Development of Brief Assessment Packages of Psychosocial Constructs Related to Doping

Prepared for: World Anti-Doping Agency

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1. Executive summary

1.1 Introduction

The World Anti-Doping Agency (WADA) promotes, coordinates and monitors the global fight against doping in sport. The overall aim of this project was to develop a set of assessment tools that can be used by anti-doping organizations (ADOs) to monitor and evaluate the effectiveness of their education programs with regard to their effects on psychosocial variables related to doping. To this end, this report presents the results of a series of phases that aimed to develop and validate three brief questionnaires, designed for adult athletes, athlete support personnel, and adolescent athletes, respectively.

1.2 Methodology

The project was divided into four phases. In phase 1, the research team reviewed the literature and selected psychosocial constructs perceived to be amenable to anti-doping education. In phase 2, a survey with the selected constructs was sent to anti-doping experts, consisting of researchers and representatives of ADOs, who were asked to rate the importance of and rank order these constructs. The results of this abbreviated Delphi poll informed the constructs chosen for phase 3. In phase 3, the questionnaires were distributed by collaborating ADOs to adolescent athletes, and by us to adult athletes and athlete support personnel (ASP) in Denmark, Norway, and Sweden. All questionnaires were in English. In phase 4, final evaluation tools were created (using data from 307 adult athletes and 296 ASP), by selecting the best items for each construct, primarily using the statistical program R (OASIS package). An insufficient number of adolescent athletes (n=31) were recruited and, hence, a tool for this group was not developed.

1.3 Findings

Two questionnaires with 24 (adult athletes) and 28 (ASP) items, respectively, were formed. The questionnaires include 11 and 13 different constructs, respectively, and capture diverse aspects such as morality, motivation, perceived benefits, and perceived deterrents relevant to doping. The final questionnaires can be found in Appendix 6 and 8. In Appendices 7 and 9 we present alternative longer versions of these questionnaires (same constructs but with more items) for researchers who would like a minimum of three items per construct in order to calculate omega reliability coefficients.

1.4 Conclusion

The developed questionnaires should be suitable for evaluation of anti-doping education worldwide, when the interest is on the effects of education on malleable psychosocial constructs. Future research should also investigate the psychometric measures of the preliminary questionnaire for adolescent athletes (see Appendix 2) with the purpose of creating a similar validated brief tool for this population group.

2. Introduction

In order to ensure high quality and consistent anti-doping and clean sport education, the World Anti-Doping Agency (WADA) has developed an international standard on how to plan, implement, monitor and evaluate education (International Standard for Education; ISE, 2021). The ISE defines the terminology in the field of education, clarifies the roles and responsibilities for all signatories responsible for planning, implementing, monitoring and evaluating education programs, and helps signatories maximize the use of their resources. The ISE outlines four components of education delivery:

- Values-based education
- Awareness raising
- Information provision
- Anti-doping education

Furthermore, the ISE suggests that education programs should be evidence-based, informed by education theory, support the spirit of sport values and - if possible - informed by social science research. The programs should be monitored to aid reporting and evaluation and foster continuous improvement. They are also required to be evaluated annually with the purpose of updating the following year's education plan. However, the instruments currently used for ADOs for monitoring and evaluation of education programs are not currently of practical value. With regard to the assessment of psychosocial variables that could be affected by participation in such programs, there are many different instruments that vary in quality and the psychosocial constructs they measure. Further, these instruments, when combined, can be very long which makes them impractical for assessment purposes. To address this challenge, a collection of good quality instruments that measure succinctly the most salient psychosocial measures for anti-doping education is needed. Such a succinct assessment guide could be of use to ADOs when they want to evaluate the effects of anti-doping education on psychosocial variables related to doping, both from the perspective of athletes and from the perspective of athlete support personnel (ASP).

2.1 Background Literature

This project aimed to develop brief measurement instruments that can be used to evaluate possible psychosocial outcomes of anti-doping education. Such brief instruments do not currently exist, and this is a problem for evaluation of education programs conducted by ADOs . Therefore, this project fills a significant methodological void in anti-doping research. In terms of assessing psychosocial constructs at the athlete level, the only available guide for ADOs is that developed by Donovan et al. (2015). The aim of that guide was to develop resources for ADOs and other interested parties for their research and evaluation efforts. Specifically, the intention was that ADOs would be able to compare their athlete populations over time, before and after education training, and directly with other agencies' athlete populations over time. Donovan et al. (2015) identified a number of constructs and questionnaires using reviews of anti-doping literature, as well as questionnaires related to the Sport Drug Control Model. The model considers both the sport socio-economic environment as well as the broad socio-cultural context. The sport socio-economic

environment includes (but is not limited to) affordability and availability of doping, as well as reference group appraisal, legitimacy and personal morality. The broader socio-cultural context includes the cultural differences between countries and sub-populations within countries (e.g., individualism vs collectivism), the medicalization of society in general and in sport, cosmetic and cognitive enhancement in general, the use of illicit recreational drugs, globalization, the increasing commercialization of sport, and the intensification of sporting schedules (Donovan et al. (2015). The questionnaire package developed by Donovan et al (2015) includes the following 14 sections:

1. Morality and cheating.
2. Legitimacy perceptions.
3. Beliefs about the benefits of doping.
4. Beliefs about the harms of doping and the consequences, if caught.
5. Personality/psychological factors.
6. Beliefs about reference groups' endorsement of doping methods/substances
7. Beliefs about the availability of, and relevant authorities' control over trafficking of doping methods/substances.
8. Beliefs about the affordability of doping methods/substances.
9. Beliefs about other athletes' attitudes towards and use of doping methods/substances.
10. Beliefs about societal influences on doping.
11. Performance-Enhancing Drug Use.
12. Use of Nutritional Supplements and Other Permitted Technologies.
13. Demographics and Sporting Background.
14. Overall Susceptibility to Doping; Intention to Dope in the Near Future; Overall Attitude to Doping.

Whilst comprehensive, the guide is over 120 pages long. This is likely to make it impractical for many practitioners, and different organizations are likely to choose different instruments for assessment purposes. Such diversity in instrument choices can hamper efforts for standardization of ADO's education assessments of psychosocial constructs across countries. Also, it is unlikely that all constructs captured in the guide will be considered equally important by the ADOs for the purpose of assessing the effectiveness of their education. Further, the instruments contained within the guide are primarily capturing constructs included in the Sport Drug Control Model. Over the years, other theoretical approaches and models have been introduced to the anti-doping literature, with concomitant new constructs and measurement instruments to assess these constructs. Examples include the Prototype-Willingness model (e.g., Dodge et al., 2013; Whitaker et al., 2014) and the Integrative Model of Doping Behavior (Barkoukis et al., 2013; Lazuras et al., 2015). Such literature will be considered in the current project, alongside Donovan et al.'s (2015) guide.

The quality, validity, and reliability of multiple questionnaires measuring psychological doping related factors have recently been reviewed by Madigan et al. (2021). Madigan et al. (2021) recommend five different scales which have acceptable validity and reliability. These measure doping attitudes, doping willingness, doping susceptibility, and doping efficacy. However, Madigan et al (2021) concluded that there are several psychological doping factors (i.e., doping likelihood and doping intentions) that have no existing measures that

show sufficient validity and reliability. The present study aims to provide a broader set of doping-related constructs than those included in the Madigan et al. review and with fewer items per construct, as our primary aim is to develop brief scales for practical purposes.

With regard to ASP, there has been no published equivalent project to that of Donovan et al. (2015) to collate instruments of psychosocial constructs that are relevant to anti-doping. As a starting point, a team of researchers at Leeds Beckett University (UK) have recently conducted a systematic review of all the coach-related anti-doping literature (Barnes et al., 2020). They identified three higher-order themes (individual, behavioral and contextual factors) consisting of five lower-order themes (self-reported behavior, hypothetical behavior, coach beliefs, knowledge, and psychosocial components). They concluded that the anti-doping research addressing coaches has diversified for the past 20 years into a broader consideration of not just coaches' knowledge and beliefs, but also behavioral and contextual factors. The Barnes et al. review informed the selection and development of constructs pertinent to ASP for our project.

2.2 Developing Short Versions of Questionnaires

Developing short versions of existing longer questionnaires is a practice that is becoming increasingly common in psychology (e.g., Cortina et al., 2020; Heggestad et al., 2019), with recent examples in the doping literature (e.g., Boardley et al., 2018). In fact, of the different ways in which a questionnaire can be altered, Heggestad et al. (2019) identified the development of a short version as the most "serious" modification. One common problem in developing short versions is that authors tend to select items that are paraphrases of each other, in order to construct scales with acceptable internal reliability coefficients . According to Cortina et al., such practice results in grammatical redundancy-induced common method bias and a lack of representativeness. There are different ways in which a scale can be shortened. For instance, experts could be asked to rate the most appropriate items or evidence from previous studies could be inspected (e.g., items with highest factor loadings). However, the first option could be very resource- intensive, particularly if a large number of questionnaires need to be shortened. The second option is limited by what information is currently available, and by the fact that the available evidence comes from diverse samples completing some of the scales and not from one sample of participants completing all scales.

Very recently, the procedures for item selection have taken advantage of developments in technology (e.g., machine learning; Noetel et al. 2019). In this project, we will use a procedure developed by Cortina et al. (2020). This procedure, implemented by a user-friendly app built in R Shiny called OASIS, assists in identifying an optimal shortened version of an existing measure. OASIS uses a psychometrically defensible optimization strategy that simultaneously considers multiple important criteria such as internal consistency reliability, part-total correlations, general factor loadings, convergent and discriminant validity, and content coverage of the items. Essentially, multiple criteria are used simultaneously to determine the optimal solution (i.e., short version) for a long version of a scale. The user decides on the target number of items for the shortened scale (e.g., 3). The app then identifies all of the possible ways that the original set of items could be combined to make a scale of that length. For instance, the user could request from the app to show only those 3-item short versions of an established scale for which the omega reliability coefficient is .70 or above, convergent validity correlations are .70 and above, and divergent validity correlations

are .30 and below. All derived short versions are then evaluated (e.g., for conceptual and grammatical redundancy) and one version is put forward for the final short version.

2.3 The Aims of the Current Project

In brief, our project aims to address the lack of a concise measure that ADOs can use to evaluate the effects of their anti-doping education on related psychosocial variables. To this end, we aimed to develop short versions of assessment tools separately for adult athletes, ASP, and adolescent athletes. The key **research questions** were a) what are the core psychosocial constructs which should be captured by the assessment overarching tool for each target group?, b) can brief measures be developed to capture each of these core constructs?, and c) can evidence be provided for the internal reliability and validity of the scores of these brief measures?

3. Method

3.1 Procedure

The project was divided into four phases. In phase 1, the research team reviewed the literature and selected the psychosocial constructs for phase 2. In phase 2, a survey with the selected constructs was sent to anti-doping experts and the results of this abbreviated Delphi poll informed the constructs chosen for phase 3. In phase 3, the questionnaires were distributed to adolescent athletes, adult athletes, and ASP. In phase 4, the final evaluation tool was created for each target group by selecting the best items for each construct using the statistical program R (OASIS package). Each phase is described in detail in the following pages.

3.1.1 Phase 1-Selection of Constructs

The psychological constructs included in the three questionnaires were determined via a sequence of steps. First, two experienced anti-doping researchers (Profs. Boardley and Barkoukis) created a list of 59 relevant psychosocial constructs in collaboration with the research assistant (Rivold). The included constructs reflected psychosocial variables that were perceived by the researchers as malleable, if they were to be targeted by anti-doping education programs. We did not include constructs that measured clean sport behaviors, objective knowledge, or inadvertent doping, as research work on those constructs had been commissioned by WADA to other research groups. During a number of online meetings between the research team, these constructs were reduced to a total of 27 and were divided into 10 groups. The criteria used to reduce the number of constructs were related to conceptual overlap amongst them, whether existing questionnaires existed to measure each of them, and whether they were measured with Likert scales (e.g., constructs measured with scenarios were excluded, given their length). After the 27 constructs were selected, lay descriptions were written for each construct which were then used in phase 2. The list of the constructs, including the descriptions that were presented to the participants of phase 2, is presented in Table 1.

Table 1 - Constructs, groups and definitions for the abbreviated Delphi Poll in Phase 2

Construct	Group	Definition for athletes (adults and adolescents)	Definition for ASP
Moral stance	Morality	The extent to which an athlete thinks that doping is right or wrong.	The extent to which an ASP thinks that doping is right or wrong.
Moral disengagement	Morality	Moral disengagement refers to the use psychosocial maneuvers that allow an athlete to transgress moral standards without experiencing negative emotions, such as guilt and shame. An example could be when an athlete thinks that it is OK to dope, if it helps provide for his or her family.	Moral disengagement refers to the use of psychosocial maneuvers that allow ASP to transgress moral standards without experiencing negative emotions, such as guilt and shame. An example could be when an ASP thinks that it is OK to dope, if it helps an athlete to provide for his or her family.
Moral affect	Morality	Moral affect refers to the emotional responses of guilt, shame, and embarrassment resulting from having violated one's moral stance by engaging in doping.	Not included for ASP
Moral values	Morality	Moral values indicate an athlete's value system regarding the ethical side of using banned substances and methods.	Moral values indicate ASP's value system regarding the ethical side of using banned substances and methods.
Moral norms	Morality	Moral norms are formal and informal standards and behaviors within an athlete's social environment that	Moral norms are formal and informal standards and behaviors within an ASP's social environment that

		suggest what is morally acceptable and morally unacceptable in relation to doping.	suggest what is morally acceptable and morally unacceptable in relation to doping.
Doping attitudes	Motivation	An athlete's positive or negative evaluation and perspective on doping.	An ASP's positive or negative evaluation and perspective on doping.
Descriptive norms	Motivation	Descriptive norms reflect an athlete's perceived prevalence of other athletes' use of doping.	Descriptive norms reflect ASP's perceived prevalence of use of doping among athletes.
Subjective/injunctive norms	Motivation	Subjective norms reflect athletes' beliefs about important others' opinions towards doping.	Subjective norms reflect ASP's beliefs about important others' opinions towards doping.
Perceived likelihood of being tested in and out of competition	Doping deterrents	How likely an athlete perceives it to be that they will be tested in or out of competition.	How likely an ASP perceives it to be that their athlete will be tested in an out of competition.
Perceived severity of the sanctions for testing positive	Doping deterrents	How severe an athlete perceives the sanctions to be for testing positive.	How severe an ASP perceives the sanctions to be if their athletes test positive.
Perceived likelihood of evading detection if tested in and out of competition	Doping deterrents	How likely an athlete perceives it to be that he or she will evade detection if they dope in and out of competition.	How likely an ASP perceives it that their athletes will evade detection if they dope in and out of competition.
Perceived affordability of doping substances	Doping deterrents	An athlete's appraisal of the economic costs of doping in relation to his or her economic capabilities.	Not included for ASP
APED safety beliefs	Doping deterrents	An athlete's beliefs regarding the risk of experiencing mental	An ASP's beliefs regarding the risk of their athletes

		and/or physical health consequences from doping.	experiencing mental and/or physical health consequences from doping.
Perceived performance-enhancing effects of banned substances and methods	Benefit appraisals	An athlete's appraisal of the extent to which the use of performance-enhancing substances and methods leads to improved performance in their sport.	An ASP's appraisal of the extent to which the use of performance-enhancing substances and methods by their athletes would lead to improved performance in their sport.
Other non-performance related positive effects of banned substances and methods	Benefit appraisals	An athlete's appraisal of the non-performance related positive outcomes of doping, such as achieving celebrity status, sponsorship deals, and/or financial security.	An ASP's appraisal of the non-performance related positive outcomes of doping for their athletes, such as achieving celebrity status, sponsorship deals, and financial security.
Doping intentions	Proxies of behavior	An athlete's intention to use banned substances and/or methods in the near future.	An ASP's intention to help one or more of their athletes to use banned substances and/or methods in the near future.
Doping willingness	Proxies of behavior	An athlete's willingness to use banned substances and methods.	An ASP's willingness to facilitate their athletes' use of banned substances and methods.
Self-presentational concern	Body image	An athlete's awareness of and concerns associated with how other people perceive his/her physical appearance.	Not included for ASP
Drive for muscularity	Body image	An athlete's pursuit of cultural and gender specific body	Not included for ASP

		shape ideals. In Western cultures males tend to desire a more muscular physique, whereas females desire a thinner physique.	
Drive for thinness	Body image	An athlete's pursuit of cultural and gender specific body shape ideals. In Western cultures males tend to desire a more muscular physique, whereas females desire a thinner physique.	Not included for ASP
Perceived behavioral control	Confidence	An athlete's beliefs regarding their ability to control whether they engage in doping.	An ASP's beliefs regarding their ability to control whether their athletes engage in doping.
Self-efficacy to refrain from doping	Confidence	An athletes' belief in their ability to resist internal and external pressures to dope.	An ASP's belief in their ability to help their athletes to resist internal and external pressures to dope.
Anticipated regret/guilt	Emotions	The degree to which an athlete anticipates experiencing guilt/regret as a result of using banned substances and/or methods.	The degree to which an ASP anticipates experiencing guilt/regret as a result of helping their athletes use banned substances and/or methods.
Perceived legitimacy of anti-doping	Beliefs about anti-doping system	Athletes' perception of whether anti-doping organizations are duly constituted and have valid authority to enforce anti-doping regulations.	ASP's perception of whether anti-doping organizations are duly constituted and have valid authority to enforce anti-doping regulations.
Integration of anti-doping into coaching practice	Athlete support personnel behavior	Not included for athletes	The degree to which an ASP monitors, observes and/or provides advice to

			their athletes around issues such as doping control procedures, inadvertent doping, and risks to health.
Diffusion/sharing of anti-doping behavior	Athlete support personnel behavior	Not included for athletes	The degree to which an ASP displaces and/or diffuses their responsibilities towards anti-doping by asserting that anti-doping is not part of their job duties.
Doping confrontation efficacy beliefs	Athlete support personnel behavior	Not included for athletes	The extent to which a coach believes in their ability to effectively confront athletes regarding doping and offer appropriate solutions.

3.1.2 Phase 2- Survey of Experts

Next, the 27 constructs, including their descriptions, were sent via email as a survey to a total of 61 anti-doping experts who had been chosen by the research team and WADA. Thirty two of them were academic researchers with strong anti-doping experience and 29 of them were anti-doping experts from a number of different National ADOs.

The experts were asked to:

- Rate how important each construct was to include in the questionnaire for phase 3 on a scale from 1 to 7 (1 =“not important”; 7 =“very important”).

- Rank how important each construct within a group was to include in the final questionnaire, compared to other constructs within the same group. For instance, the morality group consisted of 5 constructs (see Table 1), and the experts were asked to rank these five from the “most crucial” to the “least crucial”.

Some groups (e.g., Emotions) consisted of one construct only (e.g., Anticipated Guilt). In those groups, the experts were only asked to rate the construct on a scale from 1 to 7, as there was no point in asking for rankings. The importance and ranking ratings were conducted separately for each construct within each of the three target groups (adolescent athletes, adult athletes, ASP).

In total, 32 anti-doping experts responded to the survey. Seventeen of them were researchers and 15 were from NADOs. The data from their responses was processed by the research team, selecting which constructs should be included in Phase 3. The data from this abbreviated Delphi Poll is presented in Appendix 1. The final list included 13 constructs for adolescents, 12 constructs for adult elite athletes and 13 for ASP. The criteria considered in the selection process were:

- Select the top 15 importance scores from both researchers and ADO experts for further processing.
- For constructs with similar importance scores within the same group, rankings were inspected to choose constructs within that group.
- We intended to include as many groups of constructs within each questionnaire as possible, ensuring that no group was represented with more than three constructs, and no selected construct had very different importance ratings or rankings between researchers and ADO experts. In other words, we attempted to include a breadth of constructs that both the researchers and the ADO practitioners deemed relevant for our project.

The experts were also given the option to provide qualitative comments and were encouraged to suggest other relevant constructs. In the qualitative comments, some experts suggested the addition of one construct: perceived susceptibility to doping. However, this construct was not included as it is usually assessed with a lengthy scenario and a single response option.

The selected constructs for adolescents, adult athletes, and ASP are presented in Tables 2, 3 and 4, respectively. Table 5 presents in which of the three packages each construct has been included. Questionnaires for these constructs are presented in Appendices 2, 3, and 4. These questionnaires were administered in Phase 3. For consistency, the rating scale of some questionnaires was changed from the original format to a 7-point Likert scale. The specific scales that were changed are presented in Appendix 5.

Some questionnaires also had items removed to reduce their length. In other questionnaires, we rephrased certain items so they were suitable for ASP. For example, in the ASP pack the wording in “self-efficacy to refrain from doping” was changed to refer to self-efficacy to resist supporting doping.

For consistency, we also changed all terms such as “APEDs”, “PEDs”, “banned substances” etc. into “doping”. The phrase “to use APEDs/PEDs/banned substances” etc. was changed into “to dope”. Some questionnaires differentiated between in- and out-of-season/competition. As we chose not to differentiate between seasons, these items were altered so they referred to the whole sport season.

Table 2 - Chosen constructs for adolescent athletes

	Construct	Group
1	Moral values	Morality
2	Moral norms	Morality
3	Moral stance	Morality
4	Doping attitudes	Motivation
5	Subjective/injunctive norms	Motivation
6	Perceived severity of the sanctions for testing positive	Doping deterrents
7	APED safety beliefs	Doping deterrents
8	Perceived likelihood of being tested in and out of competition	Doping deterrents
9	Perceived performance-enhancing effects of banned substances and methods	Benefit appraisals
10	Doping intentions	Proxies of behavior
11	Self-presentational concern	Body image
12	Self-efficacy to refrain from doping	Confidence
13	Anticipated regret/guilt	Emotions

Table 3 - Chosen constructs for adult athletes

	Construct	Group
1	Moral disengagement	Morality
2	Moral values	Morality
3	Moral norms	Morality
4	Descriptive norms	Motivation
5	Doping attitudes	Motivation
6	APED safety beliefs	Doping deterrents
7	Perceived severity of the sanctions for testing positive	Doping deterrents

8	Perceived likelihood of being tested in and out of competition.	Doping deterrents
9	Perceived performance-enhancing effects of banned substances and methods	Benefit appraisals
10	Doping intentions	Proxies of behavior
11	Self-efficacy to refrain from doping	Confidence
12	Perceived legitimacy of anti-doping	Beliefs about anti-doping system

Table 4 - Chosen constructs for athlete support personnel

	Construct	**Group**
1	Moral norms	Morality
2	Moral values	Morality
3	Moral disengagement	Morality
4	Descriptive norms	Motivation
5	Doping attitudes	Motivation
6	Perceived severity of the sanctions for testing positive	Doping deterrents
7	APED safety beliefs	Doping deterrents
8	Perceived performance-enhancing effects of banned substances and methods	Benefit appraisals
9	Athlete support personnel's intention to prevent their athletes from taking PEDs	Proxies of behavior
10	Self-efficacy to refrain from doping	Confidence
11	Perceived legitimacy of anti-doping	Beliefs about anti-doping system
12	Integration of anti-doping into coaching practice	ASP behavior

13	Doping confrontation efficacy beliefs	ASP behavior

Table 5 - Distribution of constructs by each target group (adult athletes, adolescent athletes, ASP)

Construct	**Group**	**Utilized in:**
Moral stance	Morality	1 questionnaire (adolescents)
Subjective/injunctive norms	Motivation	1 questionnaire (adolescents)
Self-presentational concern	Body image	1 questionnaire (adolescents)
Anticipated regret/guilt	Emotions	1 questionnaire (adolescents)
Integration of anti-doping into coaching practice	ASP behavior	1 questionnaire (ASP)
Doping confrontation efficacy beliefs	ASP behavior	1 questionnaire (ASP)
Moral disengagement	Morality	2 questionnaires (adults and ASP)
Descriptive norms	Motivation	2 questionnaires (adults and ASP)
Perceived likelihood of being tested in and out of competition	Doping deterrents	2 questionnaires (adolescents and adults)
Perceived legitimacy of anti-doping	Beliefs about anti-doping systems	2 questionnaires (adults and ASP)
Moral norms	Morality	All three questionnaires
Doping attitudes	Motivation	All three questionnaires
Perceived severity of the sanctions for testing positive	Doping deterrents	All three questionnaires
APED safety beliefs	Doping deterrents	All three questionnaires
Perceived performance-enhancing effects of banned substances and methods	Benefit appraisals	All three questionnaires

Doping intentions	Proxies of behavior	All three questionnaires
Self-efficacy to refrain from (supporting) doping	Confidence	All three questionnaires

3.1.3 Phase 3-Data Collection with Athletes and Athlete Support Personnel

In total, three surveys were distributed, targeting, respectively, adolescent athletes, adult athletes, and ASP. The surveys targeting adult athletes and ASP were distributed by the research team in Denmark, Norway and Sweden. WADA, in collaboration with national ADOs in New Zealand, Australia and the USA facilitated the distribution of the survey for adolescent athletes in these countries. All participants completed consent forms and received information sheets. For adolescent athletes, parental consent was obtained before the adolescent athletes consented. All information sheets can be found in Appendix 10 and all consent forms can be found in Appendix 11.

Links to the two web-based surveys targeting adult athletes and ASP were distributed via email to stakeholders in Danish sport federations and clubs. 22 federations and 39 clubs received an email in which they were informed about the research project and encouraged to share the two surveys with their athletes and ASP. 16 federations and 15 clubs agreed to participation, 5 federations and 1 club declined participation and 1 federation and 23 clubs did not respond to the email. 342 adult athletes and 306 ASP, respectively, responded to the survey . As it is not known with how many athletes and ASP the stakeholders shared the questionnaire link with, it is not possible to calculate a response rate. In Norway, links to athletes were distributed via Anti-Doping Norway's mailing list and via NISO (Norwegian Athlete Association). The ASP survey link was distributed via the network of the Norwegian sport organization for elite sports (Olympiatoppen) and also the coaching networks of the Norwegian Football Association, Norwegian Tennis Association and Norwegian Swimming Association. In addition, participants at a national coaching seminar were invited to take part. In Sweden, links to the surveys for athletes and ASP were distributed via the Swedish Ice Hockey Association as well as via independent sports clubs in ice-hockey and football.

3.1.4 Phase 4 - Creation of the Final Tools

Data analysis

The procedure utilized in this analysis has been developed by Cortina et al. (2020). This procedure, implemented by a user-friendly app built in R called OASIS, assists in identifying an optimal shortened version of an existing longer measure. More details about OASIS are provided in the Introduction section of this report.

We requested OASIS to give item combinations for a minimum of 2 items and maximum of 5. The attitudes scale served as a convergent validity criterion. The choice of attitudes as the reference criterion for convergent validity was to some degree arbitrary, but we deemed that attitudes should be conceptually related to most other scales in the packages. For the adult athlete questionnaire, the convergent validity of each construct (apart from attitudes) was measured by correlating each construct with the mean of items 2 and 3 from the construct

Doping Attitudes. The mean of these two attitude items, as opposed to the mean of all attitude items, was used as we experienced that these were the only two items from the attitude scales for which OASIS was able to provide convergent validity values. For the ASP analysis, the mean of all attitude items was used as the reference criterion for convergent validity. Due to the length of the questionnaire packs, we decided not to include any criterion variables for divergent validity calculations.

Based on which combinations had the strongest statistics, a variety of 2, 3, 4 and 5 item combinations were inspected. Descriptive measures such as mean, standard deviation, kurtosis and skewness were calculated in SPSS for each combination. We also noticed that the calculation of omega values in OASIS was often incorrect, hence, we decided to use SPSS to calculate such values.

For the adult athlete and the ASP questionnaires, the items from the scales tapping moral disengagement, moral values, moral norms, doping attitudes, APED Safety Beliefs, doping intentions, self-efficacy to refrain from doping (resist supporting doping for the ASP survey) and perceived legitimacy of anti-doping were run in OASIS. The items assessing doping deterrents and descriptive norms were not subjected to an analysis in OASIS because they were too few. Further, the items for benefit appraisals were deemed unsuitable for OASIS because they were unrelated to each other. For these three scales, we made decisions based on descriptive statistics.

4. Results

4.1 Adolescent Athletes

By the time this report was written, we had received just 31 responses from adolescent athletes. This was insufficient data to perform the required analyses. Therefore, we were unable to develop an assessment tool for adolescent athletes.

4.2 Adult Athletes

Demographics

Adult athletes had a mean age of 23.78 years (*SD*=4.81; *range* 15-39*)*. 43.4% were female and 56.4% were male. 2.9% indicated that their gender was different from the one given at birth. 114 athletes were Danish, 158 were Norwegian and 35 were Swedish; the total was 307. The original number of responses was 342, but 35 athletes were excluded from the data as they were either under 18 years old or older than 40 years. 197 athletes competed at international level, 100 athletes competed at national team level and 10 competed at regional level. They had an average of 12.19 years of experience (*SD*=5.99; *range* 1-30). The athletes represented the following sports: Skiing (7), gymnastics (6), athletics (22), badminton (2), bobsleigh (3), canoe polo (1), climbing (2), football (30), frame running (1), functional fitness (1), handball (53), hockey (12), ice hockey (23), judo (4), karate (1), kayak (12), kayak polo (1), kickboxing (9), luge (1), mountain biking (1), orienteering (3),

powerlifting (23), rowing (18), shooting (3), ski-orienteering (9), ski jump (2), swimming (7), table tennis (2), taekwondo (1), tennis (5), triathlon (12), volleyball (20) and weightlifting (10).

Constructs

We found that for all constructs, except moral disengagement, 2-item combinations produced Cronbach alpha values above .70. We also explored combinations with more items, but there was limited benefit in terms of stronger psychometric properties for alpha or other statistics. Some combinations had very similar values, and for those combinations we also considered the item content (for face validity), convergent validity, means, standard deviations, skewness and kurtosis values. As most of the selected combinations are two-item combinations, it is not possible to calculate Omega values. Therefore, we have added 3-item versions of the questionnaire in Appendix 7 with the purpose of giving researchers the possibility to measure Omega values on a longer version of this questionnaire. All item combinations we considered are available in a spreadsheet that has been submitted to WADA. The item combinations that were considered for the final questionnaire for adult athletes are presented in Table 6. The questionnaire is presented in Appendix 6.

Table 6 - Number of item combinations we considered.

Construct	**Number of item combinations**
Moral disengagement	3
Moral values	5
Moral norms	2
Doping attitudes	12
APED Safety Beliefs	18
Doping intentions	4
Self-efficacy to refrain from doping	26
Perceived Legitimacy of anti-doping	4

Table 7 - Results for items selected for the final questionnaire (2-item version; see Appendix 6)

Construct	Items	Cronbach's Alpha	Convergent Validity	Mean	Standard Deviation	Kurtosis	Skewness
Moral disengagement	1) Compared to most lifestyles in the general public, doping isn't that bad. 2) Risks	0.596	0.336	2.15	1.15	.390	.966

	associated with doping are exaggerated.						
Moral values	1) Ethics, fair play and honesty 2) Respect for rules and laws	0.832	-0.096	6.46	.82	13.51	-3.09
Moral norms	1) Doping is against the moral standards of most people I know 2) Doping would be against my team's moral principles	0.735	-0.072	6.65	.80	21.7	-4.24
Doping attitudes	Doping use to enhance my performance in the next 12 months would be: 1) Unsafe/Safe 2) Unhealthy /healthy	0.906	-	1.49	.96	7.87	2.60
APED Safety Beliefs	1) Doping will cost you your health and wellbeing 2) Doping has dangerous side effects	0.801	-0.321	5.82	1.07	0.2	-0.84
Doping intentions	1) I plan to dope to enhance my performance over the next 12 months. 2) I expect to dope to enhance my performance over the next 12 months.	0.938	0.04	1.11	0.72	51.55	7.08
Self-efficacy to	1) Resist	0.867	-0.205	6.75	0.86	25.55	-4.73

refrain from doping	doping even if you knew you could get away with it? 2) Ignore the temptation to dope even if you knew it would improve your performance?						
Perceived Legitimacy of Anti-doping	1) Current anti-doping rules are effective in protecting clean sport. 2) Current anti-doping rules are fair to all athletes.	0.861	-0.235	5.27	1.49	0.11	-0.92

Table 8 provides an overview of which items were selected from doping deterrents, descriptive norms, and perceived performance-enhancing effects of banned substances and methods for the short version of the questionnaire (Appendix 6). For doping deterrents, we deleted one item and kept two (with some modifications in the wording). We decided that the two most important aspects of deterrence were the severity of the penalty (i.e., lenient to severe question) if caught, and how likely one is to be caught. The question relating to the likelihood of being tested at least once a year is ambiguous, as it is not known whether a single test a year is a sufficient deterrent, so we excluded this item. We also assumed that frequency of testing is captured within the item regarding the perceived likelihood of getting away with doping. For descriptive norms, we kept both items. For perceived benefits we kept four items. These four items were selected by considering their means, how widespread the respective drugs are in sport, and how many respondents answered that they didn't know the drug. Items with very high percentages of "unknown" were deleted. The percentage of people who responded that they didn't know the drugs were: anabolic agents (14.0%), hormones and growth factors (13.0%), beta agonists (47.6%), diuretics and masking agents (52.8%), narcotics, cannabinoids and stimulants (10.4%), glucocorticoids (43.6%), prohibited methods (15.6%). Based on these numbers, beta agonists, diuretics and masking agents and glucocorticoids were removed from the final questionnaire.

Table 8 - Selected items from constructs not analyzed via the R OASIS package.

Construct	**Items**
Doping deterrents (Cronbach's alpha =N/A)	● From what you know or have heard, if you were to dope, how likely do you think that you could get away with it if you really tried to? ● How likely is it that athletes at your

	level would be drug tested at least once a year?
Descriptive norms (Cronbach's alpha =N/A))	● Out of 100%, how many athletes that you compete with do you think dope? ● Out of 100%, how many elite athletes within your sport do you think dope?
Perceived performance-enhancing effects of banned substances and methods (Cronbach's alpha =N/A)	● Anabolic agents ● Hormones and growth factors ● Narcotics, cannabinoids and stimulants ● Prohibited methods

4.3 Athlete Support Personnel

Demographics

ASP had a mean age of 42.97 years (*SD*=11.69; *range* 22-75*)*. 11.5% were female and 88.5% were male. 2.4% indicated that their gender was different from the one given at birth. 110 ASP were Danish, 75 were Norwegian and 111 were Swedish; the total was 296. The original number of responses was 306, but 10 ASP were excluded from the data as they were either under 18 years old or we suspected that they were athletes. 60 ASP worked with athletes who competed at regional, 88 ASP worked with athletes who competed at national team level and 148 ASP worked with athletes who competed at international level. 74.7% of the ASP were coaches, 1.7% were doctors, 1.7% were conditional trainers, 3.7% were physiotherapists, 3.4% were sport psychologists, 0.3% were agents, 9.8% were administrators and 4.7% answered "other" when asked what their main role was with athletes. They had an average of 15.51 years of experience (*SD*=10.58; *range* 1-50). The ASP worked with athletes from the following sports: American football (1), artistic gymnastics (1), athletics (25), basketball (2), beach volleyball (1), biathlon (1), boxing (1), canoe (3), cycling (1), different sports (12), equestrian (1), football (29), golf (2), handball (18), hockey (33), ice hockey (77), judo (3), karate (5), kayak (5), kickboxing (1), Nordic combined (1), orienteering (2), powerlifting (4), rowing (7), rugby (1), sailing (1), shooting (5), showjumping (1), ski-orienteering (1), speed skating (1), squash (1), swimming (22), table tennis (1), tennis (13), triathlon (3), turn (1), volleyball (6), weightlifting (2) and wrestling (1).

Constructs

We found that for all constructs, except moral disengagement and integration of anti-doping into coaching practice, 2-item combinations produced Cronbach alpha values above .70. Some combinations had very similar values, and for those combinations we also considered the item content (face validity), convergent validity, means, standard deviation, skewness and kurtosis scores. As most of the selected combinations are two-item combinations, it is not possible to measure Omega internal reliability values. Therefore, we have added 3-item versions of the questionnaire in Appendix 9 with the purpose of giving

practitioners/researchers the possibility to measure Omega values on a longer version of this questionnaire. All combinations we considered are available in a spreadsheet that has been submitted to WADA. The item combinations that were considered for the final questionnaire for ASP are presented in Table 9. The questionnaire is presented in Appendix 8.

Table 9 - Number of item combinations we considered.

Construct	**Number of item combinations**
Moral disengagement	7
Moral values	4
Moral norms	2
Doping attitudes	24
APED Safety Beliefs	15
Doping intentions	4
Self-efficacy to resist supporting doping	35
Perceived Legitimacy of anti-doping	5
Integration of anti-doping into coaching practice	8
Doping confrontation efficacy beliefs	84

Table 10 - Results for items selected for the final questionnaire (2-item version; see Appendix 6)

Construct	Items	Cronbach's Alpha	Convergent Validity	Mean	Standard Deviation	Kurtosis	Skewness
Moral disengagement	1) Athletes shouldn't be blamed for doping if training partners/team mates pressure them to do it. 2) It's not right to condemn individuals who dope when many in their sport are doing the same.	0.602	.238	1.42	.81	12.55	3.15

Moral values	1) Ethics, fair play and honesty 2) Respect for self and others	0.725	-0.189	6.75	.47	11.98	-2.83
Moral norms	1) Doping is against the moral standards of most people I know 2) Doping would be against my team's moral principles	0.795	-.044	6,74	.56	38.95	-4.88
Doping attitudes	1) Doping use to enhance my performance in the next 12 months would be 1) Wrong/right 2) Unhealthy/healthy	0.744	-	1.40	.94	17.38	3.89
APED Safety Beliefs	1) Doping will cost you your health and wellbeing 2) Doping has dangerous side effects	0.782	-.234	6.03	1,01	2.02	-1.22
Doping intentions	1) I intend to dope to enhance my performance over the next 12 months. 2) I expect to dope to enhance my performance over the next 12 months.	0.929	-.043	1.18	0.83	33.12	5.58
Self-efficacy to refrain from doping	1) Resist supporting doping even if you knew your	0.88	-.071	6.64	1.18	13.55	-3.72

	athletes could get away with it? 2) Ignore the temptation to encourage doping even when an athlete feels down physically?						
Perceived Legitimacy of Anti-doping	1) Current anti-doping rules are fully justified because they protect clean sport. 2) Current anti-doping rules are fair to all athletes.	0.748	-.035	5.62	1.30	1.76	-1.31
Integration of anti-doping into coaching practice	1) How often do you talk about doping substances and methods with athletes? 2) How often do you discuss doping prevention with athletes?	0.649	-.093	2.06	.80	-0.53	.37
Doping confrontation efficacy beliefs	1) Provide reasons for confronting an athlete about doping? 2) Confront an athlete about doping regardless of whether it will affect your relationship with them?	0.822	.011	6.17	1.25	2.6	-1.72

Table 11 provides an overview of which items were selected from doping deterrents, descriptive norms, and perceived performance-enhancing effects of banned substances and methods for the short version of the questionnaire (Appendix 8). For doping deterrents, we deleted one item and kept two (with some modifications in the wording). We decided that the

two most important aspects of deterrence were the severity of the penalty (i.e., lenient to severe question) if caught, and how likely one is to be caught. The question relating to the likelihood of being tested at least once a year is ambiguous, as it is not known whether a single test a year is a sufficient deterrent, so we excluded this item. We also assumed that frequency of testing is captured within the perceived likelihood of getting away with doping. For descriptive norms, we kept both items. For perceived benefits we kept four items. These four items were selected by considering their means, how widespread the respective drugs are in sport, and how many respondents answered that they didn't know the drug. Items with very high percentages of "unknown" were deleted. The percentage of people who responded that they didn't know the drugs were: anabolic agents (4.6%), hormones and growth factors (4.4%), beta agonists (31.8%), diuretics and masking agents (36.5%), narcotics, cannabinoids and stimulants (5.7%), glucocorticoids (18.2%), prohibited methods (5.4%). Based on these numbers, beta agonists, diuretics and masking agents and glucocorticoids were removed from the final questionnaire.

Table 11 - Selected items from constructs not tested via the R OASIS package.

Construct	**Items**
Doping deterrents (Cronbach's alpha =N/A)	● From what you know or have heard, if you were to dope, how likely do you think that you could get away with it if you really tried to? ● How likely is it that athletes at your level would be drug tested at least once a year?
Descriptive norms (Cronbach's alpha =N/A)	● Out of 100%, how many athletes that you compete with do you think dope? ● Out of 100%, how many elite athletes within your sport do you think dope?
Perceived performance-enhancing effects of banned substances and methods ((Cronbach's alpha =N/A)	● Anabolic agents ● Hormones and growth factors ● Narcotics, cannabinoids and stimulants ● Prohibited methods

5. Conclusions

The developed questionnaires should be suitable for evaluation of anti-doping education worldwide, when the interest is on the effects of such education on malleable psychosocial constructs. The questionnaires also provide prompts and ideas for constructs that could be included in such education programs, beyond the "usual suspects" of morality and perceived benefits and deterrents. For instance, in terms of ASP anti-doping education, the efficacy to confront athletes about doping could be an important target for education. The

questionnaires could be included in their entirety or only parts of them could be administered, depending on the number of constructs that ADOs and other end users would like to assess.

Stronger tests of convergent validity by using several criteria variables, as well as tests of discriminant validity (which we were not able to conduct in this project) should be carried out in the future for the developed questionnaires. Further, their cross-cultural validity should be assessed with populations who are native English speakers as well as in other widely spoken languages around the world (e.g., Spanish, Mandarin). A limitation of our presented tools is the low internal reliability for moral disengagement. It is also noteworthy that the skewness and/or kurtosis scores for several variables were high, probably due to floor effects (for undesirable constructs) and ceiling effects (for desirable constructs). Maybe social desirability effects should be considered in the development of new (standard length) questionnaires in the field. It is also possible that the non-normal distribution of the scores is due to sampling bias and hence more representative samples should be recruited in the future. Future research should also investigate the psychometric measures in the preliminary questionnaire for adolescent athletes with the purpose of creating a similar validated brief tool for this population group.

6. Appendix

Appendix 1-Results of Abbreviated Delphi Poll

ADOLESCENTS

Top 15 importance scores (rated on a 7-point scale) across all construct groups.

Placement	Group	Construct	Importance	Researchers	NADO experts
1	Morality	Moral values	6.56	6.53	6.60
2	Morality	Moral norms	6.53	6.35	6.73
3	Morality	Moral stance	6.25	6.06	6.47
4	Confidence	Self-efficacy to refrain from doping	6.16	5.75	6.60
5	Proxies of behavior	Doping willingness	6.13	5.88	6.40
6	Motivation	Doping attitudes	6.09	5.65	6.60
7	Motivation	Descriptive norms	6.06	5.82	6.33
8	Motivation	Subjective/injunctive norms	6.00	5.88	6.13
9	Proxies of behavior	Doping intentions	6.00	5.94	6.07
10	Morality	Moral disengagement	5.97	5.71	6.27
11	Emotions	Anticipated regret/guilt	5.87	5.81	5.93
12	Doping deterrents	Perceived severity of the sanctions for testing positive	5.84	5.59	6.13

13	Confidence	Perceived behavioral control	5.65	5.44	5.87
14	Benefit appraisals	Perceived performance-enhancing effects of banned substances and methods	5.59	5.53	5.87
15	Body image	Self-presentational concern	5.55	5.25	5.87

Importance and rankings within each construct group

1. Importance - Morality

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Moral values	6.56	6.53	6.60
2	Moral norms	6.53	6.35	6.73
3	Moral stance	6.25	6.06	6.47
4	Moral disengagement	5.97	5.71	6.27
5	Moral affect	5.50	5.47	5.53

Ranking - Morality

Placement	**Construct**	**Number of all experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	Moral stance	9	5	4
2	Moral values	9	3	6
3	Moral norms	8	3	5
4	Moral disengagement	4	4	0

5	Moral affect	2	2	0

2. Importance - Motivation

Placement	Construct	Importance	Researchers	NADOs
1	Doping attitudes	6.09	5.65	6.60
2	Descriptive norms	6.06	5.82	6.33
3	Subjective/injunctive norms	6.00	5.88	6.13

Rankings - Motivation

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Doping attitudes	16	7	9
2	Subjective/injunctive norms	10	7	3
3	Descriptive norms	6	3	3

3. Importance - Doping Deterrents

Placement	Construct	Importance	Researchers	NADOs
1	Perceived severity of the sanctions for testing positive	5.84	5.59	6.13
2	APED safety beliefs	5.53	5.29	5.80
3	Perceived likelihood of being tested in and out of competition	5.34	5.65	5.00
4	Perceived likelihood of evading detection if using doping in	5.00	5.24	4.73

	and out of competition			
5	Perceived affordability of doping substances	4.25	4.94	3.47

Rankings - Doping Deterrents

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	APED safety beliefs	13	6	7
2	Perceived severity of the sanctions for testing positive	9	4	5
3	Perceived likelihood of being tested in and out of competition	8	6	2
4	Perceived affordability of doping substances	3	2	1
5	Perceived likelihood of evading detection if using doping in and out of competition	2	1	1

4. Importance - Benefit appraisal

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Perceived performance-enhancing effects of banned substances and methods	5.59	5.53	5.87

2	Other non-performance-related positive effects of banned substances and methods	5.09	5.12	5.07

Rankings - Benefit Appraisal

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	Perceived performance-enhancing effects of banned substances and methods	25	14	11
2	Other non-performance-related positive effects of banned substances and methods	7	3	4

5. Importance - Proxies of behavior

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Doping willingness	6.13	5.88	6.40
2	Doping intentions	6.00	5.94	6.07

Rankings - Proxies of behavior

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	Doping intentions	20	13	7
2	Doping willingness	12	4	8

6. Importance - Body image

Placement	Construct	Importance	Researchers	NADOs
1	Self-presentational concern	5.55	5.25	5.87
2	Drive for muscularity	5.45	5.56	5.33
3	Drive for thinness	5.19	5.31	5.07

Rankings - Body image

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Self-presentational concern	22	10	12
2	Drive for muscularity	7	4	3
3	Drive for thinness	2	0	2

7. Importance - Confidence

Placement	Construct	Importance	Researchers	NADOs
1	Self-efficacy to refrain from doping	6.16	5.75	6.60
2	Perceived behavioral control	5.65	5.44	5.87

Rankings - Confidence

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Self-efficacy to refrain from doping	21	10	11
2	Perceived behavioral control	10	6	4

8. Importance - Emotions

Construct	Importance	Researchers	NADOs
Anticipated regret/guilt	5.87	5.81	5.93

Emotions was not ranked as there was only one construct in this group.

9. Importance - Beliefs about anti-doping system

Construct	Importance	Researchers	NADOs
Perceived legitimacy of anti-doping	5.29	5.69	4.87

Beliefs about anti-doping system was not ranked as there was only one construct in this group

ADULT ATHLETES

Top 15 importance scores across all groups

Placement	Group	Construct	Importance	Researchers	NADOs
1	Confidence	Self-efficacy to refrain from doping	6.23	5.94	6.53
2	Motivation	Descriptive norms	6.22	5.82	6.67
3	Proxies of behavior	Doping intentions	6.19	5.88	6.53
4	Morality	Moral disengagement	6.09	5.82	6.40
5	Benefit appraisal	Perceived performance-enhancing effects of banned substances and methods	6.03	5.82	6.27
6	Morality	Moral values	6.03	6.18	5.87
7	Doping deterrents	Perceived severity of the sanctions for testing positive	6.00	5.76	6.27

8	Proxies of behavior	Doping willingness	6.00	5.88	6.13
9	Morality	Moral norms	5.91	5.88	5.93
10	Motivation	Doping attitudes	5.91	5.53	6.33
11	Motivation	Subjective/injunctive norms	5.84	6.06	5.60
12	Beliefs about anti-doping	Perceived legitimacy of anti-doping	5.84	5.69	6.00
13	Morality	Moral stance	5.75	5.65	5.87
14	Doping deterrents	Perceived likelihood of being tested in and out of competition	5.66	5.88	5.40
15	Confidence	Perceived behavioral control	5.58	5.38	5.80

Importance scores and rankings for each group

1. Importance - Morality

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Moral disengagement	6.09	5.82	6.40
2	Moral values	6.03	6.18	5.87
3	Moral norms	5.91	5.88	5.93
4	Moral stance	5.75	5.65	5.87
5	Moral affect	5.50	5.41	5.53

Rankings - Morality

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	Moral disengagement	10	5	5
2	Moral norms	7	3	4
3	Moral stance	7	5	2
4	Moral values	5	2	3

5	Moral affect	3	2	1

2. Importance - Motivation

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Descriptive norms	6.22	5.82	6.67
2	Doping attitudes	5.91	5.53	6.33
3	Subjective/injunctive norms	5.84	6.06	5.60

Rankings - Motivation

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	Doping attitudes	16	9	7
2	Descriptive norms	12	4	8
3	Subjective/injunctive norms	4	4	0

3. Importance - Doping Deterrents

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Perceived severity of the sanctions for testing positive	6.00	5.76	6.27
2	Perceived likelihood of being tested in and out of competition	5.66	5.88	5.40
3	APED safety beliefs	5.56	5.71	5.40
4	Perceived likelihood of evading detection if using doping in	5.50	5.59	5.40

	and out of competition			
5	Perceived affordability of doping substances	4.47	5.06	4.47

Rankings - Doping deterrents

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	APED safety beliefs	11	6	5
2	Perceived severity of the sanctions for testing positive	10	3	7
3	Perceived likelihood of being tested in and out of competition.	9	7	2
4	Perceived likelihood of evading detection if using doping in and out of competition	2	1	1
5	Perceived affordability of doping substances	0	0	0

4. Importance - Benefit appraisal

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Perceived performance-enhancing effects of banned substances and methods	6.03	5.82	6.27

2	Other non-performance-related positive effects of banned substances and methods	5.22	4.94	5.53

Rankings - Benefit appraisals

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Perceived performance-enhancing effects of banned substances and methods	26	13	13
2	Other non-performance-related positive effects of banned substances and methods	6	4	2

5. Importance - Proxies of behavior

Placement	Construct	Importance	Researchers	NADOs
1	Doping intentions	6.19	5.88	6.53
2	Doping willingness	6.00	5.88	6.13

Rankings - Proxies of behavior

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Doping intentions	20	11	9
2	Doping willingness	12	6	6

6. Importance - Body image

Placement	Construct	Importance	Researchers	NADOs
1	Drive for muscularity	4.94	5.31	4.53
2	Self-presentational concern	4.77	4.88	4.67
3	Drive for thinness	4.68	4.88	4.47

Rankings - Body image

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Self-presentational concern	16	7	9
2	Drive for muscularity	12	8	4
3	Drive for thinness	3	1	2

7. Importance - Confidence

Placement	Construct	Importance	Researchers	NADOs
1	Self-efficacy to refrain from doping	6.23	5.94	6.53
2	Perceived behavioral control	5.58	5.38	5.80

Rankings - Confidence

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Self-efficacy to refrain from doping	20	9	11
2	Perceived behavioral control	11	7	4

8. Importance-Emotions

Construct	Importance	Researchers	NADOs
Anticipated regret/guilt	5.42	5.38	5.47

Emotions was not ranked as there was only one construct in this group.

9. Importance-Beliefs about anti-doping system

Construct	Overall	Researchers	NADOs
Perceived legitimacy of anti-doping	5.84	5.69	6.00

Beliefs about anti-doping system was not ranked as there was only one construct in this group.

ATHLETE SUPPORT PERSONNEL

Top 15 scores across all groups

Placement	Group	Construct	Importance	Researchers	NADOs
1	Morality	Moral norms	6.44	6.35	6.53
2	ASP behavior	Integration of anti-doping into coaching practice	6.39	6.06	6.73
3	Proxies of behavior	Doping intentions	6.28	6.18	6.40
4	Morality	Moral values	6.19	6.06	6.33
5	Morality	Moral stance	6.16	5.88	6.47
6	Morality	Moral disengagement	6.16	5.94	6.40
7	Confidence	Self-efficacy to refrain from doping	6.10	5.88	6.33
8	Doping deterrents	Perceived severity of the sanctions for testing positive	6.00	5.76	6.27
9	Proxies of	Doping	5.94	5.94	5.93

	behavior	willingness			
10	Motivation	Descriptive norms	5.88	5.53	6.27
11	Motivation	Doping attitudes	5.84	5.35	6.40
12	Beliefs about anti-doping system	Perceived legitimacy of anti-doping	5.81	5.56	6.07
13	ASP behavior	Diffusion/sharing of anti-doping behavior	5.81	5.56	6.07
14	ASP behavior	Doping confrontation efficacy beliefs	5.77	5.44	6.13
15	Benefit appraisal	Perceived performance-enhancing effects of banned substances and methods	5.69	5.76	5.60

Importance scores and rankings for each group

1. Importance - Morality

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Moral norms	6.44	6.35	6.53
2	Moral values	6.19	6.06	6.33
3	Moral stance	6.16	5.88	6.47
4	Moral disengagement	6.16	5.94	6.40

Rankings - Morality

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Moral norms	12	7	5
2	Moral values	8	2	6
3	Moral stance	6	4	2
4	Moral disengagement	6	4	2

2. Importance - Motivation

Placement	Construct	Importance	Researchers	NADOs
1	Descriptive norms	5.88	5.53	6.27
2	Doping attitudes	5.84	5.35	6.40
3	Subjective/injunctive norms	5.63	5.94	5.27

Rankings - Motivation

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Doping attitudes	12	5	7
2	Descriptive norms	11	5	6
3	Subjective/injunctive norms	9	7	2

3. Importance - Doping Deterrents

Placement	Construct	Importance	Researchers	NADOs
1	Perceived severity of the sanctions for testing positive	6.00	5.76	6.27
2	APED safety beliefs	5.63	5.76	5.47

3	Perceived likelihood of evading detection if using doping in and out of competition	5.22	5.18	5.27
4	Perceived likelihood of being tested in and out of competition	5.16	5.18	5.13

Rankings - Doping deterrents

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	APED safety beliefs	12	7	5
2	Perceived severity of the sanctions for testing positive	8	2	6
3	Perceived likelihood of being tested in and out of competition	8	6	2
4	Perceived likelihood of evading detection if using doping in and out of competition	4	2	2

4. Importance - Benefit appraisal

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Perceived performance-enhancing effects of banned substances and methods	5.69	5.76	5.60
2	Other non-performance-related	4.94	5.29	4.53

	positive effects of banned substances and methods			

Rankings - Benefit appraisal

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Perceived performance-enhancing effects of banned substances and methods	24	11	13
2	Other non-performance-related positive effects of banned substances and methods	8	6	2

5. Importance - Proxies of behavior

Placement	Construct	Importance	Researchers	NADOs
1	Athlete support personnel's intention to prevent their athletes from taking PEDs	6.28	6.18	6.40
2	Athlete support personnel's willingness to facilitate the use of banned substances and methods	5.94	5.94	5.93

Rankings - Proxies of behavior

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st

1	Athlete support personnel's intention to prevent their athletes from taking PEDs	23	12	11
2	Athlete support personnel's willingness to facilitate the use of banned substances and methods	9	5	4

6. Body image

Not included for ASP

7. Importance - Confidence

Placement	**Construct**	**Importance**	**Researchers**	**NADOs**
1	Self-efficacy to refrain from doping	6.10	5.88	6.33
2	Perceived behavioral control	5.00	4.81	5.20

Rankings - Confidence

Placement	**Construct**	**Number of experts ranked this 1st**	**Number of researchers ranked this 1st**	**Number of NADOs ranked this 1st**
1	Self-efficacy to refrain from doping	21	9	12
2	Perceived behavioral control	10	7	3

8. Importance - Emotions

Construct	**Importance**	**Researchers**	**NADOs**
Anticipated regret/guilt	4.97	4.94	5.00

Emotions was not ranked as there was only one construct in this group.

9. Importance - Beliefs about anti-doping system

Construct	Importance	Researchers	NADOs
Perceived legitimacy of anti-doping	5.81	5.56	6.07

Beliefs about anti-doping system was not ranked as there was only one construct in this group.

10. Importance - Athlete support personnel behavior

Placement	Construct	Importance	Researchers	NADOs
1	Integration of anti-doping into coaching practice	6.39	6.06	6.73
2	Diffusion/sharing of anti-doping behavior	5.81	5.56	6.07
3	Doping confrontation efficacy beliefs	5.77	5.44	6.13

Rankings - Athlete support personnel behavior

Placement	Construct	Number of experts ranked this 1st	Number of researchers ranked this 1st	Number of NADOs ranked this 1st
1	Integration of anti-doping into coaching practice	21	11	10
2	Doping confrontation efficacy beliefs	7	4	3
3	Diffusion/sharing of anti-doping behavior	3	1	2

Appendix 2- Questionnaires for Adolescent Athletes

Administered in Phase 3 (without the sentences in italics)-Note, that as we explained in the report, we were unable to collect sufficient data from this age group to develop a brief version of the questionnaire for this age group.

Section A

1. What is your gender? Female/male/other
2. Is your gender different to your sex at birth? Yes/no
3. What is your date of birth (dd/mm/yy) _____/_____/_____/
4. In which country do you live at the moment? _____
5. At what level do you compete?

Regional/national/international

6. What is your main sport? _____
7. How many years of experience do you have within your main sport? _____
8. How many times do you train per week when you are not injured or ill?

1-3 times 4-6 times 7-9 times 10-12 times More than 12 times a week

Section B

A number of statements describing thoughts that athletes might have about doping are listed below. Please read these statements carefully and indicate your level of agreement with each one by marking the appropriate number. Your answers are fully anonymous and will be treated with confidentiality. Please answer honestly. There are no right or wrong answers. We are interested in your opinion.

Moral Stance (morality)

Items selected from the moral stance questionnaire in Donovan et al (2015). The wording has been adapted by the research team.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. I believe using doping substances is morally wrong	1	2	3	4	5	6	7
2. Engaging in doping to enhance my performanc e would be against my principles	1	2	3	4	5	6	7

Moral values (morality)
4 items selected from the Spirit of Sport Values scale (Mortimer et al, 2021).

Below are different values in sport. Please rate the degree to which each value is a guiding principle in your life as an athlete.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Ethics, fair play and honesty	1	2	3	4	5	6	7
2. Character and education	1	2	3	4	5	6	7
3. Respect for rules and laws	1	2	3	4	5	6	7
4. Respect for self and others	1	2	3	4	5	6	7

Moral norms (morality)

Adaptation from questionnaire developed by Barkoukis et al (2015).

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Doping is against the moral standards of most people I know	1	2	3	4	5	6	7
2. Doping is against my team's moral principles	1	2	3	4	5	6	7
3. Most people I know believe athletes are morally obliged not to dope	1	2	3	4	5	6	7

Doping attitudes (motivation)

Scale developed by Ntoumanis et al (2021)

Doping use to enhance my performance in the next 12 months would be....

Bad 1	2	3	4	5	6	**Good** 7
Useless 1	2	3	4	5	6	**Useful** 7
Harmful 1	2	3	4	5	6	**Beneficial** 7
Unethical 1	2	3	4	5	6	**Ethical** 7

Unsafe 1	2	3	4	5	6	**Safe** 7
Unhealthy 1	2	3	4	5	6	**Healthy** 7
Wrong 1	2	3	4	5	6	**Right** 7
Unacceptable 1	2	3	4	5	6	**Acceptable** 7

We would like to know about the thoughts and beliefs of other people who are important to you about the use of doping to enhance your performance during this season. These people may include friends, coach, teammates, parents, and other family members.

Subjective/injunctive norms (motivation)
Lazuras et al (2010)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Most people who are important to me would *want* me to dope to enhance my performance during the next 12 months.	1	2	3	4	5	6	7

2. Most people I know would *approve* of me doping to enhance my performance during the next 12 months.	1	2	3	4	5	6	7
3. Most people close to me expect me to dope to enhance my performance during the next 12 months.	1	2	3	4	5	6	7

Doping deterrents
Items from Donovan et al (2015)

	Very lenient	**Lenient**	**Slightly lenient**	**Appropriate**	**Slightly severe**	**Severe**	**Very severe**
1. From what you know or have heard, are the penalties for a positive drug test severe or lenient?	1	2	3	4	5	6	7

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely
1. It has been said that athletes who dope can use various methods to avoid testing positive. From what you know or have heard, if you were to dope, how likely do you think that you could get away with it if you really tried to?	1	2	3	4	5	6	7
2. How likely is it that athletes at your level would be drug tested at least once a year?	1	2	3	4	5	6	7

APED safety beliefs (doping deterrents)
(Hildebrandt et al, 2012)

Please answer the questions with reference to the present time. Please consider your general beliefs about doping.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping cannot be safely used	1	2	3	4	5	6	7

2. Doping even in small amounts is harmful	1	2	3	4	5	6	7
3. Doping can cause heart problems	1	2	3	4	5	6	7
4. Doping will cost you your health and wellbeing	1	2	3	4	5	6	7
5. Doping has dangerous side effects	1	2	3	4	5	6	7
6. Doping worsens your mental health	1	2	3	4	5	6	7

Perceived performance-enhancing effects of banned substances and methods (benefit appraisals)
(Donovan, et al, 2015)

If you were to take the following substances, how likely is it that these substances would improve your performance in sport?

	Very unlikely	**Unlikely**	**Quite unlikely**	**Neither likely nor unlikely**	**Quite likely**	**Likely**	**Very likely**	**Don't know**
1. Anabolic agents (e.g., anabolic steroids, SARMS)	1	2	3	4	5	6	7	0

2. Hormones and growth factors (e.g., peptide hormones, growth hormone, erythropoietin)	1	2	3	4	5	6	7	0
3. Beta agonists (e.g., albuterol sulfate, salbutamol)	1	2	3	4	5	6	7	0
4. Diuretics and masking agents (e.g., furosemide, desmopressin, probenecid)	1	2	3	4	5	6	7	0
5. Narcotics, cannabinoids and stimulants (e.g., cannabis, amphetamine, cocaine, ecstasy, methylphenidate)	1	2	3	4	5	6	7	0
6. Glucocorticoids (e.g., cortisone, prednisone, dexamethasone, triamcinolone)	1	2	3	4	5	6	7	0
7. Prohibited methods (e.g., blood doping)	1	2	3	4	5	6	7	0

Doping intentions (proxies of behavior)
Lazuras et al (2010)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. I intend to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7
2. I plan to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7
3. I expect to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7

Self-presentational concern (body image)
Donovan et al (2015)

In my main sport I worry that other people may perceive me as…

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Appearing untalented	1	2	3	4	5	6	7
2. Appearing not to perform perfectly	1	2	3	4	5	6	7

3. Appearing athletically incompetent	1	2	3	4	5	6	7
4. Appearing under skilled	1	2	3	4	5	6	7
5. Appearing to lack ability	1	2	3	4	5	6	7
6. Appearing unqualified	1	2	3	4	5	6	7
7. Appearing flabby	1	2	3	4	5	6	7
8. Appearing physically untoned	1	2	3	4	5	6	7
9. Appearing ugly or unpleasant in my kit	1	2	3	4	5	6	7
10. Appearing physically unattractive	1	2	3	4	5	6	7
11. Appearing too small or too big in my kit	1	2	3	4	5	6	7

Self-efficacy to refrain from doping (confidence)
Doping Self-Regulatory Efficacy Scale (Boardley et al, 2018)

How much confidence do you have in your ability right now to…

	No confidence			**Moderate confidence**			**Complete confidence**
1. Resist doping even if your training group encouraged you to do it?	1	2	3	4	5	6	7
2. Resist doping even if you knew you could get away with it?	1	2	3	4	5	6	7
3. Ignore the temptation to dope even if you knew it would improve your performance?	1	2	3	4	5	6	7
4. Resist peer pressure to dope?	1	2	3	4	5	6	7
5. Resist doping even if most of your training partners did it?	1	2	3	4	5	6	7
6. Ignore the temptation to dope when feeling down physically?	1	2	3	4	5	6	7

Anticipated regret/guilt (emotions)
Lazuras et al (2017)

If I dope to enhance my performance, I will…

	Definitely not						**Definitely yes**
1. Regret it	1	2	3	4	5	6	7
2. Be disappointed with myself	1	2	3	4	5	6	7
3. Feel sad	1	2	3	4	5	6	7
4. Feel ashamed	1	2	3	4	5	6	7

Appendix 3-Questionnaires for Adult Athletes

Administered in Phase 3 (without the sentences in italics)-Note, this is not the final questionnaire for this project.

Section A

1. What is your gender? Female/male/other

2. Is your gender different to your sex at birth? Yes/no

3. What is your date of birth (dd/mm/yy) _____/_____/_____/

4. In which country do you live at the moment? _____

5. At what level do you compete?
   Regional/national/international

6. What is your main sport? _____

7. How many years of experience do you have within your main sport? _____

8. How many times do you train per week?

1-3 times 4-6 times 7-9 times 10-12 times More than 12 times a week

Section B

A number of statements describing thoughts that athletes might have about doping are listed below. Please read these statements carefully and indicate your level of agreement with each one by marking the appropriate number. Your answers are fully anonymous and will be treated with confidentiality. Please answer honestly. There are no right or wrong answers. We are interested in your opinion.

Moral disengagement (morality)

The moral disengagement scale – short version from Boardley et al (2018)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. It is acceptable to dope, if knowledge is gained to help an athlete advise others on safe doping.	1	2	3	4	5	6	7
2. Using terms such as “gear” and “juice” makes doping sound less harmful.	1	2	3	4	5	6	7
3. Compared to most lifestyles in the general public, doping isn’t that bad.	1	2	3	4	5	6	7
4. Athletes shouldn’t be blamed for doping if training partners/teammates pressure them to do it.	1	2	3	4	5	6	7
5. It’s not right to condemn individuals who dope when many in their sport are doing the same.	1	2	3	4	5	6	7
6. Risks associated with doping are exaggerated.	1	2	3	4	5	6	7

Moral values (morality)
(Mortimer et al, 2021).

Below are different values in sport. Please rate the degree to which each value is a guiding principle in your life as an athlete.

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Ethics, fair play and honesty	1	2	3	4	5	6	7
2. Character and education	1	2	3	4	5	6	7
3. Respect for rules and laws	1	2	3	4	5	6	7
4. Respect for self and others	1	2	3	4	5	6	7

Moral norms (morality)
Adaptation from questionnaire developed by Barkoukis et al (2015).

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Doping is against the moral standards of most people I know	1	2	3	4	5	6	7
2. Doping is against my team's moral principles	1	2	3	4	5	6	7

3. Most people I know believe athletes are morally obliged not to dope	1	2	3	4	5	6	7

Doping attitudes (motivation)
Ntoumanis et al (2021)

Doping use to enhance my performance in the next 12 months would be....

Bad 1	2	3	4	5	6	**Good** 7
Useless 1	2	3	4	5	6	**Useful** 7
Harmful 1	2	3	4	5	6	**Beneficial** 7
Unethical 1	2	3	4	5	6	**Ethical** 7
Unsafe 1	2	3	4	5	6	**Safe** 7
Unhealthy 1	2	3	4	5	6	**Healthy** 7
Wrong 1	2	3	4	5	6	**Right** 7
Unacceptable 1	2	3	4	5	6	**Acceptable 7**

Descriptive norms (motivation)
Lazuras et al (2010)

Out of 100%, how many athletes that you compete with do you think dope?

_____

Out of 100%, how many *elite* athletes within your sport do you think dope?

_____

Doping deterrents
Donovan et al (2015)

	Very lenient	Lenient	Slightly lenient	Appropriate	Slightly severe	Severe	Very severe
1. From what you know or have heard, are the penalties for a positive drug test severe or lenient?	1	2	3	4	5	6	7

Doping deterrents
Donovan et al (2015)

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely
1. It has been said that athletes who dope can use various methods to avoid testing positive. From what you know or have heard, if you were to dope, how likely do you think that you could get away with it if you really tried to?	1	2	3	4	5	6	7

2. How likely is it that athletes at your level would be drug tested at least once a year?	1	2	3	4	5	6	7

APED safety beliefs (doping deterrents)
(Hildebrandt et al, 2012)

Please answer the questions with reference to the present time. Please consider your general beliefs about doping.

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Doping cannot be safely used	1	2	3	4	5	6	7
2. Doping even in small amounts is harmful	1	2	3	4	5	6	7
3. Doping can cause heart problems	1	2	3	4	5	6	7
4. Doping will cost you your health and wellbeing	1	2	3	4	5	6	7
5. Doping has dangerous side effects	1	2	3	4	5	6	7
6. Doping worsens your mental health	1	2	3	4	5	6	7

Perceived performance-enhancing effects of banned substances and methods (benefit appraisals)
(Donovan et al, 2015)

If you were to take the following substances, how likely is it that these substances would improve your performance in sport?

	Very unlikely	**Unlikely**	**Quite unlikely**	**Neither likely nor unlikely**	**Quite likely**	**Likely**	**Very likely**	**Don't know**
1. Anabolic agents (e.g., anabolic steroids, SARMS)	1	2	3	4	5	6	7	0
2. Hormones and growth factors (e.g., peptide hormones, growth hormone, erythropoietin)	1	2	3	4	5	6	7	0
3. Beta agonists (e.g., albuterol sulfate, salbutamol)	1	2	3	4	5	6	7	0
4. Diuretics and masking agents (e.g., furosemide, desmopressin, probenecid)	1	2	3	4	5	6	7	0
5. Narcotics, cannabinoids and stimulants (e.g., cannabis, amphetamine, cocaine, ecstasy, methylphenidate)	1	2	3	4	5	6	7	0
6. Glucocorticoids (e.g., cortisone, prednisone, dexamethasone, triamcinolone)	1	2	3	4	5	6	7	0

7. Prohibited methods (e.g., blood doping)	1	2	3	4	5	6	7	0

Doping intentions (proxies of behavior)
Lazuras et al (2010)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. I intend to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7
2. I plan to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7
3. I expect to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7

Self-efficacy to refrain from doping (confidence)
Doping Self-Regulatory Efficacy Scale (Boardley et al, 2018)

How much confidence do you have right now in your ability to…

	No confidence			**Moderate confidence**			**Complete confidence**
1. Resist doping even if your training group encouraged you to do it?	1	2	3	4	5	6	7
2. Resist doping even if you knew you could get away with it?	1	2	3	4	5	6	7
3. Ignore the temptation to dope even if you knew it would improve your performance?	1	2	3	4	5	6	7
4. Resist peer pressure to dope?	1	2	3	4	5	6	7
5. Resist doping even if most of your training partners did it?	1	2	3	4	5	6	7
6. Ignore the temptation to dope when feeling down physically?	1	2	3	4	5	6	7

Perceived legitimacy of anti-doping (beliefs about anti-doping system)
Selected from Petróczi, A. & Woolway, T. (2021)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Current anti-doping rules are fully justified because they protect clean sport.	1	2	3	4	5	6	7
2. Current anti-doping rules are effective in protecting clean sport.	1	2	3	4	5	6	7
3. Current anti-doping rules are fair to all athletes.	1	2	3	4	5	6	7
4. Current anti-doping rules are implemented equally in all sports and all countries.	1	2	3	4	5	6	7

Appendix 4-Questionnaires for Athlete Support Personnel

Administered in Phase 3 (without the sentences in italics)-Note, this is not the final questionnaire for this project.

1. What is your main role within your sport?

Coach Doctor Conditioning trainer Physiotherapist

Dietitian Sports psychologist Agent Administrator Other

2. What is your gender? Female/male/other
3. Is your gender different to your sex at birth? Yes/no
4. In which country do you live at the moment? _____
5. What is the highest level of athletes you currently work with?

Regional National International

6. What is the main sport(s) of the athletes you work with currently?

_____

7. What is the frequency of support/contact (days per week in a typical week) with those athletes?

_____

8. What is the highest competitive level of athletes you have worked with?

Regional National International

9. How many years of experience do you have within your main sport as athlete support personnel? _____

Section B

A number of statements describing thoughts that athlete support personnel might have about doping are listed below. Please read these statements carefully and indicate your level of agreement with each one by marking the appropriate number. Your answers are fully anonymous and will be treated with confidentiality. Please answer honestly. There are no right or wrong answers. We are interested in your opinion.

Moral disengagement (morality)
Boardley et al (2018)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. It is acceptable to dope if knowledge gained helps an athlete advise others on safe doping.	1	2	3	4	5	6	7
2. Using terms such as “gear” and “juice” makes doping sound less harmful.	1	2	3	4	5	6	7
3. Compared to most lifestyles in the general public, doping isn’t that bad.	1	2	3	4	5	6	7
4. Athletes shouldn’t be blamed for doping if training partners/team mates pressure them to do it.	1	2	3	4	5	6	7
5. It’s not right to condemn individuals who dope when many in their sport are doing the same.	1	2	3	4	5	6	7

6. Risks associated with doping are exaggerated.	1	2	3	4	5	6	7

Moral values (morality)
(Mortimer et al, 2021).

Below are different values in sport. Please rate the degree to which each value is a guiding principle in your life as athlete support personnel.

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Ethics, fair play and honesty	1	2	3	4	5	6	7
2. Character and education	1	2	3	4	5	6	7
3. Respect for rules and laws	1	2	3	4	5	6	7
4. Respect for self and others	1	2	3	4	5	6	7

Moral norms (morality)
Barkoukis et al (2015).

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Doping is against the moral standards of	1	2	3	4	5	6	7

most people I know							
2. Doping is against my team's moral principles	1	2	3	4	5	6	7
3. Most people I know believe athletes are morally obliged not to dope	1	2	3	4	5	6	7

Doping attitudes (motivation)
Ntoumanis et al (2021)

Doping use to enhance athlete performance would be....

Bad 1	2	3	4	5	6	**Good** 7
Useless 1	2	3	4	5	6	**Useful** 7
Harmful 1	2	3	4	5	6	**Beneficial** 7
Unethical 1	2	3	4	5	6	**Ethical** 7
Unsafe 1	2	3	4	5	6	**Safe** 7
Unhealthy 1	2	3	4	5	6	**Healthy** 7
Wrong 1	2	3	4	5	6	**Right** 7
Unacceptable 1	2	3	4	5	6	**Acceptable** 7

Descriptive norms (motivation)
Lazuras et al (2010)

Out of 100%, how many athletes at the highest level you work at do you think dope?

_____

Out of 100%, how many *elite* athletes within your sport do you think dope?

_____

Doping deterrents
Donovan et al (2015)

	Very lenient	**Lenient**	**Slightly lenient**	**Appropriate**	**Slightly severe**	**Severe**	**Very severe**
1. From what you know or have heard, are the penalties for a positive drug test severe or lenient?	1	2	3	4	5	6	7

Doping deterrents
Donovan et al (2015)

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely
1. It has been said that athletes who dope can use various methods to avoid testing positive. From what you know or have heard, if an athlete were to dope, how likely do you think that they could get away with it if they really tried to?	1	2	3	4	5	6	7
2. How likely is it that athletes at the highest level you work with would be drug tested at least once a year?	1	2	3	4	5	6	7

APED safety beliefs (doping deterrents)
(Hildebrandt et al, 2012)

Please answer the questions with reference to the present time. Please consider your general beliefs about doping.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping cannot be safely used	1	2	3	4	5	6	7

2. Doping even in small amounts is harmful	1	2	3	4	5	6	7
3. Doping can cause heart problems	1	2	3	4	5	6	7
4. Doping will cost athletes their health and wellbeing	1	2	3	4	5	6	7
5. Doping has dangerous side effects	1	2	3	4	5	6	7
6. Doping worsens athletes' mental health	1	2	3	4	5	6	7

If an athlete was to take the following substances, how likely is it that these substances would improve his/her performance in sport? Please answer the questions below in relation to the main sport of the athletes you interact with. If there are multiple sports, pick one and name it here_____

Perceived performance-enhancing effects of banned substances and methods (benefit appraisals)
(Donovan et al, 2015)

	Very unlikely	**Unlikely**	**Quite unlikely**	**Neither likely nor unlikely**	**Quite likely**	**Likely**	**Very likely**	**Don't know**
1. Anabolic agents (e.g., anabolic steroids, SARMS)	1	2	3	4	5	6	7	0

2. Hormones and growth factors (e.g., peptide hormones, growth hormone, erythropoietin)	1	2	3	4	5	6	7	0
3. Beta agonists (e.g., albuterol sulfate, salbutamol)	1	2	3	4	5	6	7	0
4. Diuretics and masking agents (e.g., furosemide, desmopressin, probenecid)	1	2	3	4	5	6	7	0
5. Narcotics, cannabinoids and stimulants (e.g., cannabis, amphetamines, cocaine, ecstasy, methylphenidate)	1	2	3	4	5	6	7	0
6. Glucocorticoids (e.g., cortisone, prednisone, dexamethasone, triamcinolone)	1	2	3	4	5	6	7	0
7. Prohibited methods (e.g., blood doping)	1	2	3	4	5	6	7	0

Doping intentions (proxies of behavior)
Lazuras et al (2010)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. I intend to promote doping over the next 12 months.	1	2	3	4	5	6	7
2. I plan to promote doping over the next 12 months.	1	2	3	4	5	6	7
3. I expect to promote doping over the next 12 months.	1	2	3	4	5	6	7

Self-efficacy to resist supporting doping (confidence)
(Boardley et al, 2018)

How much confidence do you have right now in your ability to…

	No confidence			Moderate confidence			Complete confidence
1. Resist supporting doping even if your training group encouraged you to do it?	1	2	3	4	5	6	7

2. Resist supporting doping even if you knew your athletes could get away with it?	1	2	3	4	5	6	7
3. Ignore the temptation to support doping even if you knew it would improve your athletes' performance?	1	2	3	4	5	6	7
4. Resist pressure to support doping?	1	2	3	4	5	6	7
5. Resist supporting doping even if many amongst your professional circle endorsed it?	1	2	3	4	5	6	7
6. Ignore the temptation to encourage doping even when an athlete feels down physically?	1	2	3	4	5	6	7

Perceived legitimacy of anti-doping (beliefs about anti-doping system)
Petróczi, A. & Woolway, T. (2021)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Current anti-doping rules are fully justified because they	1	2	3	4	5	6	7

protect clean sport.							
2. Current anti-doping rules are effective in protecting clean sport.	1	2	3	4	5	6	7
3. Current anti-doping rules are fair to all athletes.	1	2	3	4	5	6	7
4. Current anti-doping rules are implemented equally in all sports and all countries.	1	2	3	4	5	6	7

Integration of anti-doping into coaching practice (ASP behavior)
Blank et al (2014).

	Never	**Rarely**	**Sometimes**	**Often**	**Very often**
1. When you discuss winning or losing with athletes, how often do you mention doping?	1	2	3	4	5
2. How often do you talk about doping substances and methods with athletes?	1	2	3	4	5
3. How often do you discuss doping prevention with athletes?	1	2	3	4	5

4. How often do you prepare your athletes for doping control?	1	2	3	4	5

Doping confrontation efficacy beliefs (ASP behavior)
Doping Confrontation Efficacy Scale from Sullivan et al (2015).

In your athlete support personnel role, how much confidence do you have in your ability to…

	No confidence			**Moderate confidence**			**Complete confidence**
1. Ask an athlete if they have doped?	1	2	3	4	5	6	7
2. Confront an athlete about using doping?	1	2	3	4	5	6	7
3. Explain the reasons that an athlete should change their doping behaviors?	1	2	3	4	5	6	7
4. Provide reasons for confronting an athlete about doping?	1	2	3	4	5	6	7
5. Confront an athlete about doping regardless of the athlete's personality?	1	2	3	4	5	6	7

6. Confront an athlete about doping regardless of whether it will affect your relationship with them?	1	2	3	4	5	6	7
7. Deal with the stress of a doping confrontation with an athlete?	1	2	3	4	5	6	7
8. Maintain your temper during a doping confrontation?	1	2	3	4	5	6	7

Appendix 5-Changes in Rating Scales of Questionnaires

The questionnaires for which we changed the rating scale were:

Questionnaire	**Comment**
The Spirit of Sport Values Scale	The original scale is a 6-point scale from -1 (*The Opposite of what I believe*) to 5 (*Very important*). This was changed into a 7-point Likert scale (*Strongly disagree to Strongly agree*).
Subjective/injunctive norms	The questionnaire consists of four items. All are 7-point Likert scale. The fourth was originally rated from *extremely unlikely* to *extremely likely*. This item was changed into *strongly disagree* to *strongly agree.*
APED safety beliefs	Originally a 5-point Likert scale from -2 (*absolutely false*) to 2 (*absolutely true*) was used. This was changed into a 7-point Likert scale (*strongly agree* to *strongly disagree*)
Perceived performance-enhancing effects of banned substances and methods	The substances in the rating scales were also changed to substances we considered more relevant. The original scale used was a 5-point Likert scale from 1 (*definitely would not*) to 5 (*definitely would*). It had an additional answer possibility which was 9 (*don't know*). This was changed into a 7-point Likert scale (*very unlikely* to *very likely*) with an additional 0 (*don't know this substance*)
Self-presentational concern	Originally a 5-point Likert scale from 1(*never*) to 5 (*always*) was used. It was then changed into a 7-point Likert scale (*strongly disagree* to *strongly agree*).
Integration of anti-doping into coach practice	Original scale was "yes" and "no". This was changed into a 5-point Likert scale from 1 (*never*) to 5 (*very often*).

Appendix 6-Questionnaires for Adult Athletes (Final Version; Short)

Questionnaires for adult athletes (short version)-This is the final version and we recommend it for projects that having two items per scale is not considered a problem. The sentences in italics provide information for the scale and should not be given to participants.

Section A

1. What is your gender? Female/male/other

2. Is your gender different to your sex at birth? Yes/no

3. What is your date of birth (dd/mm/yy) _____/_____/_____/

4. In which country do you live at the moment? _____

5. At what level do you compete?
   Regional/national/international

6. What is your main sport? _____

7. How many years of experience do you have within your main sport? _____

8. How many times do you train per week?

1-3 times 4-6 times 7-9 times 10-12 times More than 12 times a week

Section B

A number of statements describing thoughts that athletes might have about doping are listed below. Please read these statements carefully and indicate your level of agreement with each one by marking the appropriate number. Your answers are fully anonymous and will be treated with confidentiality. Please answer honestly. There are no right or wrong answers. We are interested in your opinion.

Moral disengagement (morality)

The moral disengagement scale – short version from Boardley et al (2018)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Compared to most lifestyles in the general public, doping isn't that bad.	1	2	3	4	5	6	7
2. Risks associated with doping are exaggerated.	1	2	3	4	5	6	7

Moral values (morality)

(Mortimer et al, 2021).

Below are different values in sport. Please rate the degree to which each value is a guiding principle in your life as an athlete.

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Ethics, fair play and honesty	1	2	3	4	5	6	7
2. Respect for rules and laws	1	2	3	4	5	6	7

Moral norms (morality)
Adaptation from questionnaire developed by Barkoukis et al (2015).

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Doping is against the moral standards of most people I know	1	2	3	4	5	6	7
2. Doping is against my team's moral principles	1	2	3	4	5	6	7

Doping attitudes (motivation)
Ntoumanis et al (2021)

Doping use to enhance my performance in the next 12 months would be....

Unsafe 1	2	3	4	5	6	**Safe** 7
Unhealthy 1	2	3	4	5	6	**Healthy** 7

Descriptive norms (motivation)
Lazuras et al (2010)

Out of 100%, how many athletes that you compete with do you think dope?

_____

Out of 100%, how many *elite* athletes within your sport do you think dope?

_____

Doping deterrents
Donovan et al (2015)

	Very lenient	Lenient	Slightly lenient	Appropriate	Slightly severe	Severe	Very severe
1. From what you know or have heard, are the penalties for a positive drug test severe or lenient?	1	2	3	4	5	6	7

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely
2. From what you know or have heard, if you were to dope, how likely do you think that you could get away with it if you really tried to?	1	2	3	4	5	6	7

APED safety beliefs (doping deterrents)
(Hildebrandt et al, 2012)

Please answer the questions with reference to the present time. Please consider your general beliefs about doping.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping will cost you your health and wellbeing	1	2	3	4	5	6	7
2. Doping has dangerous side effects	1	2	3	4	5	6	7

Perceived performance-enhancing effects of banned substances and methods (benefit appraisals)
(Donovan et al, 2015)

If you were to take the following substances, how likely is it that these substances would improve your performance in sport?

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely	Don't know
1. Anabolic agents (e.g., anabolic steroids, SARMS)	1	2	3	4	5	6	7	0
2. Hormones and growth factors (e.g., peptide hormones, growth hormone, erythropoietin)	1	2	3	4	5	6	7	0

3. Narcotics, cannabinoids and stimulants (e.g., cannabis, amphetamine, cocaine, ecstasy, methylphenidate)	1	2	3	4	5	6	7	0
4. Prohibited methods (e.g., blood doping)	1	2	3	4	5	6	7	0

Doping intentions (proxies of behavior)
Lazuras et al (2010)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. I plan to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7
2. I expect to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7

Self-efficacy to refrain from doping (confidence)
Doping Self-Regulatory Efficacy Scale (Boardley et al, 2018)

How much confidence do you have right now in your ability to…

	No confidence			Moderate confidence			Complete confidence
1. Resist doping even if you knew you could get away with it?	1	2	3	4	5	6	7
2. Ignore the temptation to dope even if you knew it would improve your performance?	1	2	3	4	5	6	7

Perceived legitimacy of anti-doping (beliefs about anti-doping system)
Selected from Petróczi, A. & Woolway, T. (2021)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Current anti-doping rules are effective in protecting clean sport.	1	2	3	4	5	6	7
2. Current anti-doping rules are fair to all athletes.	1	2	3	4	5	6	7

Appendix 7-Questionnaires for Adult Athletes (Final Version; Long)

Questionnaires for adult athletes (long version)
This is the final version and we recommend it for projects that require three items per scale. The sentences in italics provide information for the scale and should not be given to participants.

Section A

1. What is your gender? Female/male/other

2. Is your gender different to your sex at birth? Yes/no

3. What is your date of birth (dd/mm/yy) _____/_____/_____/

4. In which country do you live at the moment? _____

5. At what level do you compete?
   Regional/national/international

6. What is your main sport? _____

7. How many years of experience do you have within your main sport? _____

8. How many times do you train per week?

1-3 times 4-6 times 7-9 times 10-12 times More than 12 times a week

Section B

A number of statements describing thoughts that athletes might have about doping are listed below. Please read these statements carefully and indicate your level of agreement with each one by marking the appropriate number. Your answers are fully anonymous and will be treated with confidentiality. Please answer honestly. There are no right or wrong answers. We are interested in your opinion.

Moral disengagement (morality)

The moral disengagement scale – short version from Boardley et al (2018)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Compared to most lifestyles in the general public, doping isn't that bad.	1	2	3	4	5	6	7
2. It's not right to condemn individuals who dope when many in their sport are doing the same.	1	2	3	4	5	6	7
3. Risks associated with doping are exaggerated.	1	2	3	4	5	6	7

Moral values (morality)

(Mortimer et al, 2021).

Below are different values in sport. Please rate the degree to which each value is a guiding principle in your life as an athlete.

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Ethics, fair play and honesty	1	2	3	4	5	6	7

2. Respect for rules and laws	1	2	3	4	5	6	7
3. Respect for self and others	1	2	3	4	5	6	7

Moral norms (morality)

Adaptation from questionnaire developed by Barkoukis et al (2015).

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. Doping is against the moral standards of most people I know	1	2	3	4	5	6	7
2. Doping is against my team's moral principles	1	2	3	4	5	6	7
3. Most people I know believe athletes are morally obliged not to dope	1	2	3	4	5	6	7

Doping attitudes (motivation)

Ntoumanis et al (2021)

Doping use to enhance my performance in the next 12 months would be....

Unethical 1	2	3	4	5	6	**Ethical** 7
Unsafe 1	2	3	4	5	6	**Safe** 7

Unhealthy 1	2	3	4	5	6	**Healthy** 7

Descriptive norms (motivation)
Lazuras et al (2010)

Out of 100%, how many athletes that you compete with do you think dope?

_____

Out of 100%, how many *elite* athletes within your sport do you think dope?

_____

Doping deterrents
Donovan et al (2015)

	Very lenient	**Lenient**	**Slightly lenient**	**Appropriate**	**Slightly severe**	**Severe**	**Very severe**
1. From what you know or have heard, are the penalties for a positive drug test severe or lenient?	1	2	3	4	5	6	7

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely
2. From what you know or have heard, if you were to dope, how likely do you think that you could get away with it if you really tried to?	1	2	3	4	5	6	7
3. How likely is it that athletes at your level would be drug tested at least once a year?	1	2	3	4	5	6	7

APED safety beliefs (doping deterrents)
(Hildebrandt et al, 2012)

Please answer the questions with reference to the present time. Please consider your general beliefs about doping.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping will cost you your health and wellbeing	1	2	3	4	5	6	7

2. Doping has dangerous side effects	1	2	3	4	5	6	7
3. Doping worsens your mental health	1	2	3	4	5	6	7

Perceived performance-enhancing effects of banned substances and methods (benefit appraisals)
(Donovan et al, 2015)

If you were to take the following substances, how likely is it that these substances would improve your performance in sport?

	Very unlikely	**Unlikely**	**Quite unlikely**	**Neither likely nor unlikely**	**Quite likely**	**Likely**	**Very likely**	**Don't know**
1. Anabolic agents (e.g., anabolic steroids, SARMS)	1	2	3	4	5	6	7	0
2. Hormones and growth factors (e.g., peptide hormones, growth hormone, erythropoietin)	1	2	3	4	5	6	7	0
3. Beta agonists (e.g., albuterol sulfate, salbutamol)	1	2	3	4	5	6	7	0
4. Diuretics and masking agents (e.g., furosemide, desmopressin, probenecid)	1	2	3	4	5	6	7	0

5. Narcotics, cannabinoids and stimulants (e.g., cannabis, amphetamines cocaine, ecstasy, methylphenidate)	1	2	3	4	5	6	7	0
6.Glucocorticoids (e.g., cortisone, prednisone, dexamethasone, triamcinolone)	1	2	3	4	5	6	7	0
7. Prohibited methods (e.g., blood doping)	1	2	3	4	5	6	7	0

Doping intentions (proxies of behavior)
Lazuras et al (2010)

	Strongly disagree	**Disagree**	**Slightly disagree**	**Neither agree nor disagree**	**Slightly agree**	**Agree**	**Strongly agree**
1. I intend to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7
2. I plan to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7

3. I expect to dope to enhance my performance over the next 12 months.	1	2	3	4	5	6	7

Self-efficacy to refrain from doping (confidence)
Doping Self-Regulatory Efficacy Scale (Boardley et al, 2018)

How much confidence do you have right now in your ability to…

	No confidence			**Moderate confidence**			**Complete confidence**
1. Resist doping even if you knew you could get away with it?	1	2	3	4	5	6	7
2. Ignore the temptation to dope even if you knew it would improve your performance?	1	2	3	4	5	6	7
3. Resist peer pressure to dope?	1	2	3	4	5	6	7

Perceived legitimacy of anti-doping (beliefs about anti-doping system)
Selected from Petróczi, A. & Woolway, T. (2021)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Current anti-doping rules are effective in protecting clean sport.	1	2	3	4	5	6	7
2. Current anti-doping rules are fair to all athletes.	1	2	3	4	5	6	7
3. Current anti-doping rules are implemented equally in all sports and all countries.	1	2	3	4	5	6	7

Appendix 8-Questionnaires for Athlete Support Personnel (Final Version; Short)

Questionnaire for ASP (short version)
This is the final version and we recommend it for projects that having two items per scale is not considered a problem. The sentences in italics provide information for the scale and should not be given to participants.

Section A

1. What is your main role within your sport?

Coach Doctor Conditioning trainer Physiotherapist

Dietitian Sports psychologist Agent Administrator
Other

2. What is your gender? Female/male/other

3. Is your gender different to your sex at birth? Yes/no

4. In which country do you live at the moment?

_____

5. What is the highest level of athletes you currently work with?

Regional National International

6. What is the main sport(s) of the athletes you work with currently?

_____

7. What is the frequency of support/contact (days per week in a typical week) with those athletes?

_____

8. What is the highest competitive level of athletes you have worked with?

Regional National International

9. How many years of experience do you have within your main sport as athlete support personnel?

_____

Section B

A number of statements describing thoughts that athlete support personnel might have about doping are listed below. Please read these statements carefully and indicate your level of agreement with each one by marking the appropriate number. Your answers are fully anonymous and will be treated with confidentiality. Please answer honestly. There are no right or wrong answers. We are interested in your opinion.

Moral disengagement (morality)
Boardley et al (2018)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Athletes shouldn't be blamed for doping if training partners/teammates pressure them to do it.	1	2	3	4	5	6	7
2. It's not right to condemn individuals who dope when many in their sport are doing the same.	1	2	3	4	5	6	7

Moral values (morality)
(Mortimer et al, 2021).

Below are different values in sport. Please rate the degree to which each value is a guiding principle in your life as athlete support personnel.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Ethics, fair play and honesty	1	2	3	4	5	6	7
2. Respect for self and others	1	2	3	4	5	6	7

Moral norms (morality)
Barkoukis et al (2015).

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping is against the moral standards of most people I know	1	2	3	4	5	6	7
2. Doping is against my team's moral principles	1	2	3	4	5	6	7

Doping attitudes (motivation)
Ntoumanis et al (2021)

Doping use to enhance athlete performance would be....

Unhealthy 1	2	3	4	5	6	Healthy 7
Wrong 1	2	3	4	5	6	Right 7

Descriptive norms (motivation)
Lazuras et al (2010)

Out of 100%, how many athletes at the highest level you work at do you think dope?

_____

Out of 100%, how many *elite* athletes within your sport do you think dope?

_____

Doping deterrents
Donovan et al (2015)

	Very lenient	Lenient	Slightly lenient	Appropriate	Slightly severe	Severe	Very severe
1. From what you know or have heard, are the penalties for a positive drug test severe or lenient?	1	2	3	4	5	6	7

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely
2. From what you know or have heard, if an athlete were to dope, how likely do you think that they could get away with it if they really tried to?	1	2	3	4	5	6	7

APED safety beliefs (doping deterrents)
(Hildebrandt et al, 2012)

Please answer the questions with reference to the present time. Please consider your general beliefs about doping.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping will cost athletes their health and wellbeing	1	2	3	4	5	6	7
2. Doping has dangerous side effects	1	2	3	4	5	6	7

If an athlete was to take the following substances, how likely is it that these substances would improve his/her performance in sport? Please answer the questions below in relation to the main sport of the athletes you interact with. If there are multiple sports, pick one and name it here_____

Perceived performance-enhancing effects of banned substances and methods (benefit appraisals)
(Donovan et al, 2015)

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely	Don't know
1. Anabolic agents (e.g., anabolic steroids, SARMS)	1	2	3	4	5	6	7	0

2. Hormones and growth factors (e.g., peptide hormones, growth hormone, erythropoietin)	1	2	3	4	5	6	7	0
3. Narcotics, cannabinoids and stimulants (e.g., cannabis, amphetamines, cocaine, ecstasy, methylphenidate)	1	2	3	4	5	6	7	0
4. Prohibited methods (e.g., blood doping)	1	2	3	4	5	6	7	0

Doping intentions (proxies of behavior)
Lazuras et al (2010)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. I intend to promote doping over the next 12 months.	1	2	3	4	5	6	7
2. I expect to promote doping over the next 12 months.	1	2	3	4	5	6	7

Self-efficacy to resist supporting doping (confidence)
(Boardley et al, 2018)

How much confidence do you have right now in your ability to…

	No confidence			Moderate confidence			Complete confidence
1. Resist supporting doping even if you knew your athletes could get away with it?	1	2	3	4	5	6	7
2. Ignore the temptation to encourage doping even when an athlete feels down physically?	1	2	3	4	5	6	7

Perceived legitimacy of anti-doping (beliefs about anti-doping system)
Petróczi, A. & Woolway, T. (2021)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Current anti-doping rules are fully justified because they protect clean sport.	1	2	3	4	5	6	7

2. Current anti-doping rules are fair to all athletes.	1	2	3	4	5	6	7

Integration of anti-doping into coaching practice (ASP behavior)
Blank et al (2014).

	Never	Rarely	Sometimes	Often	Very often
1. When you discuss winning or losing with athletes, how often do you mention doping?	1	2	3	4	5
2. How often do you discuss doping prevention with athletes?	1	2	3	4	5

Doping confrontation efficacy beliefs (ASP behavior)
Doping Confrontation Efficacy Scale from Sullivan et al (2015).

In your athlete support personnel role, how much confidence do you have in your ability to…

	No confidence			Moderate confidence			Complete confidence
1. Provide reasons for confronting an athlete about doping?	1	2	3	4	5	6	7
2. Confront an athlete about doping regardless of whether it will affect your relationship with them?	1	2	3	4	5	6	7

Appendix 9-Questionnaires for Athlete Support Personnel (Final Version; Long)

Questionnaire for ASP (long version)
This is the final version and we recommend it for projects that require three items per scale. The sentences in italics provide information for the scale and should not be given to participants.

Section A

1. What is your main role within your sport?

Coach Doctor Conditioning trainer Physiotherapist

Dietitian Sports psychologist Agent Administrator Other

2. What is your gender? Female/male/other

3. Is your gender different to your sex at birth? Yes/no

4. In which country do you live at the moment?

_____

5. What is the highest level of athletes you currently work with?

Regional National International

6. What is the main sport(s) of the athletes you work with currently?

_____

7. What is the frequency of support/contact (days per week in a typical week) with those athletes?

_____

8. What is the highest competitive level of athletes you have worked with?

Regional National International

9. How many years of experience do you have within your main sport as athlete support personnel?

_____

Section B

A number of statements describing thoughts that athlete support personnel might have about doping are listed below. Please read these statements carefully and indicate your level of agreement with each one by marking the appropriate number. Your answers are fully anonymous and will be treated with confidentiality. Please answer honestly. There are no right or wrong answers. We are interested in your opinion.

Moral disengagement (morality)
Boardley et al (2018)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Compared to most lifestyles in the general public, doping isn't that bad.	1	2	3	4	5	6	7
2. Athletes shouldn't be blamed for doping if training partners/teammates pressure them to do it.	1	2	3	4	5	6	7
3. It's not right to condemn individuals who dope when many in their sport are doing the same.	1	2	3	4	5	6	7

Moral values (morality)
(Mortimer et al, 2021).

Below are different values in sport. Please rate the degree to which each value is a guiding principle in your life as athlete support personnel.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Ethics, fair play and honesty	1	2	3	4	5	6	7
2. Respect for rules and laws	1	2	3	4	5	6	7
3. Respect for self and others	1	2	3	4	5	6	7

Moral norms (morality)
Barkoukis et al (2015).

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping is against the moral standards of most people I know	1	2	3	4	5	6	7
2. Doping is against my team's moral principles	1	2	3	4	5	6	7

3. Most people I know believe athletes are morally obliged not to dope	1	2	3	4	5	6	7

Doping attitudes (motivation)
Ntoumanis et al (2021)

Doping use to enhance athlete performance would be....

Unsafe 1	2	3	4	5	6	Safe 7
Unhealthy 1	2	3	4	5	6	Healthy 7
Wrong 1	2	3	4	5	6	Right 7

Descriptive norms (motivation)
Lazuras et al (2010)

Out of 100%, how many athletes at the highest level you work at do you think dope?

_____

Out of 100%, how many *elite* athletes within your sport do you think dope?

_____

Doping deterrents
Donovan et al (2015)

	Very lenient	Lenient	Slightly lenient	Appropriate	Slightly severe	Severe	Very severe
1. From what you know or have heard, are the penalties for a positive drug test severe or lenient?	1	2	3	4	5	6	7

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely
1. From what you know or have heard, if an athlete were to dope, how likely do you think that they could get away with it if they really tried to?	1	2	3	4	5	6	7

APED safety beliefs (doping deterrents)
(Hildebrandt et al, 2012)

Please answer the questions with reference to the present time. Please consider your general beliefs about doping.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Doping can cause heart problems	1	2	3	4	5	6	7

2. Doping will cost athletes their health and wellbeing	1	2	3	4	5	6	7
3. Doping has dangerous side effects	1	2	3	4	5	6	7

If an athlete was to take the following substances, how likely is it that these substances would improve his/her performance in sport? Please answer the questions below in relation to the main sport of the athletes you interact with. If there are multiple sports, pick one and name it here_____

Perceived performance-enhancing effects of banned substances and methods (benefit appraisals)
(Donovan et al, 2015)

	Very unlikely	Unlikely	Quite unlikely	Neither likely nor unlikely	Quite likely	Likely	Very likely	Don't know
1. Anabolic agents (e.g., anabolic steroids, SARMS)	1	2	3	4	5	6	7	0
2. Hormones and growth factors (e.g., peptide hormones, growth hormone, erythropoietin)	1	2	3	4	5	6	7	0
3. Beta agonists (e.g., albuterol sulfate, salbutamol)	1	2	3	4	5	6	7	0

4. Diuretics and masking agents (e.g., furosemide, desmopressin, probenecid)	1	2	3	4	5	6	7	0
5. Narcotics, cannabinoids and stimulants (e.g., cannabis, amphetamines, cocaine, ecstasy, methylphenidate)	1	2	3	4	5	6	7	0
6. Glucocorticoids (e.g., cortisone, prednisone, dexamethasone, triamcinolone)	1	2	3	4	5	6	7	0
7. Prohibited methods (e.g., blood doping)	1	2	3	4	5	6	7	0

Doping intentions (proxies of behavior)
Lazuras et al (2010)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. I intend to promote doping over the next 12 months.	1	2	3	4	5	6	7

2. I plan to promote doping over the next 12 months.	1	2	3	4	5	6	7
3. I expect to promote doping over the next 12 months.	1	2	3	4	5	6	7

Self-efficacy to resist supporting doping (confidence)
(Boardley et al, 2018)

How much confidence do you have right now in your ability to…

	No confidence			Moderate confidence			Complete confidence
1. Resist supporting doping even if you knew your athletes could get away with it?	1	2	3	4	5	6	7
2. Ignore the temptation to support doping even if you knew it would improve your athletes' performance?	1	2	3	4	5	6	7

3. Ignore the temptation to encourage doping even when an athlete feels down physically?	1	2	3	4	5	6	7

Perceived legitimacy of anti-doping (beliefs about anti-doping system)
Petróczi, A. & Woolway, T. (2021)

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. Current anti-doping rules are fully justified because they protect clean sport.	1	2	3	4	5	6	7
2. Current anti-doping rules are effective in protecting clean sport.	1	2	3	4	5	6	7
3. Current anti-doping rules are fair to all athletes.	1	2	3	4	5	6	7

Integration of anti-doping into coaching practice (ASP behavior)
Blank et al (2014).

	Never	Rarely	Sometimes	Often	Very often
1. How often do you talk about doping substances and methods with athletes?	1	2	3	4	5
2. How often do you discuss doping prevention with athletes?	1	2	3	4	5
3. How often do you prepare your athletes for doping control?	1	2	3	4	5

Doping confrontation efficacy beliefs (ASP behavior)
Doping Confrontation Efficacy Scale from Sullivan et al (2015).

In your athlete support personnel role, how much confidence do you have in your ability to…

	No confidence			Moderate confidence			Complete confidence
1. Provide reasons for confronting an athlete about doping?	1	2	3	4	5	6	7
2. Confront an athlete about doping regardless of whether it will affect your relationship with them?	1	2	3	4	5	6	7
3. Deal with the stress of a doping confrontation with an athlete?	1	2	3	4	5	6	7

Appendix 10-Information Sheets

ADOLESCENT ATHLETES

Title of Research Study: Development of Brief Assessment Packages for Anti-Doping Education Programs

Principal Investigator: Prof. Nikos Ntoumanis

Case Number: 917887119

Why are we doing this project?

The World Anti-Doping Agency (WADA) would like to develop brief questionnaires ("assessment packages") to evaluate anti-doping education provided in different countries for athlete support personnel (e.g., coaches), adult athletes, and adolescent athletes. In order to develop these questionnaires, we are reviewing the scientific literature and are consulting expert researchers and anti-doping practitioners from many countries. We are at a stage now where we need to distribute questionnaires to athletes and athlete support personnel to gather their views on various aspects of doping. This information will help us develop the final questionnaires that we will send to WADA. The information you will provide us will be very important in developing these questionnaires and we are very grateful to you for considering to take part in the study.

Who is carrying out the project?

This project is carried out in many countries. The overall coordination and responsibility for the project is with the University of Southern Denmark and its Professor Nikos Ntoumanis (nntoumanis@health.sdu.dk). The project's research assistant is Mrs Julie Thunbo Rivold (jrivold@health.sdu.dk), also at the University of Southern Denmark. If you are an adolescent athlete or a parent of such an athlete, feel free to contact Prof. Ntoumanis or Mrs Julie Thunbo Rivold

What will you be asked to do if you wish to take part in this project?

You will be asked to complete a questionnaire pack that will measure your opinions and feelings about doping-related issues (e.g., moral issues). If you are an athlete, you will not be asked to report any past or current doping use. You will only need to complete the full questionnaire once. Please complete it on your own without consulting anyone else because we are interested in your opinions only. The information you will provide us will be very important in developing the final questionnaire and we are very grateful to you considering to take part in the study. To say thank you we would add your name in a prize draw for 1 of 20 Amazon.de (German site) vouchers (worth 50 Euros each). Please add your name and email address at the end of the questionnaire.

If you don't understand some words in the questionnaire, feel free to use a dictionary or email Julie Rivold (jrivold@health.sdu.dk).

What are the possible risks from participation?

Your responses will remain confidential with the research team at the University of Southern Denmark and will not be shared with anyone else. If you are an adult athlete or a coach, you will not need to provide your name unless you want to take part in the prize draw. If you are an adolescent athlete, we need your name as we will be seeking your legal guardian's permission for you to participate in the study. The questionnaire will include questions that have been used in past research projects and ask about your feelings and thoughts regarding doping in sport. You can of course decide not to participate in the study or withdraw your participation at any time by emailing Julie Rivold.

Do I have to take part in the study?

No, you don't have to take part in the study (if you are a minor, even if your legal guardian agrees to your participation, you will also need to agree to participate in this study). Whether you decide to take part or not, it will not affect your treatment in your team or club now or in the future. If you are a minor and you don't understand some parts in this information sheet, please discuss them with your legal guardian or email Julie Rivold for further information.

You are free to withdraw your consent and discontinue with your participation at any time for any reason and you do not need to justify your decision.

Where is information about my questionnaire kept?

Spreadsheets with data will not contain individuals' names. Consent forms and questionnaires with names at the end will be kept safely and securely stored in password-protected servers at the University of Southern Denmark. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Who to contact for more information about this project:

If you would like any more information about this project, please do not hesitate to contact Prof. Ntoumanis or Julie Rivold in the email addresses given above.

If you agree to participate in the study, please click on the link here to provide your consent and access the survey.

THANK YOU FOR YOUR TIME!

ADULT ATHLETES AND ASP

Title of Research Study: Development of Brief Assessment Packages for Anti-Doping Education Programs

Principal Investigator: Prof. Nikos Ntoumanis

Case Number: 917887119

Why are we doing this project?

The World Anti-Doping Agency (WADA) would like to develop brief questionnaires ("assessment packages") to evaluate anti-doping education provided in different countries for athlete support personnel (e.g., coaches), adult athletes, and adolescent athletes. In order to develop these questionnaires, we are reviewing the scientific literature and are consulting expert researchers and anti-doping practitioners from many countries. We are at a stage now where we need to distribute questionnaires to athletes and athlete support personnel to gather their views on various aspects of doping. This information will help us develop the final questionnaires that we will send to WADA. The information you will provide us will be very important in developing these questionnaires and we are very grateful to you for considering to take part in the study.

Who is carrying out the project?

This project is carried out in many countries. The overall coordination and responsibility for the project is with the University of Southern Denmark and its Professor Nikos Ntoumanis (nntoumanis@health.sdu.dk). The project's research assistant is Julie Thunbo Rivold (jrivold@health.sdu.dk), also at the University of Southern Denmark. If you are an adolescent athlete or a parent of such an athlete, feel free to contact Prof. Ntoumanis or Julie Thunbo Rivold. If you reside in Sweden or Norway, feel free to also contact the project coordinator in these countries. Norwegian participants can contact Prof. Anne Marte Pensgaard (annemp@nih.no) at the Norwegian School of Sports Sciences. Swedish participants can also contact Prof. Andreas Ivarsson (andreas.ivarsson@hh.se) at Halmstad University.

What will you be asked to do if you wish to take part in this project?

You will be asked to complete a questionnaire pack that will measure your opinions and feelings about doping-related issues (e.g., moral issues). If you are an athlete, you will not be asked to report any past or current doping use. You will only need to complete the full questionnaire once. Please complete it on your own without consulting anyone else because we are interested in your opinions only. The information you will provide us will be very important in developing the final questionnaire and we are very grateful to you considering to take part in the study. To say thank you, if you would like to participate in a prize draw for 1 of 20 Amazon.de (German site) vouchers (worth 50 Euros each), please add your name and email address at the end of the questionnaire.

If you don't understand some words in the questionnaire, feel free to use a dictionary or email Julie Rivold (jrivold@health.sdu.dk).

What are the possible risks from participation?

Your responses will remain confidential with the research team at the University of Southern Denmark and will not be shared with anyone else. The questionnaire will include questions that have been used in past research projects and ask about your feelings and thoughts regarding doping in sport. You can of course decide not to participate in the study or withdraw your participation at any time by emailing Julie Rivold.

Do I have to take part in the study?

No, you don't have to take part in the study. Whether you decide to take part or not, it will not affect your treatment in your team or club now or in the future. If don't understand some parts in this information sheet, please email Julie Rivold for further information.

You are free to withdraw your consent and discontinue with your participation at any time for any reason and you do not need to justify your decision.

Where is information about my questionnaire kept?

Spreadsheets with data will not contain individuals' names. Consent forms and questionnaires with names at the end will be kept safely and securely stored in password-protected servers at the University of Southern Denmark. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Who to contact for more information about this project:

If you would like any more information about this project, please do not hesitate to contact Prof. Ntoumanis or Julie Rivold, or the Swedish and Norwegian project partners, in the email addresses given above.

If you agree to participate in the study, please click on the link here to provide your consent and access the survey.

THANK YOU FOR YOUR TIME!

PARENTS

Title of Research Study: Development of Brief Assessment Packages for Anti-Doping Education Programs

Principal Investigator: Prof. Nikos Ntoumanis

Case Number: 917887119

Why are we doing this project?

The World Anti-Doping Agency (WADA) would like to develop brief questionnaires ("assessment packages") to evaluate anti-doping education provided in different countries for athlete support personnel (e.g., coaches), adult athletes, and adolescent athletes. In order to develop these questionnaires, we are reviewing the scientific literature and are consulting expert researchers and anti-doping practitioners from many countries. We are at a stage now where we need to distribute questionnaires to athletes and athlete support personnel to gather their views on various aspects of doping. This information will help us develop the final questionnaires that we will send to WADA. The information they will provide us will be very important in developing these questionnaires and we are very grateful for considering your child to take part in the study.

Who is carrying out the project?

This project is carried out in many countries. The overall coordination and responsibility for the project is with the University of Southern Denmark and its Professor Nikos Ntoumanis (nntoumanis@health.sdu.dk). The project's research assistant is Mrs Julie Thunbo Rivold (jrivold@health.sdu.dk), also at the University of Southern Denmark.

What will your child be asked to do if they wish to take part in this project?

Your child will be asked to complete a questionnaire pack that will measure their opinions and feelings about doping-related issues (e.g., moral issues. They will not be asked to report any past or current doping use. They will only need to complete the full questionnaire once. Please let them complete it on their own without consulting with you or anyone else because we are interested in their opinions only. If they don't understand some words in the questionnaire, they can use a dictionary or email Julie Rivold (jrivold@health.sdu.dk).

The information they will provide us will be very important in developing the final questionnaire and we are very grateful for considering your child to take part in the study. To say thank you, they will participate in a prize draw for 1 of 20 Amazon.de (German site) vouchers (worth 50 Euros each). We will ask them to add their name and email address at the end of the questionnaire, so that we can ensure that we will include in the survey only children whose parents have provided consent to participate in our study.

What are the possible risks to my child?

Their responses will remain confidential with the research team at the University of Southern Denmark and will not be shared with anyone else. The questionnaire will include questions that have been used in past research projects and ask about their feelings and thoughts regarding doping in sport. They can of course decide not to participate in the study or withdraw their participation at any time by emailing Julie Rivold. If you would like to see the questions they have to answer, you can visit this link: *(In the survey a link to the adolescent survey was provided here)*

Does my child have to take part?

No, your child does not have to take part in this project. Even if you give your consent to participate in the study, they also need to give their consent online for them to take part in the

study. Whether your child decides to take part or not, it will not affect their treatment in their team or club now or in the future.

They are free to withdraw their consent and discontinue with their participation at any time for any reason and you do not need to justify your decision.

Where is information about my child kept?

Spreadsheets with data will not contain individuals' names. Consent forms and questionnaires with names at the end will be kept safely and securely stored in password-protected servers at the University of Southern Denmark. You and your child have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. No participant will be identified in any results that are published or presented.

Who to contact for more information about this project:

If you would like to any more information about this project, please do not hesitate to contact Prof. Ntoumanis or Julie Rivold.

If you agree for your child to participate in the study, please click on the link here to provide your consent.

THANK YOU FOR YOUR TIME

Appendix 11-Consent Forms

ADOLESCENTS

Title of Research Study: Development of Brief Assessment Packages for Anti-Doping Education Programs

Principal Investigator: Prof. Nikos Ntoumanis

Case Number: 917887119

Dear athlete,
You are invited to participate in the above-mentioned research project which is funded by the World Anti-Doping Agency (WADA) and hosted by the University of Southern Denmark (SDU). You are receiving this form because we have received the consent of one of your legal guardians allowing you to participate in the study. Of course, we also need your agreement to take part in the study. You should not feel pressured by others to participate in the study.

Further information

If you want more information about this study, the study design, or the results, you or your legal guardian can contact Mrs Julie Thunbo Rivold (jrivold@health.sdu.dk).

If you have any complaints or concerns about this study, you or your legal guardian can contact Prof. Ntoumanis (nnntoumanis@health.sdu.dk) or the SDU Research Ethics Committee at sdu-rec@sdu.dk.

Please read the information sheet provided to you as well as this document carefully and check the box at the bottom of this form to confirm that you want to participate in this project:

- I have read and understand the Information Sheet for the above study.
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without negative consequences of any kind.
- I understand the anonymized results of this study may be used for teaching, publications, or for presentation at scientific meetings.
- I am below the age of 18 years old. In addition to my consent, the consent of one of my legal guardians will be obtained.

<u>Certificate of consent</u>

I, (please insert your name here)
……..……
want to take part in the study and hereby provide consent to participate.

I agree with all the above.

(please tick the box if you agree; you will then be able to open the questionnaire)

ADULT ATHLETES AND ASP

Title of Research Study: Development of Brief Assessment Packages for Anti-Doping Education Programs

Principal Investigator: Prof. Nikos Ntoumanis

Case Number: 917887119

Dear participant,

You are invited to participate in the above-mentioned research project which is funded by the World Anti-Doping Agency (WADA) and is hosted by the University of Southern Denmark (SDU).

Further information

If you want more information about this study, the study design, or the results, you can contact Mrs Julie Thunbo Rivold (jrivold@health.sdu.dk), at the University of Southern Denmark. If you reside in Sweden or Norway, feel free to also contact the project coordinator in these countries. Norwegian participants can contact Prof. Anne Marte Pensgaard (annemp@nih.no) at the Norwegian School of Sports Sciences. Swedish participants can also contact Prof. Andreas Ivarsson (andreas.ivarsson@hh.se) at Halmstad University.

If you have any complaints or concerns about this study, you can contact Prof. Ntoumanis (nntoumanis@health.sdu.dk) or the SDU Research Ethics Committee at sdu-rec@sdu.dk.

Please read the information sheet provided to you as well as this document carefully and check the box at the bottom of this form to confirm that you want to participate in this project:

- I have read and understood the Information Sheet for the above study.
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without negative consequences of any kind.

- I understand the anonymized results of this study may be used for teaching, publications, or for presentation at scientific meetings.
- I am above the age of 18 years old and capable of making my own decisions.

Certificate of consent

I want to take part in the study and hereby provide consent to participate.

I agree with all the above.

(please tick the box if you agree; you will then be able to open the questionnaire)

PARENTS

Title of Research Study: Development of Brief Assessment Packages for Anti-Doping Education Programs

Principal Investigator: Prof. Nikos Ntoumanis

Case Number: 917887119

Dear parent,

Your child is invited to participate in the above-mentioned research project which is funded by the World Anti-Doping Agency (WADA) and hosted by the University of Southern Denmark (SDU). In addition to your consent, we will seek the consent of your child. You should not feel pressured by others to participate in the study.

Further information

If you want more information about this study, the study design, or the results, you can contact Mrs Julie Thunbo Rivold (jrivold@health.sdu.dk).

If you have any complaints or concerns about this study, you can contact Prof. Ntoumanis (nnntoumanis@health.sdu.dk) or the SDU Research Ethics Committee at sdu-rec@sdu.dk.

Please read the information sheet provided to you as well as this document carefully and check the box at the bottom of this form to confirm that you want to participate in this project:

- I have read and understand the Information Sheet for the above study.
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my child's participation is voluntary and that he or she will be free to withdraw at any time, without giving any reason, and without negative consequences of any kind.
- I understand the anonymized results of this study may be used for teaching, publications, or for presentation at scientific meetings.

- I am above the age of 18 years old and capable of making my own decisions.

Certificate of consent

I, (please insert your name here)
……..……
agree with my child to take part in the study and hereby provide consent to participate.

Name of my child: _____

In case you have additional children, who would like to participate in this study. Please add their names here:
_____

I agree with all the above.
(please tick the box if you agree; you will then be able to open the questionnaire)

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