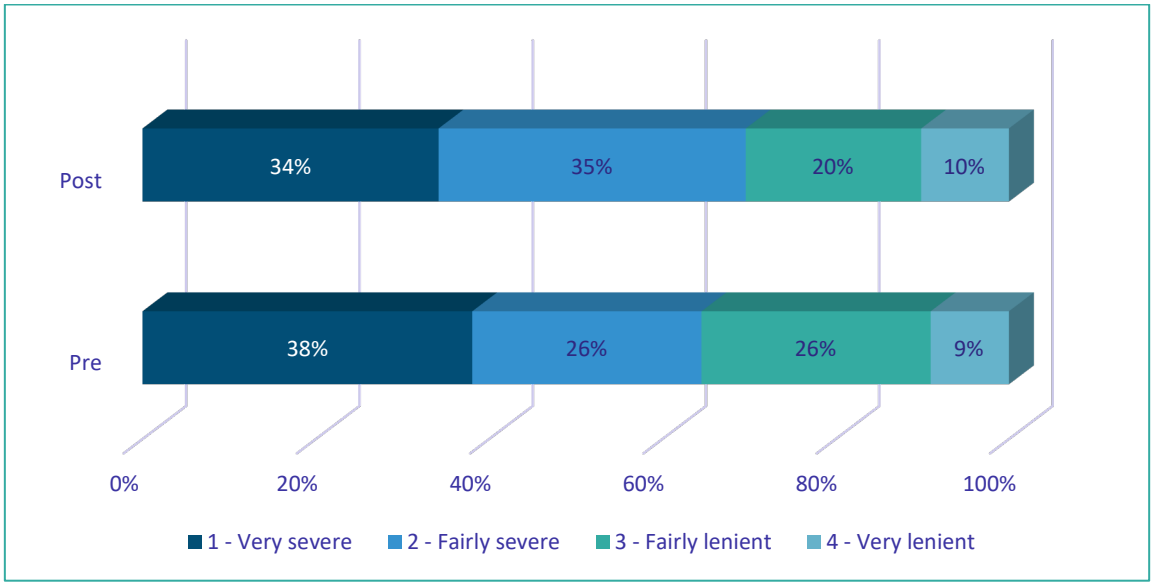
If we analyse the answers about anti-doping controls in a single factor, we see that the perception remains almost unchanged. This minimal variation is not statistically significant.

Figure 106. Participants of DQDLS course's perceived controls' efficiency Pre-Post



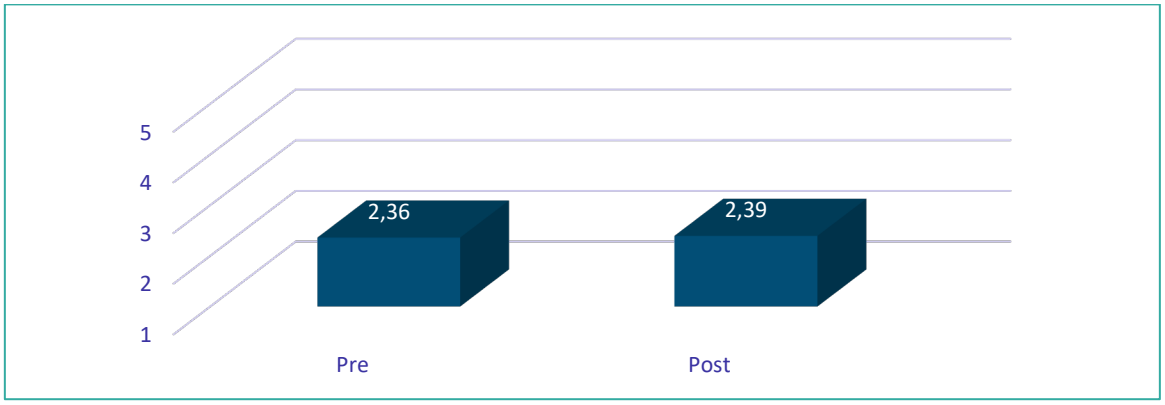
As for the harshness of the sanctions, after the intervention, the percentage who believe they are quite or very light is reduced (-5%). However, that change is also not statistically significant.

Figure 107. Participants of DQDLS course's perceived severity of the sanctions Pre-Post



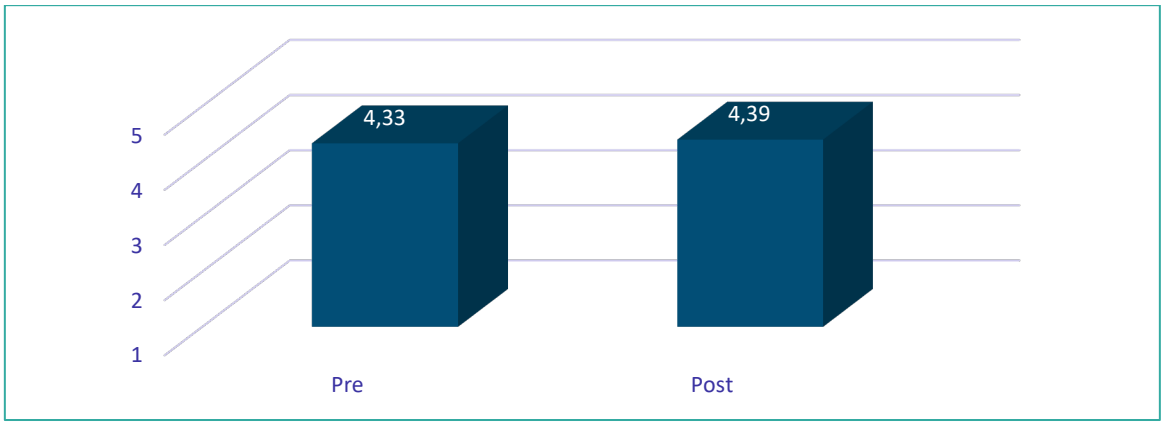
As for how easy it would be to get them, with 1 being very easy and 5 being almost impossible, the mean went from 2.36 to 2.39, without being considered statistically significant.

Figure 108. Participants of DQDLS course's perceived facility to acces PES Pre-Post



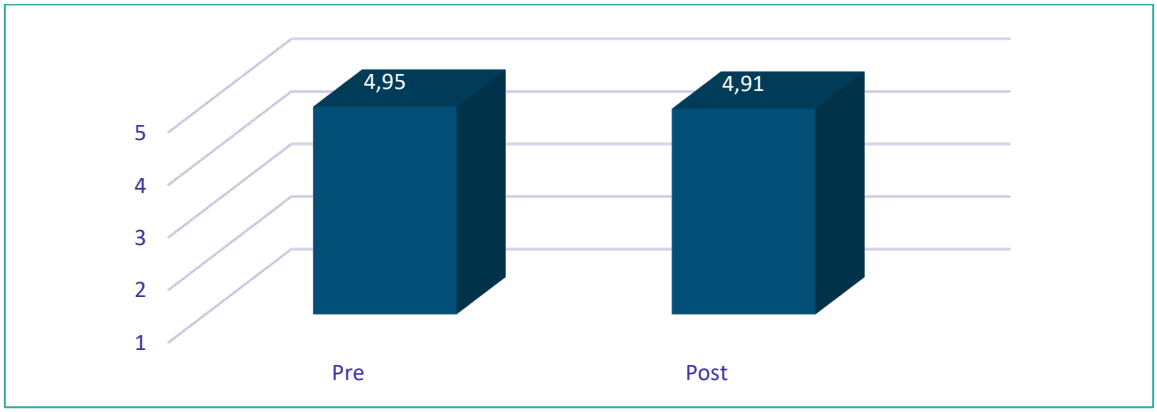
We now analyse how expensive they think it would be to get doping substances. Being 1 very cheap and 5 very expensive, the average remains very similar, going from 4.33 to 4.39, without the change being significant.

Figure 109. Participants of DQDLS course's perceieved expensiveness of PES use Pre-Post



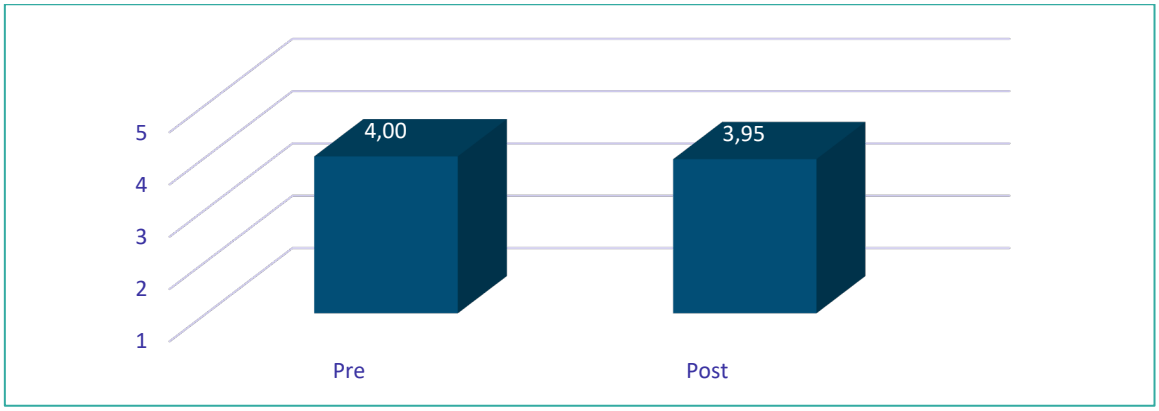
The last factor of accessibility is the possible help received. Taken together, the people in his circle, and being 1 sure that he would help me and 5 sure that he would not, we went from 4.95 to 4.91. Little movement starting from the fact that it is considered almost impossible to receive help.

Figure 110. Participants of DQDLS course's perceived help by ASP to access PES Pre-Post



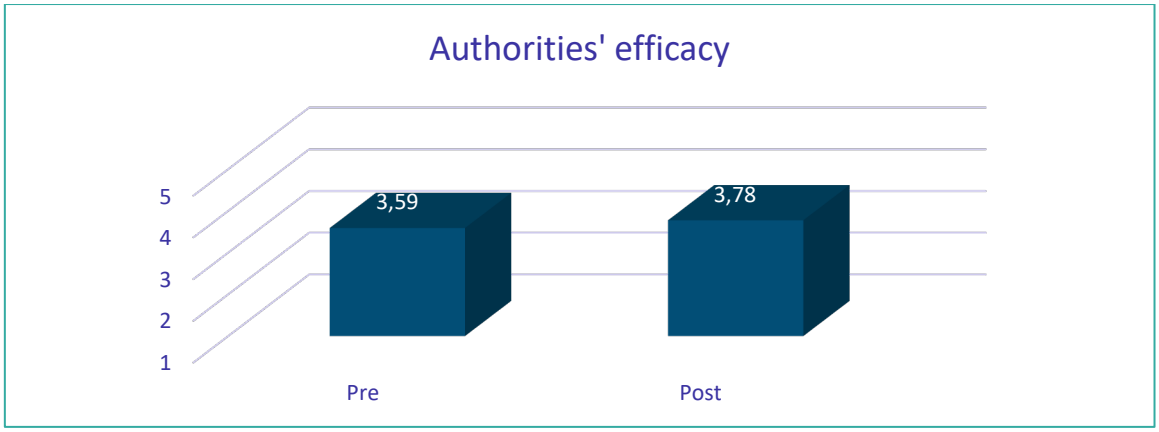
Taken together price, access, and help, we see that the difficulty is still very high. On a scale of 1 to 5, it goes from 4.00 to 3.95, without this decrease being significant.

Figure 111. Participants of DQDLS course's perceived global accesibility to PES Pre Post



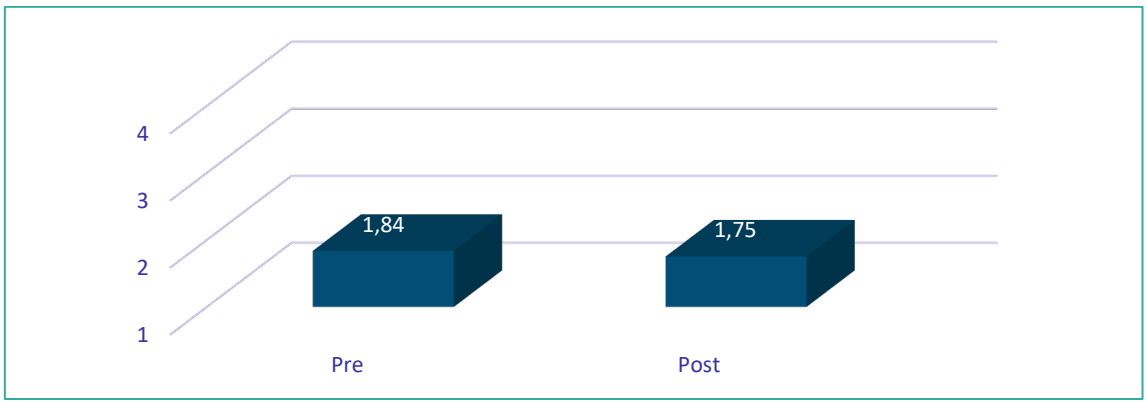
The perception of seriousness and effectiveness of police and customs in the fight against doping increases. However, the change from 3.59 to 3.78 on average is not statistically significant.

Figure 112. Participants of DQDLS course's perception of authorities efficacy against doping Pre-Post



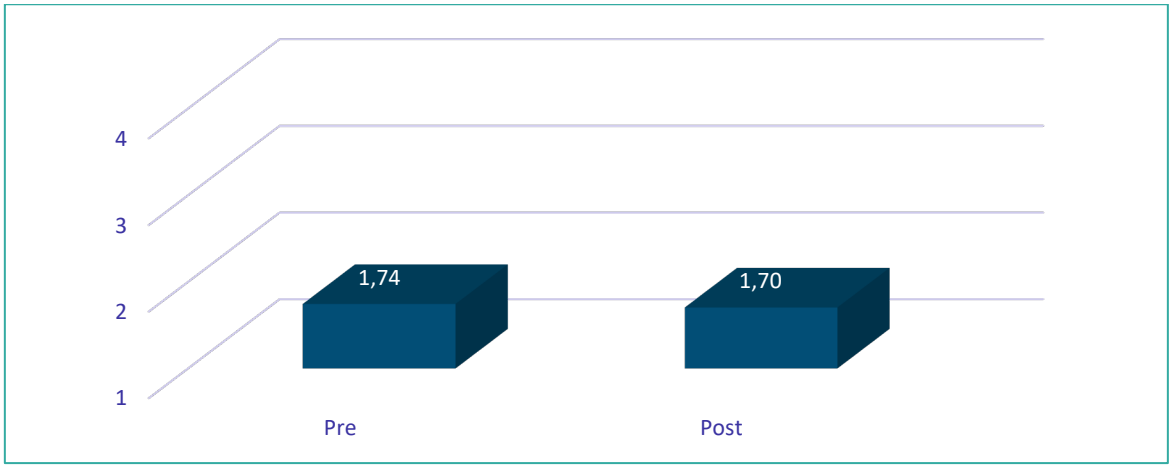
The next factor is the questions related to the treatment of those sanctioned. Being 1 'very fair' and 4 'very unfair', the average remains practically the same. The slight decrease cannot be considered statistically significant.

Figure 113. Participants of DQDLS course's perception of authorities fairness Pre-Post



As for the accuracy of anti-doping controls, 1 being 'very accurate' and 4 'not at all accurate', the slight decrease in perceived accuracy is not statistically significant.

Figure 114. Participants of DQDLS course's perception of antidoping controls' accuracy Pre-Post



Moral feelings remain very high, around 95% of participants saying they would feel ashamed, embarrassed ang guilty to a great extent, so changes are not statistically significant.

Figure 115. Participants of DQDLS course's shame if being caught using PES Pre-Post

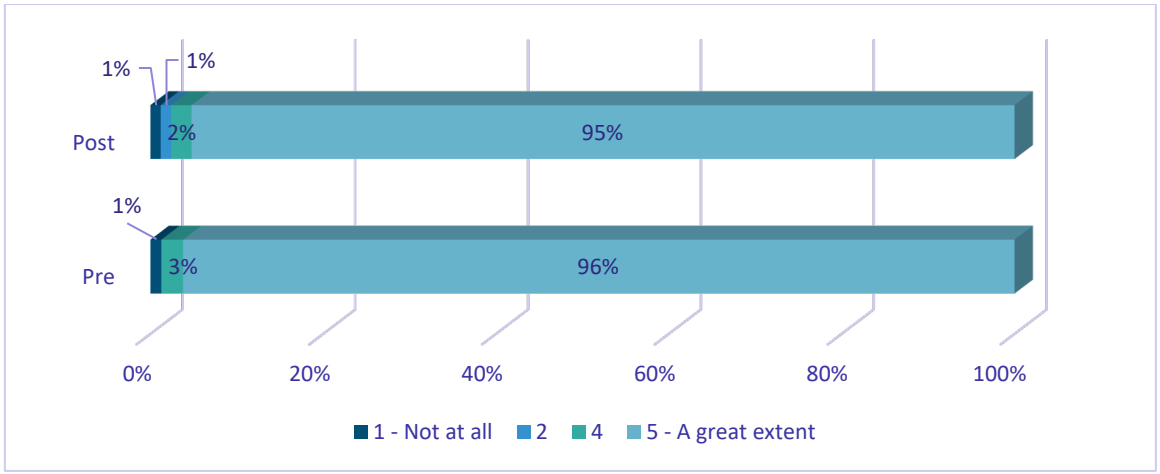


Figure 116. Participants of DQDLS course's embarrassement if caught using PES Pre-Post

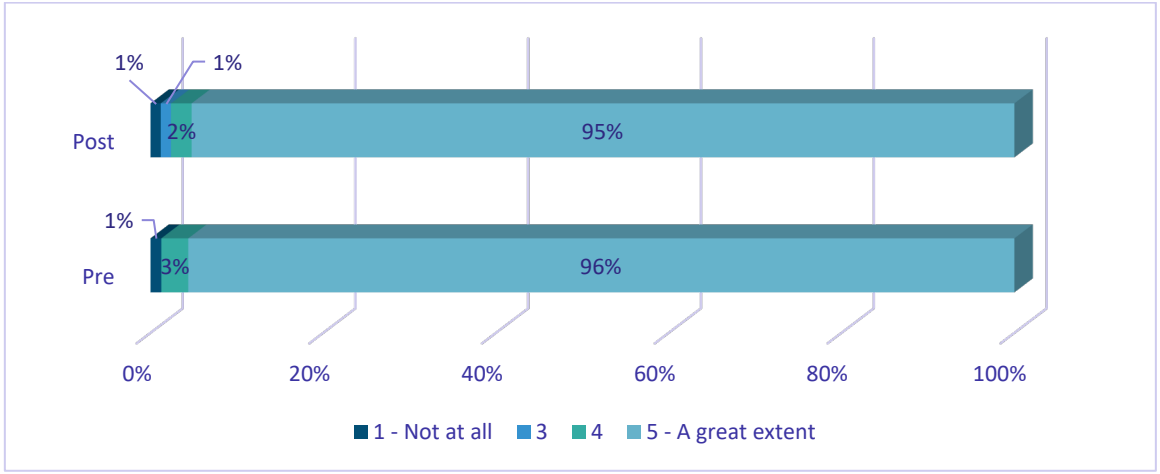
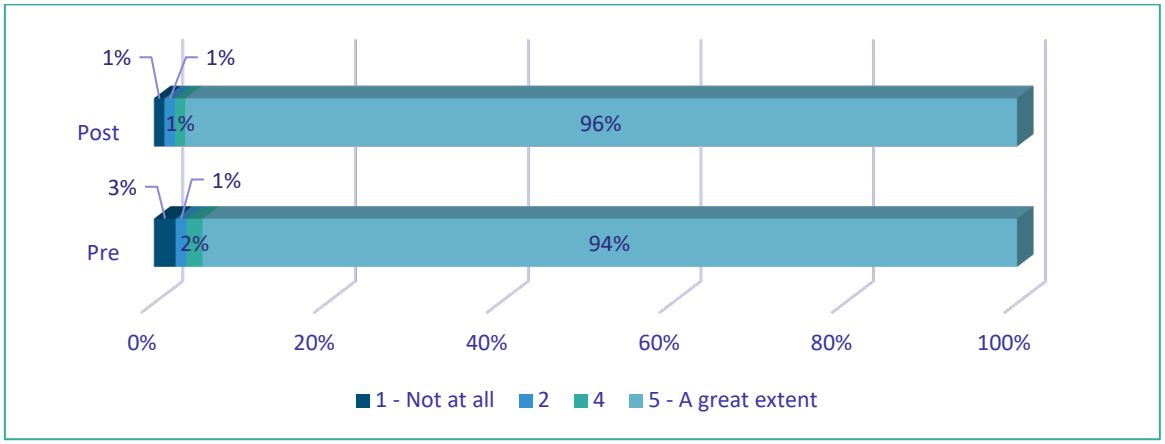
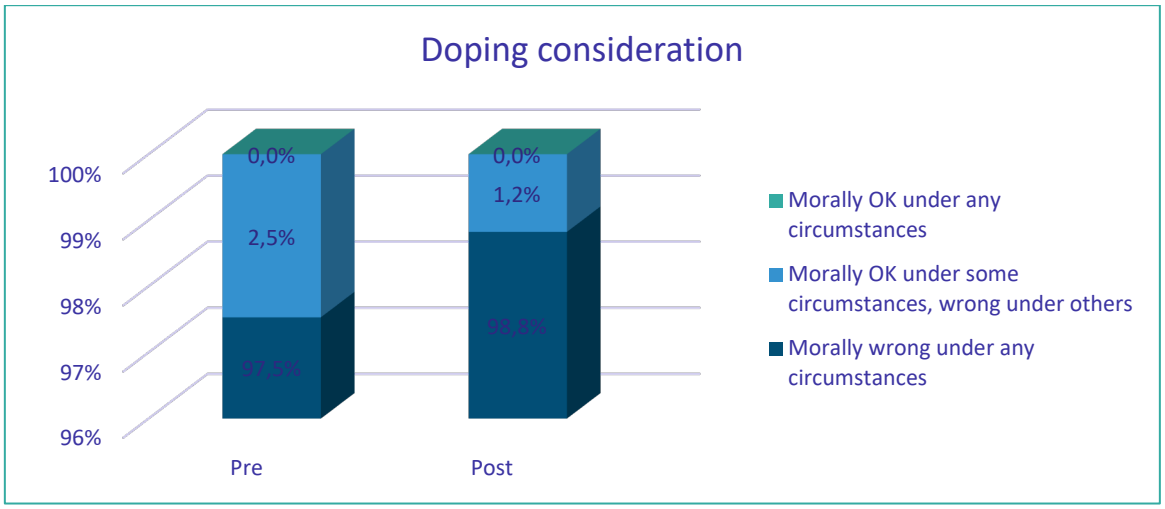


Figure 117. Participants of DQDLS course's guilt if caught using PES Pre-Post



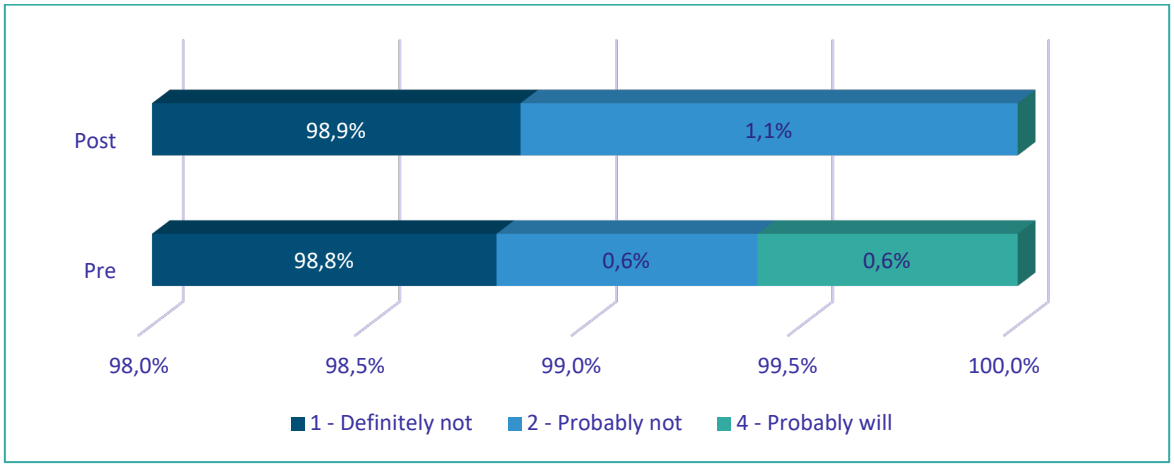
In general, how do they position themselves against doping after the course? Although 1.3% more of the participants consider it morally wrong in any circumstance, this is not statistically significant.

Figure 118. Participants of DQDLS course's moral positioning about doping Pre-Post



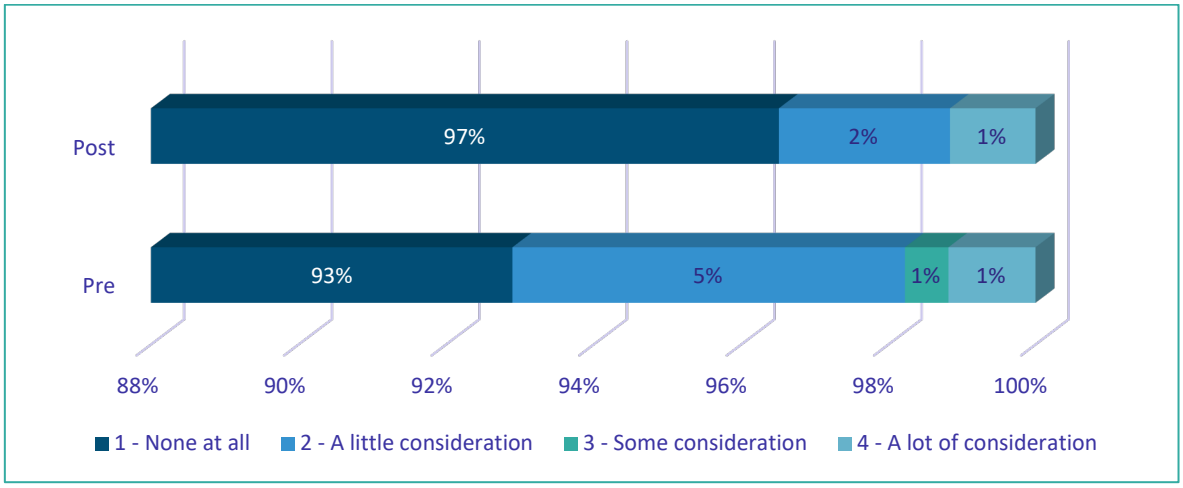
Virtually no one still does not claim to have the intention to dope. After the course, no one claims to be thinking of doing it. That slight change is not statistically significant.

Figure 119. Participants of DQDLS course's intention to use PES this season Pre-Post



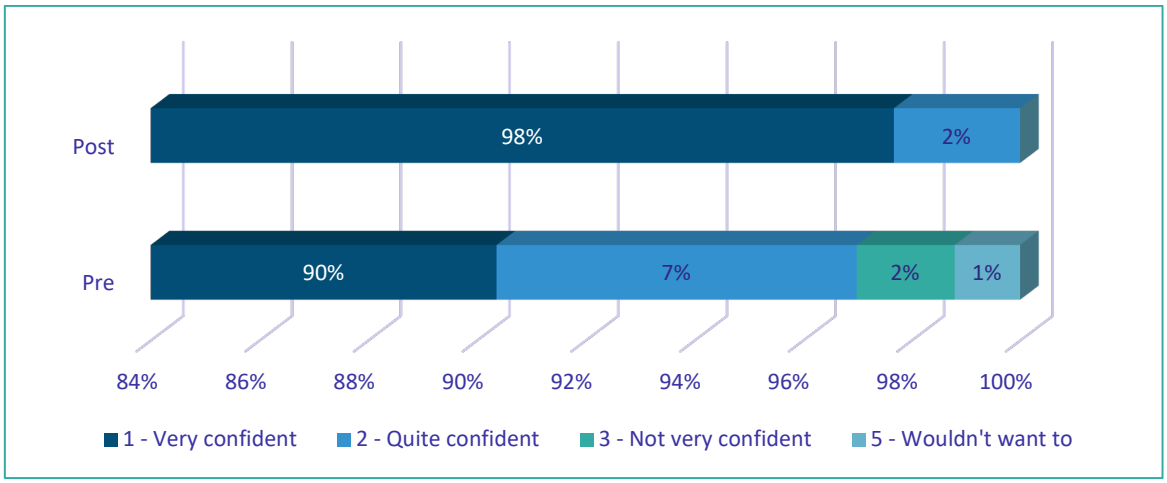
The rejection of a substance without harm or risk is also maintained. It actually increases those who would not consider it at all. That increase (+4%) is not statistically significant.

Figure 120. Participants of DQDLS course's consideration of an undetectable PES under medical control Pre-Post



Likewise, it increases who would feel very confident in rejecting the offer. This improvement is close to statistical significance but does not reach it (p=0.176).

Figure 121. Participants of DQDLS course's confidence in rejecting undetectable PES under medical control Pre-Post



5.2. **Qualitative Study**

The qualitative study included 11 interviews with athletes, coaches, and instructors of the DLQDS programs.

Athletes had a general positive opinion about the course and the seminars. One of the athletes participating in the DLQDS online course mentioned that “it is important that athletes are informed" (*Athlete 1*), highlighting that they allow them to be updated on the latest modifications. The athlete considered that these types of courses were fundamental because “there are quite a few athletes who don't know many things and you can always learn” (*Athlete 1*). Likewise, another athlete from the same course had a positive general opinion about the courses, considering that the training “is interesting and easy to understand” (*Athlete 2*). This same athlete believed that these types of courses were necessary to "know exactly what is allowed or what is not" (*Athlete 2*). On the other hand, one athlete had not said that she had not learned anything new because she was already an experienced athlete:

> I'm going to be honest with you: they make us take the course to be able to compete at an international level and we have to do it, so well, it's true that it can refresh some knowledge, but I think that new didn't give me anything. (Athlete 3)

On the other hand, less experienced athletes who attended the live seminar seemed more interested in the information received: “because we had never been in a situation like this, and so we had never had any talk or any type of training like this” (*Athlete 4*).

In relation to the contents of the course, a clear diversity of opinions can be appreciated depending in part on the athletes’ previous experience. *Athlete 1*, for example, considered that the content "is quite complete and does not have any difficulty", is "quite entertaining" and he "had fun doing it", also highlighting that it includes concepts that "professional athletes have to know at least". *Athlete 2* also indicated that the content was enjoyable, "easy and understandable", although he also mentioned that it was "very repetitive", because he had had to take the course several times. He thought that perhaps it could be designed with different levels: “an expert continuation should be made”. Again, *Athlete 3* thought that the content of the courses was "a little more for people who are just starting out", and that if you have been competing for some time and have carried out controls "it does not give you much". Finally, *Athlete 4* had a positive opinion about the content, although in her case the content was "a little too technical", although she herself recognized that it could be due to her youth and her lack of experience.

Regarding the duration of the course and the time invested, the interviewees considered these indicators positively. The ones doing the online indicate that it was "nothing heavy, fair" (Athlete 1). The athletes receiving the online seminaire also considered that it took “a fairly normal time, not so long considering all the things that were explained" (Athlete 4).

They also had a positive opinion of the instructors, who were ‘people that master the topic, professional and competent” (Athlete 1). This instructors managed to taught the content in an entertaining and interesting way, encouraging student participation: "for my part, I was interested and I liked participating, I did not see it as something heavy or uninteresting" (Athlete 1).

At a technical level, the online platform has not generated problems for the participants. They have had no notable complications in being able to follow the content of the course, noting that "it was quite simple" (Athlete 1). The connection was good, although in some cases the seminar was watched in group in noisy spaces where it was more difficult to follow the session: “Yes, that was a bit more complicated, we were all in one room and the same It wasn't very well heard, but we managed to understand it” (Athlete 4). They also highlight that it was easy to use, and that the platform was "quite intuitive and there was no problem" (Athlete 3).

If we talk about the impact that they believe the course can generate, the athletes think that in their case not much since they have always had an anti-doping mentality: “it haven’t change me anything” (Athlete 1). However, they believe that to a certain extent it can have a positive impact on young athletes who consider doping, since the course offers a great deal of information about its harmful effects on health. They also believe that it helps raising awareness about unintentional doping:

> “I think that this is important, that you make us aware of how important it is to check before taking anything, (…) because many times you go to the doctor and he or she prescribes you something, you take it and you do not realize it. So I think it's important to raise awareness that we have to review these things.” (Athlete 3).

The most outstanding aspects of the course varied, some highlighting the importance of showing the athlete the control and monitoring that they have over the athlete:

> “a strong point is to make the athlete see that everything is under control, and then when you are doing the course you see that you say that today everything is under control and you are more aware. The awareness that things can be achieved by working cleanly” (Athlete 1).

Other athletes stressed that it was not very extensive and that at the same time "you have a global perspective of how the fight against doping works" (Athlete 2). Athlete 3

underlined that the strong point for athletes who have basic knowledge are more specific aspects, like being aware that “you have to prepare your calendar with your time window and all that”, as well as the importance of having general knowledge, giving value to “the way they explain it, which is through the drawings and the story, makes you understand it better” (Athlete 3).

Regarding the weaknesses that the course shows, Athlete 3 mentioned that more emphasis could be placed on aspects more focused on athletes: "perhaps it is a little more focused on the duties and obligations that we have". The possibility of changing the course so that it is not so repetitive for athletes who have to do it several times or talk about other aspects (Athlete 2), were also mentioned.

Coaches attended exclusively the online seminar. Their general opinion is also positive, indicating that they had liked it and that it was interesting and complete (Coaches 1, 2 and 3), a nd allowing them to resolve the doubts that each student had on a personal level and to know the problems that exist in other sports. Some coaches even considered that they would have liked the course to be extended for more days, “more extensive” (Coach 3).

Regarding the content, it is mentioned that "it is quite accessible" (Coach 2), "enjoyable" and "interesting" (Coach 3), highlighting that the classes are "quite interactive" and that they try to solve all the doubts that the coaches have (Coach 2). In general, the coaches liked the content, and being able to include the experiences of the coaches themselves was very important for the, (Coach 1). There were no important criticisms regarding the duration of the course, the interviewees thinking that it was well adjusted.

The work carried out by the instructors stands out, being "very nice, she made it very pleasant" (Coach 3), and instructors seemed able to resolve all the doubts of the participants, being “very well organized in that aspect" (Coach 1).

As for the impact, Coach 1 considered that this type of course does serve to change attitudes and prepares for facing situations that may arise. Coach 3 was of the same opinion, considering that the courses generated more awareness on the subject of doping.

Some of the elements that stand out as possible aspects to improve, refer to how interesting it would be to be able to broaden and deepen some of the topics that are dealt with, such as, for example, that related to food supplements and doping (Coach 3), or specific to some sports (Coach 1). Also, increasing the duration so it is not so concentrated, making them "more extensive and more dispersed in time" (Coach 3). It

would also be interesting to further expand on "the real consequences" that doping has for athletes (Coach 2).

We also interviewd the instructors of the DLQDS seminars, and from their interviews we were able to draw the following conclusions. First, all instructors consider the course to be very useful and therefore necessary, not only to learn what is essential about doping and anti-doping control protocols, but also to generate preventive awareness in younger athletes, to ensure that they know the consequences of doping and build a critical conscience about fair play and health consequences: "I think this is very, very necessary because they are values, because in the end there is section about the values of sport such as respect, such as work, etc." (Instructor 1). That is the reason why they would like to reach many more people: "The objective is that, to reach more people, but I think it does not reach enough... it does not reach" (Instructor 1).

The contents offered are adequate, quite complete and understandable, according to the instructors: "The content of the anti-doping courses is interesting and quite appropriate for each of the sectors they are aimed at" (Instructor 2).

Regarding the duration of the course, they think that it is appropriate to give the necessary information and that it is not excessive: “I think that over time we have managed to adjust it very well and find the balance between not taking up much time and being able to give all the content” (Instructor 2). However, one of the trainers assures: "I think it is enough, but if we had a little more time, it would be better to do more practical activities that facilitate the assimilation of the contents" (Instructor 3).

The general feeling regarding their level of competence is positive and backed by extensive training in the subject: "The truth is that they have given us quite a few courses, a lot of hours of training on the various topics that I talk about in the seminar” (Instructor 1). Although some of the trainers miss that more emphasis is placed on certain updates: "What would not hurt would be an update a year, to be able to get together and be able to say what is new" (Instructor 4).

When asked about the impact they can generate regarding the perception of doping on athletes through the course, they believe it is optimal. One of the instructors, when asked if she believes that the course changes the perception of doping in athletes, answers: “Yes, yes, I'm sure. Of the youngest who are not yet conditioned, yes, I'm sure” (Instructor 1).

From the experience of instructors who have had the opportunity to give both face-to-face and online courses, they think that in these seconds the interactive dimension is certainly lost, which gives rise to losing certain information and becoming somewhat

more tedious. According to a trainer "I think the online format prevents it to be interactive and is more monotonous" (Instructor 5). They also consider that the online platform with which they worked did not particularly help: "I don't see their faces, so you don't know if they are on their mobile. You don't even know if they are. We have to solve this" (Instructor 2).

> The strengths that the trainers highlight the most are related to the contents of the course, the information they provide and the impact they generate on the athletes. “The content is the most… I think the strongest point, the content, but from the point of view of principles, that we need principles as athletes and as people, “anything goes” does not work. I think that is something that is powerful if it is oriented there” (Instructor 1)

Access to these courses is one of its critical points, as they consider that it is not reaching all the people it should reach and that there are significant shortcomings in communication with sports clubs and federations:

> It is because of the procedures to carry out the seminaires and because of the communication, the communication with the club and how the process has to be that *‘We send you an instructor who has to give the talk with the coaches’*, when it should be a much more accessible content and communication be much more fluid” (Instructor 2)

As for aspects to improve, most agree on methodological aspects. They would like to return to face-to-face teaching, but being aware of how online modalities have entered our lives, they propose improvements to the platform such as the possibility of seeing the faces of the students or improving interaction "including some more hands-on activity" (Instructor 3). An update in the format of the presentations is also proposed:

> “A new presentation with a new, more current format; (…) it has a lot of text, in some pages there is a lot of text, a lot, so maybe I would do it in another (…) I would do something else, I would do one infographics, which they are already doing now”.

6. Limitations of the study

This study has limitations that must be taken into account when interpreting the results.

As for the evaluation of the athletes and ASP programs, the original design included a 4-month follow-up in line with evidence based recommendations (Bates et al., 2017). However, this analysis was not possible to carry out since participants drop out at such a high rate that pertinent statistical analysis was not possible, limiting the analysis only to the short-term impact (Hurst et al., 2020). This very high dropout rate was in line with previous literature but still too high (Donovan et al., 2015; Kavussanu et al., 2021).

Also, self-reported doping rates were extremely low, and do not match recent measures taken through different strategies in Spain (García-Grimau et al., 2021) and abroad (de Hon et al., 2015; Ulrich et al., 2018). This again raises doubt about self-reported behaviour in doping and the possibility that real rates are higher. Drop-out rates in the PASS sample were also higher, but less so, allowing for a 4-months follow-up that retained the progress assessed just after the course.

7. Conclusions

Dopaje Lo que Debes Saber (DLQDS)

- Findings are in line with other interventions who do not make a significant impact due to a floor effect and, probably, lack of sincerity in answers (Ntoumanis et al., 2014, Bates et al. 2017).
- No significant differences between the online, long intervention and the short, live online intervention (Kavussanu et al., 2021).
- Current Spanish educational interventions have none or very limited impact on athletes.
- Interventions must be adapted and long enough to have an impact.
- Athletes who already show strong reject of doping cannot strongly benefit from educational interventions. Honesty in answers remain an issue.
- Other causes remain difficult to study or intervene, especially institutional constraints. Sociological analysis, and not only personality and context factors, must be included in the equation.

Vive Sin Trampas (VST)

- As in DLQDS case, findings are in line with other interventions: changes are moderate but positive, but there is a floor effect (Ntoumanis et al., 2014).
- Changes remain in place at the 4-month follow-up, which implies a long term effect better than in other antidoping experiences (Hurst et al., 2020).
- This was a long intervention, including both technical education and moral contents, in line with what is considered efficient and necessary (Kavussanu et al., 2021).
- Again, very high dropout rate, in line with previous literature but still too high (Donovan et al. 2015, Kavussanu et al., 2021).
- Educational interventions had limited impact but, in this case, may have helped to curb doping acceptance among future ASPs.
- This intervention was offered to students, while athletes typically receive shorter interventions focused on education and information.

8. Evaluation and Improvement Plan

This project pretended to evaluate the educational programs and propose an improvement plan. In order to do so, and taking into account the CIIP model for educational programs evaluation (Stufflebeam, 2003; Zhang et al., 2011) we must put this results into context to determine what these programs have achieved in terms of positive and negative outcomes both intended and unintended, and its effectiveness, impact, sustainability, and transportability ((Frye & Hemmer, 2012).

As for the outcomes, this research has evaluated changes in perceptions, attitudes, and behaviours in athletes and PAAS students. In general terms, positive outcomes have been modest, with a significant increase in perceived knowledge about PESM performance and health effects among students, together with an increase in moral rejection of doping. However, all variables remained similar among athletes of both DLQDS programs. This result is partially explained by the fact that most participants already showed a high rejection of doping. For interventions that pretend to change attitudes to remain relevant, they must focus on athletes that actually have a positive or neutral position towards doping. To do so, a preliminary screening may be necessary, as in Kavussanu et al. moral intervention (2021).

Interventions must also be long enough to produce an impact (Bates et al., 2017). Current CELAD's intervention are limited to a 1-hour live seminar, while the online course, although longer (28 hours) had similar absent impact.

Also, scientific evidence shows that moral positioning is highly related to doping behaviour, so value-based education purposefully designed is also necessary to change attitudes (Kavussanu & Ring, 2017), and DLQDS program had limited development of this area.

The qualitative evaluation has showed, however, that participants were satisfied with the programs and considered them necessary and appropriate. However, although they did not raise fundamental criticisms about them, the analysis of the interviews has made possible to identify limitations in delivery, duration, content, adequacy, relevance, and impact.

First of all, the Covid-19 pandemic forced all education by CELAD to be online. This transition was felt as a limitation by the instructors and the participants of the seminars, since it prevented appropriate interaction and a more practical approach to the course. On the other hand, in the case of athletes going through the online course this was perceived as an advantage, allowing them for self-management of their time.

As for the duration, some of the participants of the 1-hour seminars asked for longer interventions, taking place through several days, in order to have a fuller view of the antidoping structures and PESM health and sporting consequences. This demand was not shared by the more experienced competitors, that preferred shorter and more specialized information. That is why in order to increase adequacy and relevance, CELAD should develop tailored interventions taking into account the participants' experience, competitive level, and discipline. Experienced athletes showed specific interest for training on nutritional complements, prohibited substance list updates and Therapeutic Use Exemptions (TUEs), while less experienced athletes needed a more basic, general information.

The impact of the programs remained apparently limited, if we take into account the instructors' opinion, since the number of participants is still limited due to management and communication issues with clubs and federations that should be resolved. Finally, interviewees also highlighted overlapping issues with their international federations and WADA, since they had to do several online courses very similar in content. It would be necessary to avoid such overlaps.

Sustainability should not be an issue, since the programs' structure is well established, although an increase in its impact is necessary to keep it pertinent. Transportability seems also attainable since the programs could be transferred to other NADOs or federations.

For all these reasons, we consider that the priority actions should be:

ACTION 1: Increase participation of athletes and ASP:

o Improved communication with national federations and clubs.

o Signing of stable agreements with the federations that include action protocols.

o Design of specific training plans for each federation.

o Avoid overlapping with IFs and WADA for international athletes.

ACTION 2: Increase the duration of the programs:

o Increase the duration of the seminars, allowing for practical sessions to be included.

o Longer sessions are not advisable, but a greater number of sessions is.

ACTION 3: Taylor interventions

o Specific courses depending on the different levels: beginners, advanced, expert.

o Adaptation of the contents to the level of the sample: the introductory courses must include basic information on anti-doping procedures, while the experts must focus on updates and changes in the regulations.

o Adaptation, as far as possible, to the specificity of each sport.

ACTION 4: Introduce Value-based education

o In addition to technical knowledge, the programs should include education based on values, since morality and an ethical stance against doping are fundamental variables in the behaviour observed.

o Value-based educational programs must include practical activities and evidence-based pedagogical approaches.

o To develop education based on values and practical content, it is necessary to increase the number of hours of the programs.

ACTION 5: Develop a training plan for instructors

o Plans designed for updating and continuous training of instructors with measurable objectives.

ACTION 6: Program evaluation

o Following the experience of this research, the educational program should be re-evaluated in a reasonable period of time to see if its effectiveness has improved.

o The education plan should include clear objectives that can be measured, preferably following the SMART methodology.

o Objectives should differentiate between increasing anti-doping awareness and changing perceptions and attitudes.

9. Dissemination

During the last 6 months of the project, the main results of this research were presented in two international congresses, the 2022 World Congress of Sociology of Sport organized by the International Sociology of Sport Association (ISSA) and the European Association for the Sociology of Sport (EASS) at Tübingen, Germany, from the 7th to the 10th June and at the 2022 Conference of the International Network of Doping Research held in Aarhus, Denmark, the 18 and 19 August.

The title of the EASS presentation was *Efficacy of an Educational Program on Spanish Sports Science Students' Perceptions about Doping* and explained the main outcomes of the evaluation of the students' program *Vive Sin Trampas* (VST).

The title of the INDR presentation was *Efficacy of and Educational Program on Spanish Athletes* and explained the main results on the program *Dopaje Lo Que Debes Saber* (DLQDS). It abstract was published in the Book of Abstract of the conference.

Scientific articles are being prepared to disseminate these main results and other subsequent analysis the research team are undergoing.

10. Outreaching

At the end of the project, a conference on doping education was organized to showcase the main results of the project. The conference was held on September 26 at the Universidad Europea de Madrid (UEM) facilities. It was open to students, scholars, sportspeople, and media, and 122 persons sign-up for the event.

It started with a conference by Jesús Garrido, Director of Education and Scientific Research at the CELAD, who spoke about WADA's structure, code, list of prohibited substances and sanctions, as well as about the educational programs in operation.

Then, Carlos García, as head of the research team, explained the results of the evaluation of the CELAD's programs *Vive Sin Trampas* (VST) and *Dopaje Lo Que Debes Saber* (DLQDS). Finally, a round table chaired by project member Jonathan Ospina in which Professor Juan del Coso, doping expert from the Rey Juan Carlos University (URJC), two UEM students, the cyclist Nekane Gómez and the athlete Marina Angulo, and the UEM professor Guillermo Higuero, sports psychologist, and former swimmer, participated.

The conference was published in the university account on Twitter and the recording was uploaded to the university YouTube channel (https://www.youtube.com/c/UnivEuropea)

Figure 122. Conference Poster

Figure 123. Doping Education Conference: Jesús Garrido intervention

Figure 124. Twitter dissemination

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Appendix 2: Questionnaire Spanish Version

Universidad Europea de Madrid

Encuesta sobre las opiniones de los deportistas sobre el ámbito deportivo

Gracias por responder a esta encuesta. Esta encuesta le pregunta sus actitudes y opiniones sobre diversos ámbitos del deporte. Su participación es voluntaria. Ninguna pregunta es obligatoria. No hay preguntas correctas o incorrectas. Solo queremos conocer su opinión. Todas las respuestas son estrictamente confidenciales. No escriba su nombre en esta encuesta. Todas las encuestas completadas serán analizadas exclusivamente por los miembros del equipo investigador de la Universidad Europea de Madrid.

Agradecemos enormemente su participación en esta encuesta.

Instrucciones:

La mayoría de preguntas ofrecen varias opciones de respuesta. Simplemente elija aquella que prefiera y rodee el número correspondiente. En otras preguntas se le pide que escribe algo, en cuyo caso habrá un espacio preparado para ello.

Es importante que responda lo mejor que pueda. No hay respuestas buenas o malas, solo le pedimos que sea completamente honesto/a.

P1. ¿Cuál es el deporte principal en el que participa o ha estado involucrado?

_____

P2. ¿Cuántos años ha competido en su deporte principal?

Menos de un año (o temporada) 1
1 o 2 años (o temporadas).....2
Más de 2 pero menos de 5 años (o temporadas).....3
5 años o más (o temporadas) 4

P3. ¿Cuál es el nivel más alto en el que ha competido?

Juegos Olímpicos 1
Campeonatos mundiales / eventos internacionales 2
Campeonatos nacionales.....3
Campeonatos autonómicos.....4
Campeonatos provinciales 5
Competición local / municipal 6

P4. ¿Tiene o ha tenido títulos? Rodee el nivel más alto obtenido

Sí – Títulos Internacionales 1
Sí – Títulos nacionales.....2
Sí – Títulos autonómicos.....3
No 4

P5. ¿Alguna vez ha tenido una autorización de uso terapéutico (AUT)?

Sí – y todavía la tengo.....1
Sí – pero ya no la tengo 2
No 3

P6. ¿Compite en eventos para atletas con discapacidad??

Sí 1
No 2

P7. Personalmente, ¿cuánto le gustaría recibir estas recompensas por alcanzar un buen rendimiento en su deporte?

	Mucho	Un poco	Nada
1. Ser famoso a nivel nacional	1	2	3
2. Contratos económicos por patrocinio	1	2	3
3. Lograr grandes resultados personales	1	2	3
4. Posibilidad de seguir en el deporte como entrenador, preparador o directivo	1	2	3
5. Un futuro económico asegurado	1	2	3
6. Ser Famoso a nivel internacional	1	2	3

P8. ¿En qué medida su deporte ofrece a los atletas estos resultados si rinden a un buen nivel?

	Mucho	Un poco	Nada
1. Ser famoso a nivel nacional	1	2	3
2. Contratos económicos por patrocinio	1	2	3
3. Grandes resultados personales	1	2	3
4. Posibilidad de seguir en el deporte como entrenador, preparador o directivo	1	2	3
5. Un futuro económico asegurado	1	2	3
6. Ser Famoso a nivel internacional	1	2	3

P9. Si usara las siguientes sustancias, ¿cómo de probable sería que mejorasen su rendimiento en su deporte?

	Seguro que no	Probable-mente no	Quizás sí quizás no	Probable-mente sí	Seguro que sí	No sé
1. Esteroides anabolizantes	1	2	3	4	5	9
2. Betabloqueantes	1	2	3	4	5	9
3. Esteroides de diseño como tetrahydrogestrinona (THG)	1	2	3	4	5	9
4. Eritropoyetina (EPO) y otras sustancias similares	1	2	3	4	5	9
5. Hormona humana del crecimiento (hGH)	1	2	3	4	5	9

P10. Si usara la sustancia prohibida que quisiese para mejorar su rendimiento, ¿cree que mejoraría su rendimiento deportivo?

Seguro que no mejoraría 1

Probablemente no mejoraría 2

Quizás sí y quizás no 3

Probablemente mejoraría 4

Seguro que mejoraría 5

No sabe 9

P11. ¿Cuánta presión, directa o indirectamente, crees que el gobierno español o el Comité Olímpico Español ejercen sobre los atletas de élite para ganar medallas olímpicas?

Ninguna presión en absoluto 1

Un poco de presión 2

Bastante presión 3

Mucha presión 4

P12. ¿Hasta qué punto cree que las presiones comerciales en los Juegos Olímpicos y el deporte en general han aumentado o no la actitud de "ganar a toda costa" entre los atletas de élite?

No ha tenido ningún efecto 1

La ha aumentado un poco 2

La ha aumentado bastante 3

La ha aumentado mucho 4

P13. ¿Hasta qué punto cree que las influencias comerciales en los Juegos Olímpicos y el deporte en general han aumentado o no la tentación entre los atletas de élite de usar sustancias prohibidas para mejorar el rendimiento?

No ha tenido ningún efecto 1

La ha aumentado un poco 2

La ha aumentado bastante 3

La ha aumentado mucho 4

P14. ¿Alguna vez ha pasado un control antidopaje?

Sí 1

No ..... 2 → **si responde no, vaya a pregunta P18.**

P15. ¿Ha pasado algún control antidopaje en el último año?

Sí 1

No 2

P16. ¿Encontró la experiencia de pasar el control traumática o molesta de alguna manera?

No 1

Sí – en cierta medida 2

Sí – mucho 3

P17. ¿Cómo describiría la conducta del personal a cargo del control?

						Ninguna de
(a)	**Cortés**	**O**	**Grosero**	**O**		
	las dos	**1**	**.....**	**2**	**.....**	**3**
	Ninguna					
(b)	**Servicial**	**O**	**No cooperador**	**O**		
	de las dos	**1**	**.....**	**2**	**.....**	**3**
	Ninguna					
(c)	**Simpático**	**O**	**Antipático**	**O**		
	de las dos	**1**	**.....**	**2**	**.....**	**3**
	Ninguna					
(d)	**Considerado**	**O**	**Poco amigable**	**O**		
	de las dos	**1**	**.....**	**2**	**.....**	**3**

P18. El fracaso es una parte natural del deporte. Las siguientes frases expresan las diferentes formas en que los atletas pueden responder a, o interpretar el fracaso. Valore hasta qué punto cada una de las siguientes afirmaciones describe cómo se siente actualmente.

	No lo creo para nada				Lo creo el 100% del tiempo
1. Cuando fracaso, tengo miedo de que a lo mejor no tengo suficiente talento.....	1	2.....	3	4.....	5
2. Cuando fracaso, se frustra mi “plan” para el futuro…	1	2.....	3	4.....	5
3. Cuando no estoy ganando, la gente se interesa menos por mí.....	1	2.....	3	4	5

4. Cuando fracaso, la gente que me importa

se siente decepcionada.....1 ..... 2..... 3 ..... 4.....5

5. Cuando fracaso, me preocupa lo que otros

puedan pensar de mí.....1 ..... 2.....3 ..... 4 5

P19. ¿Hasta qué punto cree que los atletas a los que se les ha concedido una Autorización de Uso Terapéutico han sido examinados meticulosamente y sus exenciones están justificadas?

Ninguna está justificada..... 1

La mayoría no están justificadas..... 2

Algunas están justificadas, otras no..... 3

La mayoría están justificadas..... 4

Todas están justificadas..... 5

No sabe 9

P20. ¿Cuánto daño cree que le haría a su salud tomar estas sustancias por <u>un periodo corto de tiempo</u>, como dos meses?

	Ningún daño	Un poco de daño	Bastante daño	Mucho daño	No sé
1. Esteroides anabolizantes	1	2	3	4	9
2. Betabloqueantes	1	2	3	4	9
3. Esteroides de diseño como tetrahydrogestrinona (THG)	1	2	3	4	9
4. Eritropoyetina (EPO) y otras sustancias similares	1	2	3	4	9
5. Hormona humana del crecimiento (hGH).	1	2	3	4	9
6. Diuréticos.	1	2	3	4	9

P21. ¿Cuánto daño cree que le haría a su salud usar cada una de estas sustancias habitualmente?

	Ningún daño	Un poco de daño	Bastante daño	Mucho daño	No sé
1. Esteroides anabolizantes	1	2	3	4	9
2 Betabloqueantes	1	2	3	4	9
3 Esteroides de diseño como tetrahydrogestrinona (THG)	1	2	3	4	9
4 Eritropoyetina (EPO) y otras sustancias similares	1	2	3	4	9
5 Hormona humana del crecimiento (hGH)	1	2	3	4	9
6 Diuréticos	1	2	3	4	9

P22. ¿Como de caro sería para usted comprar cada una de estas sustancias?

	Muy barato	Bastante barato	Ni caro ni barato	Bastante caro	Muy caro	No sé
1. Esteroides anabolizantes	1	2	3	4	5	9
2. Betabloqueantes	1	2	3	4	5	9
3. Esteroides de diseño como tetrahydrogestrinona (THG)	1	2	3	4	5	9
4. Eritropoyetina (EPO) y otras sustancias similares	1	2	3	4	5	9
5. Hormona humana del crecimiento (hGH)	1	2	3	4	5	9
6. Diuréticos	1	2	3	4	5	9

P23. ¿Cómo de fácil o difícil le sería conseguir cada una de estas sustancias si quisiera?

	Casi imposible	Muy difícil	Bastante difícil	Bastante fácil	Muy fácil	No sé
1. Esteroides anabolizantes	1	2	3	4	5	9
2. Betabloqueantes	1	2	3	4	5	9
3. Esteroides de diseño como tetrahydrogestrinona (THG)	1	2	3	4	5	9
4. Eritropoyetina (EPO) y otras Sustancias similares	1	2	3	4	5	9
5. Hormona humana del crecimiento (hGH)	1	2	3	4	5	9
6. Diuréticos	1	2	3	4	5	9

P24. ¿Si quisiese conseguir y utilizar sustancias dopantes prohibidas, de las siguientes personas quién cree que le ayudaría o no si se lo pidiese?

	Seguro que me ayudarían	Probable-mente me ayudarían	Quizás sí o quizás no	Probable-mente no me ayudarían	Seguro que no me ayudarían	No sé
1. Mi entrenador	1	2	3	4	5	9
2. Padres	1	2	3	4	5	9
3. Compañeros de equipo/entrenamiento	1	2	3	4	5	9
4. Médico del club	1	2	3	4	5	9
5. Psicólogo del equipo	1	2	3	4	5	9
6. Preparador físico	1	2	3	4	5	9
7. Agente						

P25. ¿Si quisiese utilizar sustancias dopantes prohibidas, cómo de fácil le sería conseguir que un médico le aconsejase sobre cómo utilizar esas sustancias?

Casi imposible 1
Muy difícil 2
Bastante difícil 3
Bastante fácil 4
Muy fácil 5
No sé 9

P26. ¿Tiene intención de usar sustancias o métodos prohibidos para aumentar su rendimiento o tener una ventaja competitiva frente a sus oponentes esta temporada?

Definitivamente no 1
Probablemente no 2
Quizás si o quizás no 3
Probablemente sí 4
Definitivamente sí 5

P27. ¿Con qué frecuencia ha usado alguno de estos suplementos nutricionales en los últimos 12 meses?

	Nunca	Rara-mente	A veces	Frecuen-temente	Muy frecuente-mente	Siste-mática-mente
1. Suplementos vitamínicos o minerales	1	2	3	4	5	6
2. Compuestos de hierbas	1	2	3	4	5	6
3. Creatina	1	2	3	4	5	6
4. Bebidas deportivas	1	2	3	4	5	6

5. Barritas energéticas .....1 ..... 2.....3 ..... 4.....5 6

6. Cafeína .....1 ..... 2.....3 ..... 4.....5..... 6

7. Batidos de proteínas y carbohidratos.....1 ..... 2..... 3..... 4.....5 6

P28. En los últimos 12 meses, ¿con qué frecuencia ha usado cada una de estas sustancias, por la razón que sea?

	Nunca he usado	No en los últimos 12 meses	1 o 2 veces	De 3 a 5 veces	De 6 a 10 veces	Más de 10 veces
1. Esteroides anabolizantes	1	2	3	4	5	6
2. Betabloqueantes	1	2	3	4	5	6
3. Esteroides de diseño como tetrahydrogestrinona (THG)	1	2	3	4	5	6
4. Eritropoyetina (EPO) y otras sustancias similares	1	2	3	4	5	6
5. Hormona humana del crecimiento (hGH)	1	2	3	4	5	6
6. Diuréticos	1	2	3	4	5	6
7. Métodos dopantes	1	2	3	4	5	6

P29. ¿Cómo de serias cree que son las siguientes autoridades en perseguir el tráfico de sustancias dopantes prohibidas en España?

	Nada serias	Poco serias	Moderadamente serias	Bastante serias	Muy serias
1. Fuerzas y Cuerpos de Seguridad Del Estado	1	2	3	4	5
2. Oficiales de aduanas	1	2	3	4	5

P30. En general, ¿cómo de efectivas cree que son las siguientes autoridades persiguiendo el tráfico de sustancias dopantes prohibidas en España?

	Nada efectivas	Poco efectivos	Moderadamente efectivos	Bastante efectivas	Muy efectivas
1. Fuerzas y Cuerpos de Seguridad Del Estado	1	2	3	4	5
2. Oficiales de aduanas	1	2	3	4	5

P31. ¿Cuál de estas frases le describe mejor?

Nunca he considerado utilizar sustancias dopantes prohibidas 1

En una ocasión pensé brevemente en utilizar una sustancia dopante prohibida 2

En una época pensé bastante en utilizar una sustancia dopante prohibida..... 3

A veces aún pienso en utilizar una sustancia dopante prohibida porque otros atletas lo hacen 4

Utilicé una sustancia dopante prohibida poco tiempo en el pasado, pero ya no la uso 5

En la actualidad ocasionalmente uso una sustancia dopante prohibida por razones concretas..... 6

Utilizo o pruebo habitualmente sustancias dopantes prohibidas..... 7

P32. Si le ofreciesen una sustancia dopante prohibida, pero bajo control médico y sin coste o poco coste económico, y esa sustancia dopante le diese una mejora significativa de su rendimiento y fuese en ese momento indetectable, ¿hasta qué punto tomaría en consideración la oferta?

No la consideraría en absoluto.....1

La consideraría un poco.....2

La tomaría en consideración 3

La tomaría en mucha consideración.....4

P33. Teniendo en cuenta las presiones a las que están sometidos habitualmente los atletas para ganar, ¿hasta qué punto está seguro de que sería capaz de rechazar la oferta?

Muy seguro de rechazarla 1

Bastante seguro de rechazarla 2

Poco seguro de rechazarla.....3

Nada seguro de rechazarla 4

No querría rechazarla 5

P34. ¿Cómo de seguro/a está de que podría resistir la presión de sus compañeros de equipo o entrenamiento para que usase una sustancia prohibida?

Muy seguro de resistirla 1

Bastante seguro de resistirla 2

Poco seguro de resistirla 3

Nada seguro de resistirla.....4

No querría resistirla.....5

P35. Independientemente de si cree o no que las sustancias y métodos dopantes deban estar prohibidos o ser legales, ¿cuál de las siguientes afirmaciones describe mejor su opinión personal sobre utilizar deliberadamente estas sustancias y métodos?

Creo que utilizar deliberadamente sustancias y métodos dopantes para aumentar el rendimiento es moralmente incorrecto en cualquier circunstancia

.....
1

Creo que utilizar deliberadamente sustancias y métodos dopantes para aumentar el rendimiento es

moralmente correcto en algunas circunstancias, e incorrecto en otras
.....
2

Creo que utilizar deliberadamente sustancias y métodos dopantes para aumentar el rendimiento es moralmente correcto en todas las circunstancias
.....
3

P36. Si le pillasen utilizando sustancias o métodos dopantes prohibidos, ¿hasta qué punto se sentiría…?

	En absoluto				Muchísimo
1. Avergonzado	1	2	3	4	5
2. Incómodo	1	2	3	4	5
3. Culpable	1	2	3	4	5

P37. Si decidiese utilizar sustancias dopantes prohibidas, ¿hasta qué punto cree que las siguientes personas lo aprobarían, les daría igual o lo censurarían por ello?

	Seguro que lo aprobaría	Probable-mente lo aprobaría	Le daría igual	Probable-mente lo desaprobaría	Seguro que lo desaprobaría
1. Su entrenador	1	2	3	4	5
2. Padres	1	2	3	4	5
3. Compañeros de equipo/entrenamiento	1	2	3	4	5
4. Médico del club	1	2	3	4	5
5. Amigos íntimos	1	2	3	4	5
6. Preparador físico	1	2	3	4	5
7. Agente					

P38. Las siguientes frases tratan de entender su punto de vista sobre el dopaje de otros atletas.

	Porcentaje (%)
1. De 0 a un 100%, ¿qué porcentaje de deportistas cree que se dopan en su deporte para aumentar su rendimiento?	
2. De 0 a un 100%, ¿qué porcentaje de deportistas de élite en España cree que se dopan para aumentar su rendimiento?	
3. De 0 a un 100%, ¿qué porcentaje de deportistas de élite se van a dopar en los próximos dos años para aumentar su rendimiento?	

4. **De 0 a un 100%, ¿cuántos entrenadores en su deporte cree que animarían** a sus atletas a usar sustancias o métodos dopantes prohibidos? .....
.....

5. **De 0 a un 100%, ¿cuántos entrenadores en el deporte de élite en España cree que animarían** a sus deportistas a utilizar sustancias o métodos dopantes prohibidos? .....
.....

P39. ¿Cómo de probable es que deportistas de su nivel pasen un control antidopaje al menos una vez al año?

(a) En competición, al menos una vez al año:

Muy probable 1
Bastante probable 2
Moderadamente probable 3
Poco probable.....4
Nada probable 5
No sé.....9

(b) Fuera de competición, al menos una vez al año:

Muy probable 1
Bastante probable 2
Moderadamente probable 3
Poco probable.....4
Nada probable 5
No sé.....9

P40. Se dice que los deportistas que toman sustancias prohibidas pueden usar varios métodos para no dar positivo.

(a) Por lo que ha oído, si tomara sustancias dopantes prohibidas durante una competición, ¿cómo de probable es que no le pillaran si se esforzase por evitarlo?

Muy probable 1
Bastante probable 2
Moderadamente probable 3
Poco probable.....4
Nada probable 5
No sé.....9

(b) Por lo que ha oído, si tomara sustancias dopantes prohibidas fuera de competición, ¿cómo de probable es que no le pillaran si se esforzase por evitarlo?

Muy probable 1
Bastante probable 2
Moderadamente probable 3

Poco probable.....4

Nada probable.....5

No sé.....9

P41. Por lo que sabe o ha oído, ¿en su deporte las sanciones por dar positivo en un control son severas o suaves?

Muy severas.....1

Bastante severas.....2

Bastante suaves.....3

Muy suaves.....4

No sé.....9

P42. ¿La AEPSAD trata a todos los deportistas de forma justa?

Muy justa.....1

Justa.....2

Injusta.....3

Muy injusta.....4

No sé.....9

P43. ¿Cómo de seguros son los métodos de la AEPSAD para realizar los controles antidopaje en España? Es decir, a la hora de tomar las muestras y custodiarlas.

Muy seguros.....1

Bastante seguros.....2

Poco seguros.....3

Nada seguros.....4

No sé.....9

P44. ¿Cómo de precisos son los controles actuales a la hora de identificar correctamente las siguientes sustancias?

	Muy precisos	Bastante precisos	Modera precisos	Poco precisos	Nada precisos	No sé
1. Esteroides anabolizantes	1	2	3	4	5	9
2. Betabloqueantes	1	2	3	4	5	9
3. Esteroides de diseño como tetrahydrogestrinona (THG)	1	2	3	4	5	

.....
9

4. Eritropoyetina (EPO) y otras
Sustancias similares.....1 ..... 2.....3 ..... 4.....5
.....
9

5. Hormona humana del crecimiento (hGH) ...1 ..... 2.....3 ..... 4.....5
.....
9

6. Diuréticos.....1 ..... 2.....3 ..... 4.....5
.....
9

P45. ¿Hasta qué punto está satisfecho con el tratamiento judicial que reciben los deportistas cuando recurren un resultado positivo en España?

Muy satisfecho 1
Algo satisfecho 2
Algo insatisfecho 3
Muy insatisfecho 4
No sé 9

P46. ¿Hasta qué punto está satisfecho con la posibilidad de que los deportistas de su disciplina que dan positivo tendrán un juicio justo y se les escuchará antes de aplicarles una sanción?

Muy satisfecho 1
Algo satisfecho 2
Algo insatisfecho 3
Muy insatisfecho 4
No sé 9

P47. ¿Hasta qué punto está satisfecho con la posibilidad de que los atletas que recurran un resultado positivo ante el Tribunal de Arbitraje Deportivo (TAS) tengan un juicio justo?

Muy satisfecho 1
Algo satisfecho 2
Algo insatisfecho 3
Muy insatisfecho 4
No sé 9

P48. ¿Qué edad tiene?

..... _____

P49. Es usted:

Hombre.....1

Mujer 2

Otros 3

P50. ¿Cuál es su nivel educativo?

Estudios primarios 1

ESO, EGB o Bachiller elemental y similares 2

BUP, COU, Bachiller y similares 3

Ciclo Formativo de Grado Medio, FP básica o similares.....4

Ciclo Formativo de Grado Superior 5

Grado de 3 años, Diplomatura, Arquitectura o Ingeniería técnicas.....6

Grado de 4 años, Licenciatura, Ingeniería o Arquitectura.....7

Doctorado universitario.....8

Actualmente estudiando un Grado Medio de Formación Profesional 9

Actualmente estudiando un Grado Superior o en la Universidad 10

P51. ¿Hasta qué punto sus ingresos provienen actualmente del deporte? Incluya tanto los pagos directos, salarios, pagos por victorias, patrocinios, publicidad y becas.

Ningún ingreso del deporte.....1

Ingresos ocasionales del deporte 2

Ingresos regulares, pero menos de la mitad de mis ingresos totales 3

Alrededor de la mitad de mis ingresos vienen del deporte 4

Más de la mitad de mis ingresos vienen del deporte, pero no todos.....5

Todos o casi todos mis ingresos provienen del deporte 6

P52. ¿Cuáles son sus ingresos anuales totales teniendo en cuenta todas las fuentes?

Menos de 10,000€.....1

De 10,000 a 19,999€.....2

De 20,000 a 29,999€.....3

De 30,000 a 49,999€.....4

De 50,000 a 69,999€.....5

De 70,000 a 99,999€.....6

De 100,000€ o más 7

Appendix 3. Figures