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# Testing the feasibility of a clean sport bystander intervention

Final Report Prepared for  
**International Olympic  
Committee**

By the

**Carnegie Clean Sport  
Research Group**

June 2018



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Institute for  
Sport, Physical  
Activity & Leisure

# Research Team

The research team comprised members from the Institute for Sport, Physical Activity and Leisure at Leeds Beckett University. Specifically, the team included:

- Dr Kelsey Erickson (Leeds Beckett University, Project Lead)
- Professor Sue Backhouse (Leeds Beckett University, Principle Investigator)
- Dr Laurie Patterson (Leeds Beckett University, Co-Investigator)
- Professor Jim McKenna (Leeds Beckett University, Co-Investigator)

Additionally, the project was supported by an Advisory Board that included:

- Ms Becky Bell (University of Arizona, Associate Athletics Director, CATS Life Skills)
- Dr Mary Wilfert (NCAA, Associate Director of the Sport Science Institute)
- Mr Matthew Perry (UKAD, Next Generation Education Officer)
- Professor Philip Sullivan (Brock University, Chair of Social Psychology)

We would also like to thank Dr Nicholas Stanger (Leeds Beckett University) for his contribution to the data analysis.

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## EXECUTIVE SUMMARY

### Context

Although doping research has increased in span and scale over the past decade, few studies have considered the way athletes approach others' use of appearance and performance enhancing drugs (APEDs) and none have proposed interventions for addressing this issue. Individuals are therefore not being equipped to play an active role in deterring banned substance use in sport which, in turn, prevents a community-based approach to pursuing clean sport. In response to this shortfall in current anti-doping practice, RE>ACT (which stands for 'recognize' and 'take action') offers a viable alternative to current practice by developing a clean sport bystander intervention. Specifically, RE>ACT explores whether confrontation can be employed as an effective self-regulation approach to address doping within a cross-cultural student-athlete population.

### Research Design

Student-athletes from the US, UK and Canada were recruited to participate. The total sample (N = 525) consisted of 257 males (49%) and 267 females (51%) with one student-athlete not indicating their gender. Once split, the RE>ACT group (n=214) consisted of 128 males (60%) and 86 females (40%). The ACTCON group (n=310 with one participant not indicating gender) consisted of 129 males (42%) and 181 females (58%).

Student-athletes in RE>ACT engaged in two consecutive interactive workshops (75 minutes and 90 minutes) comprising: (1) an introduction to the theories and evidence underpinning the situational model of bystander intervention (Latane & Darley, 1970) and (2) a topic-specific session covering dietary supplements, APEDs, prescription medications, and recreational drugs. ACTCON student-athletes received a 1-hr anti-doping education workshop that was didactic in nature.

Student-athletes in both groups completed the same survey at baseline, immediately following the intervention and three-months post-intervention.

## Findings

Data analysis indicates that both RE>ACT and ACTCON groups showed positive changes from baseline to post-intervention. However, the RE>ACT intervention produced more substantial – and sustained - positive changes in likelihood to address doping behavior, perceived skills and confidence to confront substance use and the belief that team-mates would intervene in intervention-worthy substance use situations when compared to the control condition. Notably, data showed that relationships are significant in determining how individuals address banned substance use but RE>ACT helped mitigate the deterrent influence of this (potential) barrier.

## Next Steps

RE>ACT offers a much needed evidence-supported anti-doping intervention for student-athletes and this project has underscored the demand for such programs by the target population (universities and student-athletes). Based on the evaluation, RE>ACT will now be streamlined to a single 1-hr session in order to increase the feasibility of widespread delivery and engagement with the program. Additionally, RE>ACT will be tailored for delivery to athlete support personnel populations; thus, facilitating an opportunity to further strengthen a community-based approach to doping deterrence and prevention.

## INTRODUCTION

Although doping research has increased in span and scale over the past decade, few studies have considered the way athletes approach others' use of appearance and performance enhancing drugs (APEDs) and none have proposed interventions for addressing this issue. Furthermore, cross-cultural comparisons for intervention strategies are rare, yet necessary, when generating evidence-based programs to tackle global issues such as doping. Addressing this absence of evidence, RE>ACT (which stands for 'recognize' and 'take action') offers a viable alternative to current practice by developing a bystander intervention. Specifically, we explore whether confrontation can be employed as an effective self-regulation approach to address doping within a student-athlete population. To do so, we have applied the established situational model of bystander intervention (Latane & Darley, 1970).

The 'bystander effect' is a robust phenomenon demonstrating that an individual's likelihood to help decreases when passive bystanders are present in critical situations (Latane & Nida, 1981). Conceptualizing this phenomenon, the situational model (Latane & Darley, 1970) provides a sequential outline of the decision-making process a bystander goes through in determining whether or not to intervene: 1) notice a critical situation, 2) interpret the situation as an emergency, 3) develop a feeling of personal responsibility, 4) believe s/he has the skills needed to succeed, and 5) reach a conscious decision to help. Noticeably, intervening is the last step in the process. At any point, situational barriers can halt an individual's progress; as the number of barriers increase, the likelihood of intervening decreases (Burn, 2009). Thus, a bystander intervention has the potential to empower individuals within sport to address suspected banned substance use. A simple review of recent high profile cases (e.g., Yuliya Stepanova), reinforced by our own research findings (Erickson, Backhouse, & Carless, 2017), confirm that the bystander effect is harming (1) the doper, by allowing them to continue using a prohibited substance and/or method, (2) the bystander, by making them more susceptible to joining in on the behavior and risking them being deemed complicit to the doping behavior (i.e., committing an anti-doping rule violation), (3) the clean athlete, by threatening their right to participate in clean sport, and (4) global sport, by questioning its integrity and thus, damaging its reputation.



The situational model of bystander intervention (Latane & Darley, 1970) provides a comprehensive framework encompassing prominent elements from theories that explain human behavior. These include the Theory of Planned Behavior (Ajzen, 1985), Theory of Reasoned Action (Fishbein & Ajzen, 1975), Social Cognitive Theory (Bandura, 1986), Social Norms Theory (Perkins & Berkowitz, 1986) and the ecological model (McLeroy, Bigbeau, Steckler, & Glanz, 1988) (Long, 2012). While scholars have previously utilized each of these theories in an attempt to examine the doping phenomenon (Backhouse, Whitaker, Patterson, Erickson, & McKenna, 2016), they have never been used in combination to inform an intervention. Nevertheless, the bystander framework has been implemented widely across US university campuses - mainly targeting sexual violence - and is considered the most effective approach for overcoming bystander effect tendencies among university populations (Long, 2012).

Although the shift towards a self-regulatory approach to doping prevention is both novel and innovative, this intervention draws on established theories and program designs. Specifically, the StepUP! Bystander Intervention Program ("StepUP!," N.D.) has been used as a guiding framework. This program was designed especially for student-athletes and is the most used bystander intervention across US universities, with hundreds of institutions benefitting from its resources. The original design emerged from a pilot study indicating that student-athletes wish to help friends in distress but feel ill-equipped to do so safely and effectively (StepUP!, 2006). Similar concerns were raised in preliminary research with student-athletes from the US and UK conducted at Leeds Beckett University (Erickson, PhD Thesis, 2015; Erickson et al., 2017). They asserted that doping use warrants action, however, most were reluctant to report it and frequently suggested overlooking it. At the same time, they indicated a willingness to confront APED users, but demonstrated uncertainty in relation to the appropriateness of this approach.

Confrontation is a form of self-regulation and is considered an 'informal sanction' in the form of negative feedback received from significant others (Bowers, 2014). While formal sanctions (bans) are considered strong deterrents to doping and underpin the traditional anti-doping detection-deterrence approach, increasing evidence indicates athletes also perceive informal sanctions to be costly (e.g., Erickson,

McKenna & Backhouse, 2015; Overbye, Knudsen, & Pfister, 2013). This suggests that encouraging and empowering athletes to confront APED users could feasibly increase individuals' willingness to engage in the pursuit of clean sport and, in turn, reduce the prevalence of doping in sport. Moreover, it offers a community-based approach to discouraging banned substance use and capitalizes on everyday behaviors as a deterrent. Against this background, this project aimed to explore the feasibility of designing and implementing an education intervention that equips and empowers student-athletes to effectively and safely confront doping behaviors.

## RESEARCH OBJECTIVES AND HYPOTHESIS

Applying the situational model of bystander intervention, this research project examines the feasibility of employing confrontation techniques as an effective self-regulation approach to deterring banned substance use in student-athlete populations.

### Objectives:

1. Determine the effectiveness of a bystander intervention (RE>ACT) in modifying intervening attitudes and behaviors, compared to a control condition, within student-athlete populations in three countries (UK, US and Canada).
2. Determine how well and under what conditions the content and delivery of RE>ACT promotes and supports increased bystander-related attitudinal changes.
3. Determine if the delivery model is acceptable to the target population and feasible for widespread implementation.

### Desired Outcomes:

- Determine the opportunities that student-athletes perceive to be intervention-worthy.
- If noticeable gaps are identified in perceived opportunities to intervene, increase appreciation for intervention-worthy situations on their campuses.
- After increasing awareness, change perceptions of personal roles and responsibilities for intervening in these situations.

- Finally, provide student-athletes with the skills, confidence and resources necessary to effectively intervene.

Therefore, the primary outcomes of this study are self-reported likelihood to intervene and perceived skills and confidence to intervene. Secondary outcomes are theoretical mediators (e.g., knowledge, attitudes, beliefs).

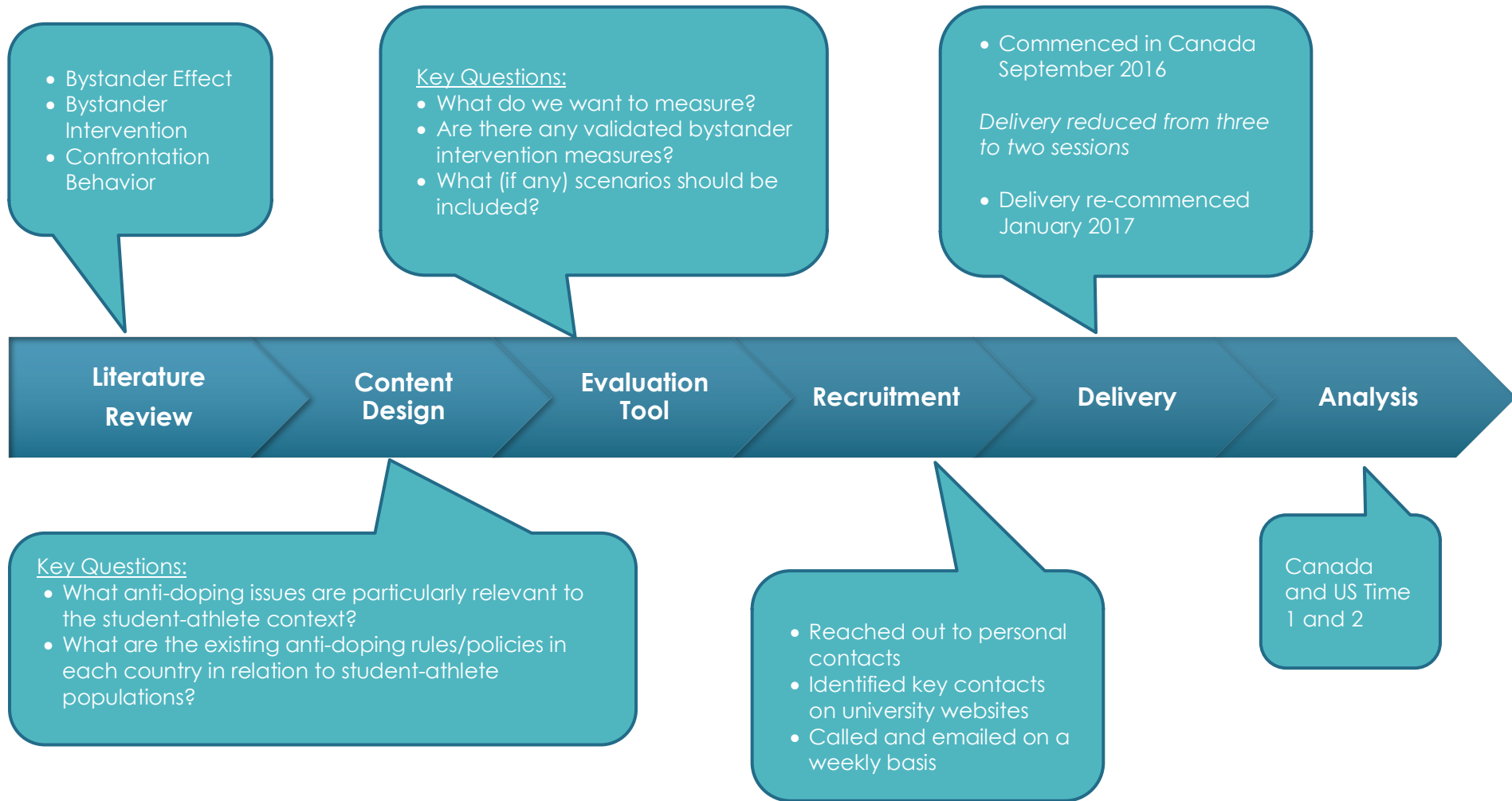
#### Hypothesis:

We hypothesized that compared to the control condition, student-athletes in the RE>ACT program would report greater increases in: (1) likelihood to take action if/when they witness doping behaviors, (2) personal responsibility to confront doping behavior, (3) perceptions of having the skills needed to confront doping behavior, (4) perceived confidence to confront doping situations, and (5) behaviors to actively address doping in sport.

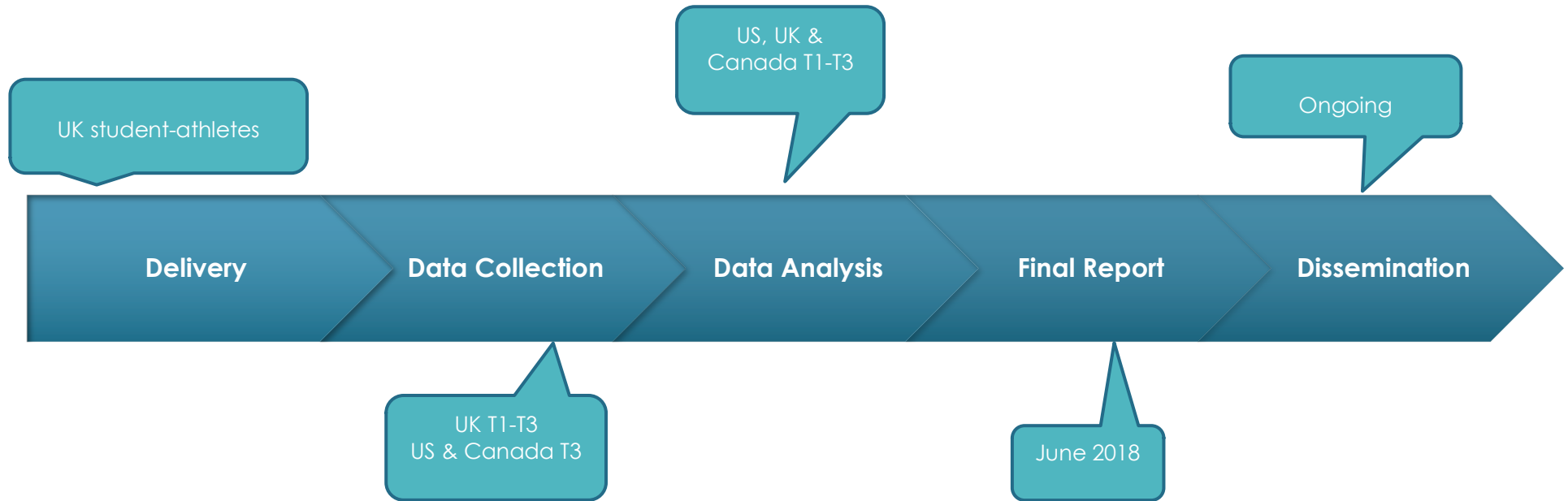
## RESEARCH DESIGN AND METHODS

During Year 1, the focus was on the design, development and delivery of RE>ACT. Next, Year 2 consisted of delivering RE>ACT in the UK and completing data collection across the three countries and three timepoints. Once all data was collected, it was analyzed across the three timepoints and the final report was produced. Figure 1 illustrates what was completed during each year, and a more detailed timeline can be found in Appendix 1.

**Year 1**



**Year 2**



*Figure 1: Outline of Year 1 and Year 2 of the project*

## PHASE 1: CONTENT DESIGN AND DEVELOPMENT

The first step in the project was to design and develop the content of RE>ACT. Figure 2 outlines the steps that were followed to design both the RE>ACT content and the Active-Control (ACTCON) content.

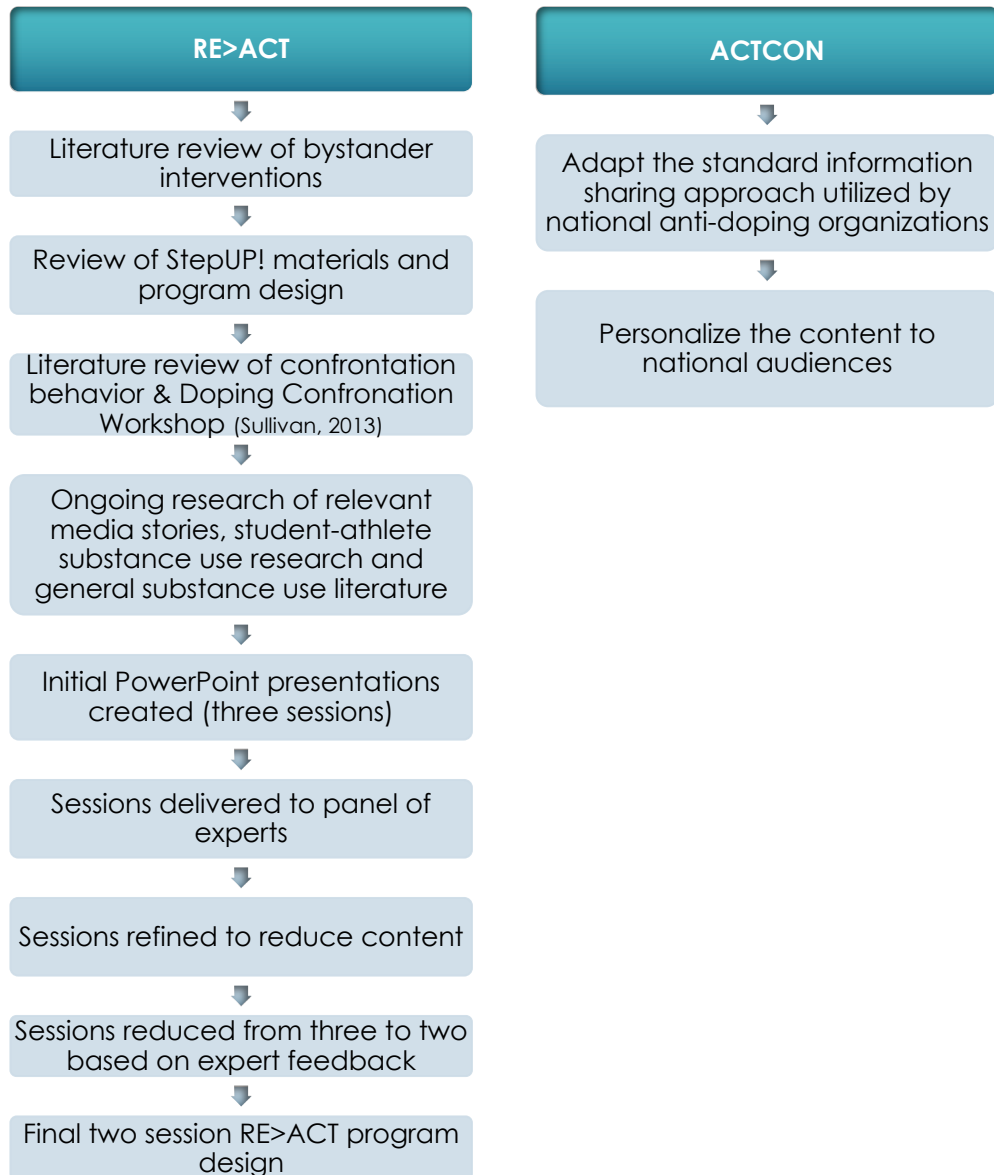


Figure 2: Process of designing session content

### Experimental Intervention (RE>ACT)

The content for the RE>ACT program is based on several complementary theoretical frameworks (Theory of Planned Behavior, Theory of Reasoned Action, Social Cognitive theory, Social Norms theory, ecological model) as well as formative research with the target population (Erickson, PhD Thesis, 2015; Erickson et al., 2017).

Drawing on established definitions, RE>ACT is intended to influence/change individuals' social, environmental, and organizational conditions as well as their attitudes, beliefs, choices and behaviors.

Figure 2 outlines the rigorous process that was followed when designing and developing the workshops. For the RE>ACT condition, conducting a review of literature on existing bystander interventions was essential for determining the most pertinent aspects of an effective intervention. This included reviewing all the materials, attending facilitator training (May 2016) and multiple conversations with the creator of StepUP! (Becky Bell). At the same time, a review of confrontation behavior was undertaken and Professor Phillip Sullivan provided support based on his experience of developing a Doping Confrontation Workshop (Sullivan, 2013). Over a period of six months (March-August 2016), the sessions were continually developed and refined.

As RE>ACT is informed by the StepUP! program, the team (led by Becky Bell) provided feedback on the content and made suggestions in relation to what to include and what to remove based on their personal experience of delivering StepUP! In this regard, the StepUP! team also provided important insights regarding how to deliver the RE>ACT sessions (e.g., the importance of adopting a flexible delivery approach in which discussion and debate is facilitated and encouraged).

In line with the original research proposal, RE>ACT initially consisted of three workshops. The first workshop (75 minutes) familiarized student-athletes with the theories and evidence underpinning the situational model of bystander intervention and introduced confrontation behavior. Two topic-specific workshops (60 minutes each) followed, covering: (1) dietary supplements and appearance and performance enhancing drugs (APEDs), and (2) prescription medications and recreational drugs.

Drawing upon evidence informed recommendations (Backhouse, McKenna, & Patterson, 2009), each RE>ACT workshop is designed to be interactive, including didactic activities, and episodes of serial drama. These activities are ideally suited to model prosocial behaviors and illustrate both positive and negative outcome

expectations for intervening and for perpetrating doping in sport. All the activities are designed to increase student-athletes' awareness of the five steps (situational model; Latane & Darley, 1970) necessary for intervention to take place and to develop personal strategies for effective helping. Specifically, these five decision making steps are: 1) notice a critical situation, 2) interpret the situation as an emergency, 3) develop a feeling of personal responsibility, 4) believe s/he has the skills needed to succeed, and 5) reach a conscious decision to help. While existing bystander interventions generally stop at this stage (i.e., familiarizing individuals with the five steps towards intervention), RE>ACT goes a step further and introduces confrontation as a specific avenue for implementing the help (i.e., Step 5). For this reason, the StepUP! and Doping Confrontation Workshop (Sullivan, 2013) content materials were combined and modified to create RE>ACT.

After the initial sessions were designed, they were piloted with a panel of sport and exercise psychology experts and postgraduate students. The audience provided feedback on content, appearance, presentation style (of Dr Erickson) and any additional comments they might have. These were then used to further refine the content of the program. A key outcome of this activity was the design of the 'RE>ACT Model' (see Figure 3). The model illustrates the process that student-athletes must go through when deciding whether to confront intervention-worthy substance use situations and underpins the RE>ACT program.

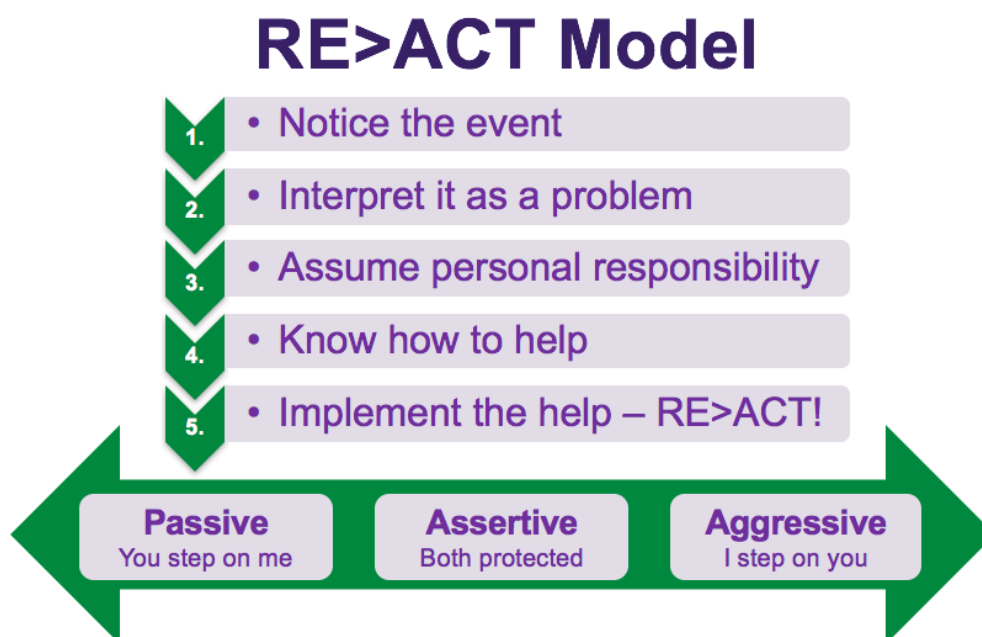


Figure 3: RE>ACT Model



Finally, the program content was also tailored to the national contexts to ensure that it reflected relevant anti-doping policies. This was essential because US university sport (National Collegiate Athletic Association; NCAA) is not World Anti-Doping Agency (WADA) compliant. Meanwhile, USport (Canadian university sport) and British Universities and Colleges Sport (BUCS) are WADA-compliant, meaning student-athletes in the three countries are governed by differing anti-doping policies.

#### Active-Control Condition (ACTCON)

In the ACTCON condition, student-athletes received a 1-hr anti-doping education workshop that was didactic in nature and focused on information giving (see Appendix 2). The content was drawn from existing national anti-doping organization education sessions that members of the research team (e.g., Professor Backhouse) have previously delivered. In the session, key compliance messages were shared (e.g., WADA Prohibited List, doping control procedures) and student-athletes were signposted to relevant anti-doping websites (e.g., WADA and national anti-doping agency websites). The session was also tailored to the particular audience (i.e., WADA-compliant or non-compliant).

## PHASE 2: EVALUATION TOOL

Design of the evaluation measure extended over a period of seven months (March-September 2016) and involved a rigorous process of refinement (see Figure 4).

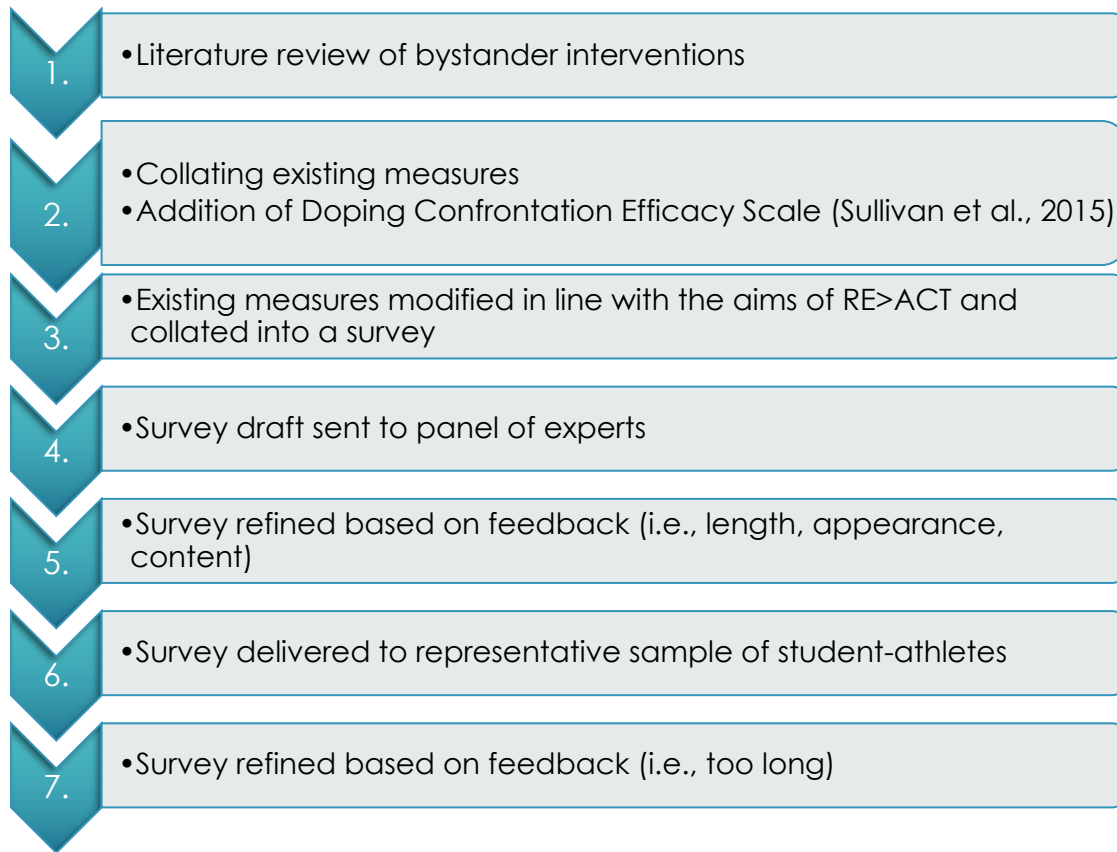


Figure 4: Development of the RE>ACT evaluation tool

During the first phase of survey development, a literature review was conducted to gather existing intervention measurement tools. This process revealed a lack of validated bystander intervention measures. For the purposes of evaluating RE>ACT, existing measures were therefore modified. Specifically, questions from the StepUP! pre/post-evaluation (StepUP!, N.D.), the Doping Confrontation Efficacy Scale (Sullivan, Feltz, LaForge-MacKenzie, & Hwang, 2015), and the Bystander Attitudes Scale, Bystander Efficacy Scale, Decisional Balance Scale, and Bystander Motivation Scale (Banyard, Plante, & Moynihan, 2005) were combined and modified. Questions were also added based on the evidence underpinning RE>ACT (i.e., Erickson et al., 2017).

The initial draft was completed in June 2016 and sent out to a panel of experts in sport and exercise psychology. The panel was asked to review the survey tool and provide feedback on the content, appearance, coherence, and length. Based on the feedback received, significant amendments were made to the survey, particularly in relation to the appearance and length (e.g., shading was removed, wording was amended).

In September 2016, the re-drafted survey was delivered to a representative sample of student-athletes and further modifications were made based on their feedback. In particular, the length of the survey was reduced to ensure it could be completed in under 15 minutes. A key aspect of this revision was the decision to remove the open-ended scenario-based questions and include them in the actual RE>ACT intervention instead.

The survey was finalized in September 2016 (see Appendix 3). It consists of five sections:

- Section 1 explores attitudes towards helping, witnessed substance use situations, and individuals' anticipated responses towards substance use;
- Section 2 explores student-athletes' likelihood to act in various substance use related situations;
- Section 3 considers perceived skills and confidence towards confronting substance use behaviors;
- Section 4 explores perceived behavior of others (i.e., team-mates and coaches) in relation to substance use behaviors;
- Section 5 measures student-athletes' reported substance use behaviors.

### PHASE 3: RECRUITMENT AND DELIVERY

The process from point of contact with universities to actual delivery took various forms, depending on the needs (and structure) of the particular university. Generally speaking, initial contact was made by Dr Erickson via email, and contacts were provided with a description of the project (see Appendix 4). After agreeing to participate, each university contact was asked to recruit student-athletes and randomly allocate them to either the RE>ACT or ACTCON condition. The contact was also asked to confirm an acceptable date, time, and location for the delivery of each session.

Delivery was flexible in that universities could choose how the sessions were spread out (e.g., consecutive days, weeks, etc.) and what time of day they were delivered (e.g., morning, afternoon, evening). Allowing this element of flexibility proved critical given the variability in student-athletes' schedules (e.g., classes, practices, games, etc.). All content across the three countries was delivered by Dr Erickson in order to ensure program fidelity. Delivery commenced in Canada in September 2016 but recruitment proved very difficult. Numerous universities throughout the US (N = 35) and Canada (N = 10) were extended an invitation (via email and telephone) to participate on multiple occasions and although these invitations were generally met with interest and enthusiasm, the time commitment required (i.e., three consecutive sessions) presented a significant barrier for most universities. An additional, and unanticipated, challenge was a surprisingly high turnover rate of Athletic Directors within the NCAA universities contacted. This was problematic as they were key gatekeepers in terms of recruitment.

Considering that one of the three key objectives for this project was to determine if the delivery model (three consecutive sessions initially planned) was acceptable to the target population (i.e., universities) and feasible for widespread delivery, feedback from universities in relation to participating in RE>ACT was critical. After months of recruiting and continually receiving expressions of interest, the time commitment proved to be too problematic for many institutions. Therefore, based on the feedback of multiple university stakeholders (i.e., coaches, administrative staff) in the US and Canada, the RE>ACT program was reduced from three sessions

to two sessions to ensure program feasibility. Specifically, the two topic-specific sessions (60 minutes each) were streamlined into one 90-minute session. To do this, repetition between the two sessions (i.e., review of previous session content) was removed along with one scenario-based activity from each session. This allowed for the content to be reduced without compromising the integrity of the session.

In its final delivery format, RE>ACT consisted of two sessions (75 minutes and 90 minutes). Consistent with the original design, the first session introduced the theories and evidence underpinning the situational model of bystander intervention and effective confrontation behavior. Then the second session provided an opportunity for student-athletes to actively apply the skills and knowledge they received in specific substance use related situations, including dietary supplements, APEDs, prescription medications, and recreational drugs (see Appendix 5 for further details).

## SAMPLING

RE>ACT has been delivered within universities in the US (n=4; NCAA Division II=3, NCAA Division I=1), Canada (n=2) and the UK (n=3). For the purposes of the Final Report, the three countries are being treated as one dataset. In total, 604 student-athletes provided informed consent and participated in at least one session. Seventy-nine student-athletes did not complete the survey at both pre- and post-intervention, leaving a total sample of 525 student-athletes with datasets for Time point 1 and Time point 2. Of these, 107 student-athletes completed the survey again at Time point 3, making the total sample across all three Time points 107 (see Figure 5).

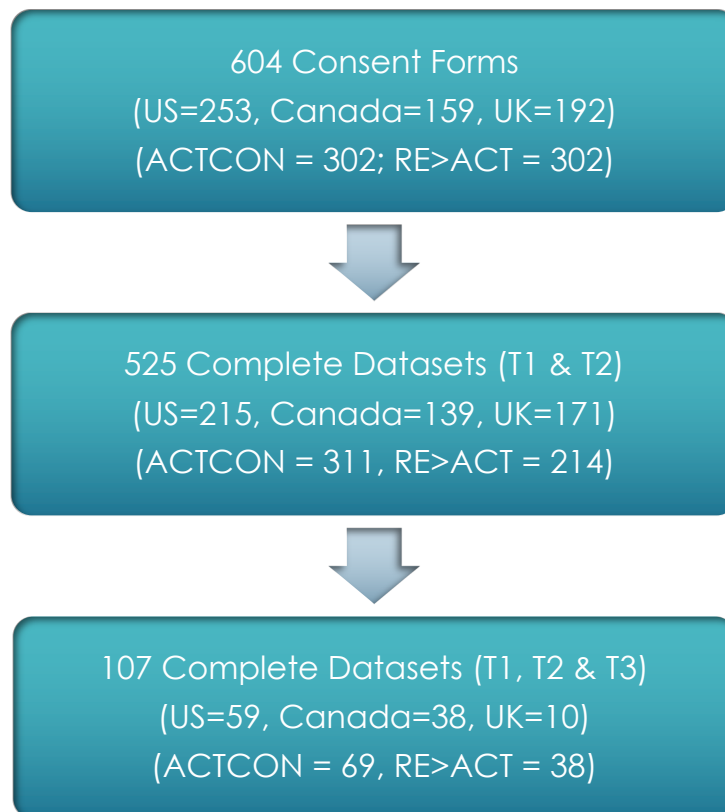


Figure 5: Sample Composition

### Sample Demographics

The total sample (N = 525) consisted of 257 males (49%) and 267 females (51%), with one student-athlete not indicating their gender. The most represented year group within the sample was first year student-athletes (29%), followed by third year (27%), and second year (25%). Forty-four different sports were represented within the sample (see Appendix 6).

Within the RE>ACT group (n=214) there were 128 males (60%) and 86 females (40%). RE>ACT student-athletes included mainly first year student-athletes (41%), followed by third year (24%), second year (21%), fourth year (10%), 'graduate student' (4%) and fifth year (1%), with four not specifying their year. The primary sport represented was American football (24%), followed by rugby union (15%) and soccer (14%), with all other sports under 10%.

The ACTCON group (n=310, with one participant not indicating gender) consisted of 129 males (42%) and 181 females (58%). There was representation across third year (30%), second (27%), first (21%), fourth (18%), 'graduate student' (3%) and 'fifth year'

(2%), with two not specified. The most represented sports included field hockey (17%), basketball (10%) and soccer (9%), with all other sports under 8% and one participant not indicating a sport.

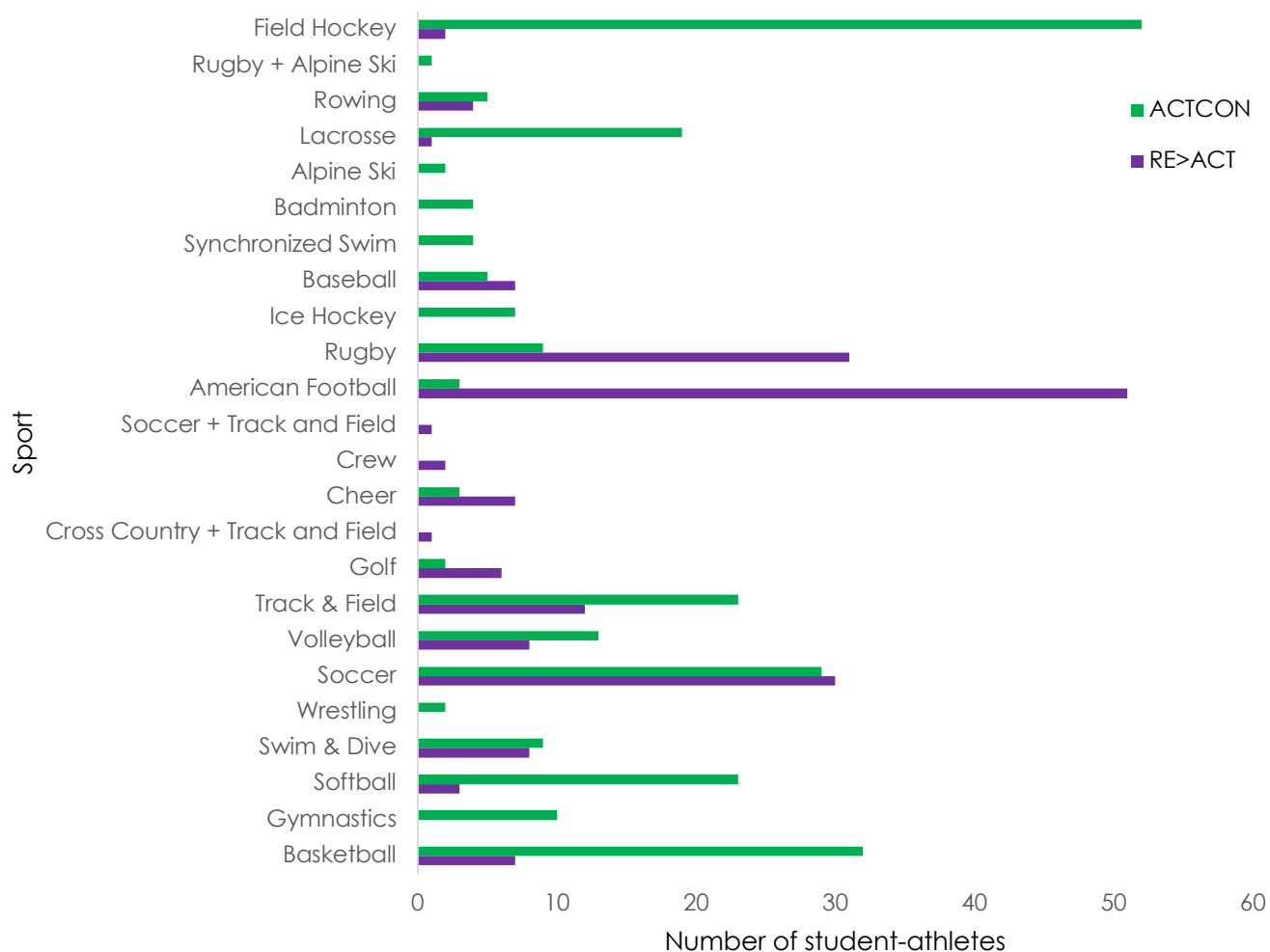


Figure 6: Sport represented by group (RE>ACT=214, ACTCON=310)

### Witnessed Substance Use

Across the sample, student-athletes indicated that they had witnessed each of the four substance use scenarios (see Figure 7), with recreational drugs being the most commonly witnessed at both time points (RE>ACT - Time 1: n=157, Time 2: n=157; ACTCON – Time 1: n=213, Time 2: n=206). Student-athletes indicated differences in relation to witnessing substance use across time point one (Dietary Supplements: RE>ACT=54, ACTCON=52; Prescription Medication: RE>ACT=85, ACTCON=85; APEDs: RE>ACT=33, ACTCON=25; Recreational Drugs: RE>ACT=157, ACTCON=213) and time point two (Dietary Supplements: RE>ACT=65, ACTCON=59; Prescription Medication:

RE>ACT=94, ACTCON=85; APEDs: RE>ACT=20, ACTCON=24; Recreational Drugs: RE>ACT=157, ACTCON=206).

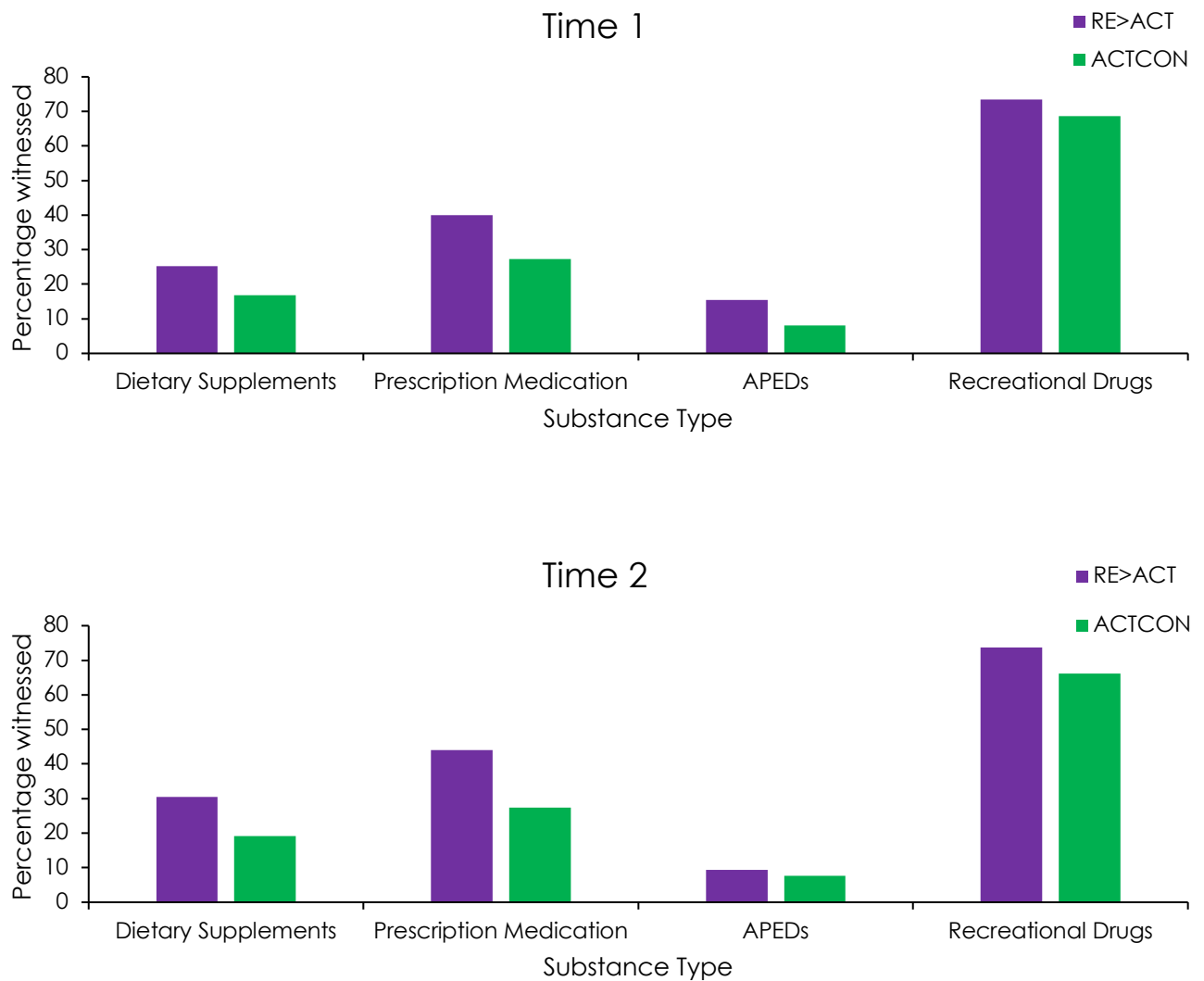


Figure 7: Reported incidents of witnessing substance use (T1: RE>ACT=214, 213, 214, 214 and ACTON=309, 311, 310, 311; T2: RE>ACT=213 and ACTON=309, 310, 310, 311)

### Data Analysis

For the purposes of the Final Report, descriptive statistics were conducted to compare the RE>ACT and ACTCON conditions based on the Time point 1 and Time point 2 sample (n=525). Next, the dataset was reduced to only those participants who provided responses across all three time points (n=107) and mixed design



ANOVAs were run to explore differences between groups across the three time points.

## FINDINGS

### Substance Use

Baseline substance use across the two groups was similar for most of the substances listed (see Figure 8), with the exception of protein (RE>ACT=70%, ACTCON=56%) creatine (RE>ACT=25%, ACTCON=10%) and cannabis (RE>ACT=21%, ACTCON=13%), which were each higher in the RE>ACT group. The most commonly used substances across both groups were vitamins and minerals (RE>ACT=65%, ACTCON=57%) and protein (RE>ACT=70%, ACTCON=56%).

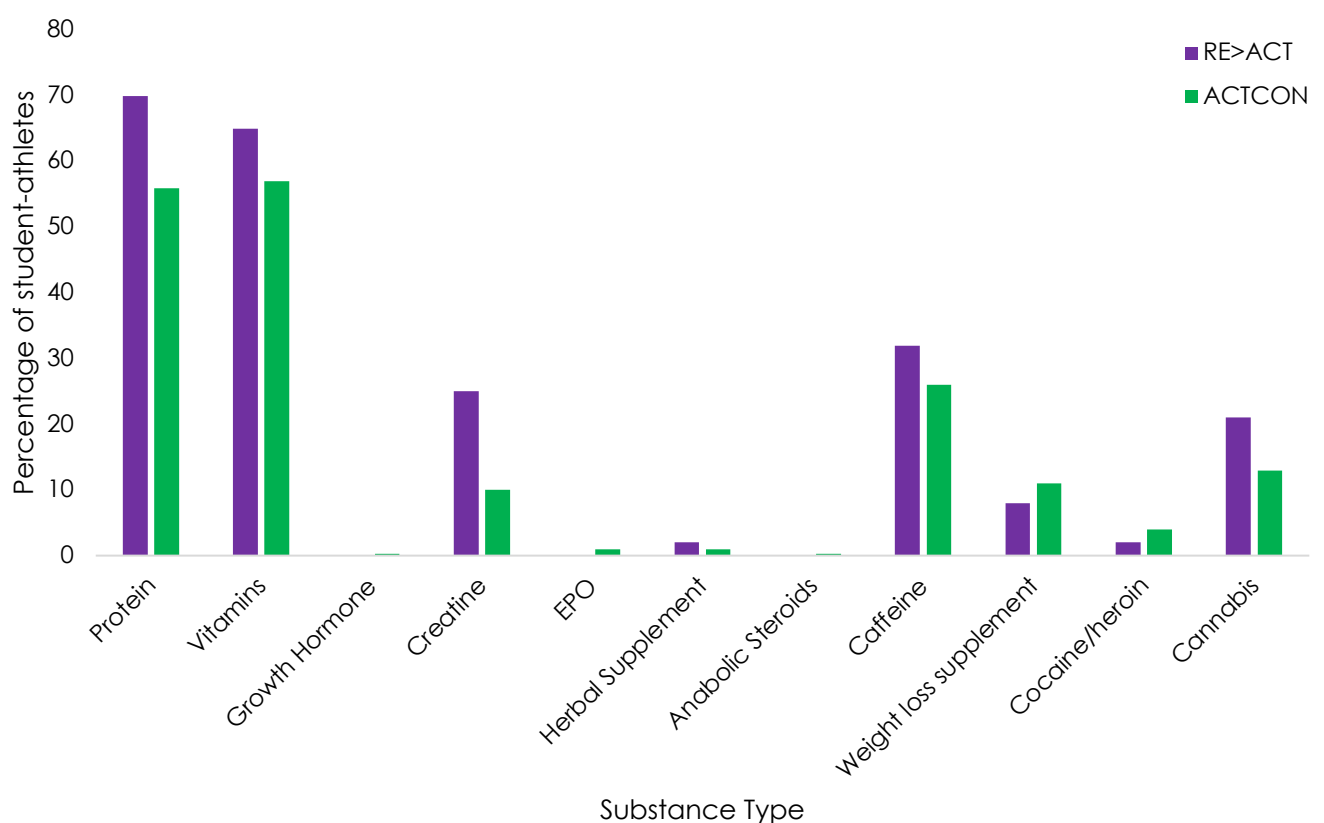


Figure 8: Reported substance use at baseline (RE>ACT – Protein, Vitamins, Creatine, Herbal Supplement, Anabolic Steroids, Caffeine, Weight Loss supplement, Cocaine/heroin=213, Growth Hormone=214, EPO, Cannabis=212; ACTCON – Protein=307, Vitamin, Herbal Supplement, Anabolic Steroid, Caffeine, Cannabis=308, Growth Hormone, Creatine, EPO, Weight Loss supplement, Cocaine/heroin=309)

## Helping Attitudes

At baseline, student-athletes in both groups generally felt they had a role to play in helping others. Illustrating this, more than 90% of student-athletes within each group (RE>ACT=94%, n=213; ACTCON=95%, n=310) reported that they liked to think of themselves as someone who helped others when they could. Additionally, 90% (n=213) of the RE>ACT group and 91% (n=308) of the ACTCON group felt it was important for community members to play a role in keeping everyone safe. Similarly, 96% of student-athletes in RE>ACT (n=213) and 92% of student-athletes in ACTCON (n=311) indicated that they felt the need to set an example in their own behavior for what they expected of others.

With the baseline measures in mind, in the following sections the results are organized according to the specific aims of RE>ACT. The first aim - *to increase student-athletes' awareness of intervention-worthy substance use situations* – was achieved through the delivery of the program.

### ***Aim: Increase student-athletes' personal sense of responsibility to intervene in these situations.***

Following the intervention, there was a reduction across both groups (see Figure 9) in the percentage of student-athletes who felt no need to get involved in problematic situations. However, this positive change was more pronounced in the RE>ACT group (10%) compared to the ACTCON group (3%).

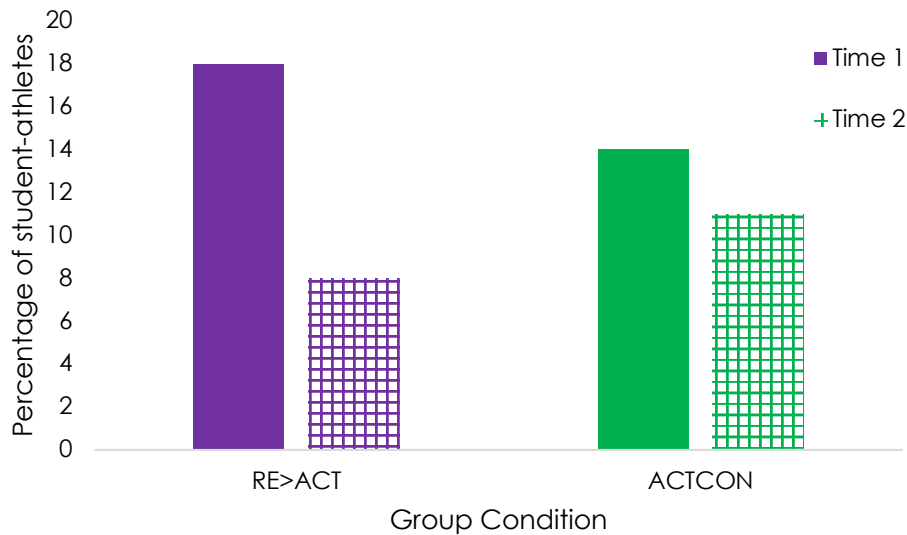
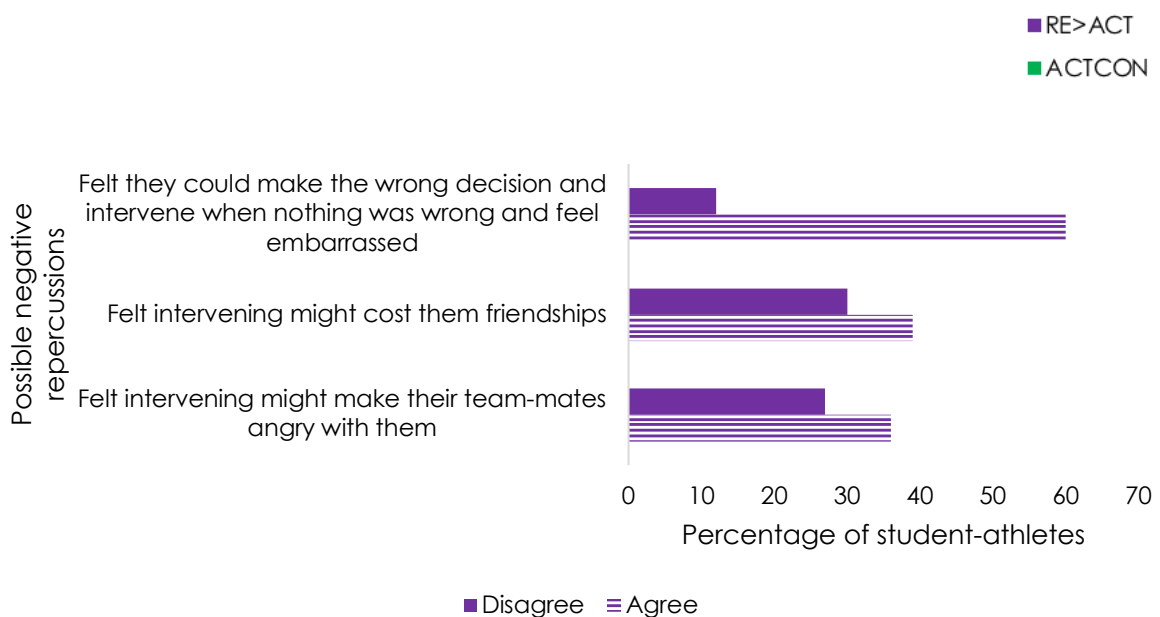


Figure 9: Percentage of student-athletes who felt no need to get involved (RE>ACT=212, ACTCON=311)

Student-athletes in both groups indicated that they had concerns (i.e., barriers) over possible negative repercussions stemming from helping (see Figure 10). Specifically, relational concerns were noted, with approximately a third of student-athletes in each group reporting that intervening might make their team-mates angry with them (RE>ACT=36%, ACTCON=31%) and over a third reporting that intervening might cost them friendships (RE>ACT=39%, ACTCON=37%). Also, more than half of student-athletes in each group (RE>ACT=60%, ACTCON=53%) were concerned about making the wrong decision and being embarrassed.



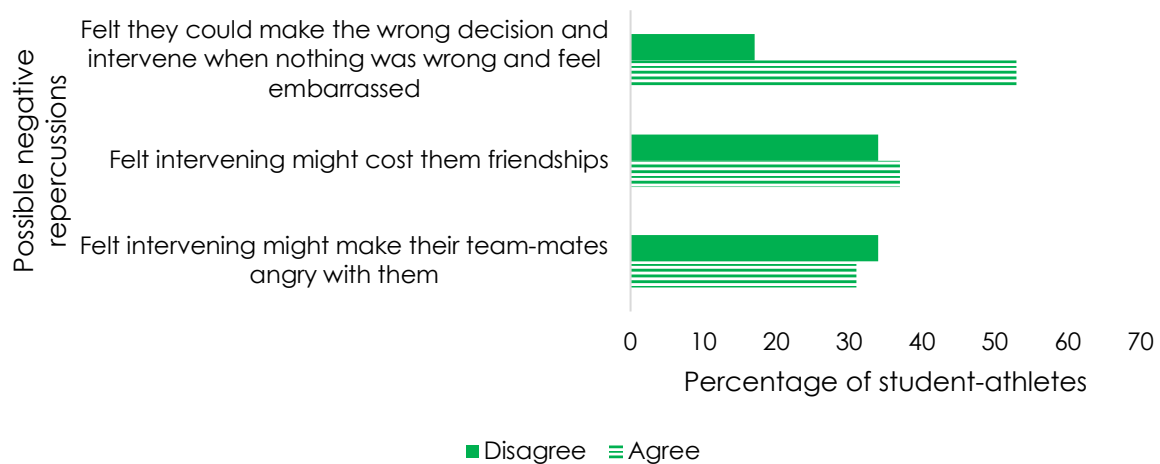


Figure 10: Reported attitudes towards helping at baseline (RE>ACT=213, ACTCON=310, 310, 309)

### Intervention Style

In relation to specific substance use situations, the percentage of student-athletes who indicated that they would 'Do Nothing' reduced from Time 1 to Time 2 for both groups and across all four types of substance use included in the scenarios. The change was greater for the RE>ACT group compared to ACTCON in each instance (Changes across time points - Dietary Supplements: RE>ACT=34%, ACTCON=18%; Prescription Medication: RE>ACT=28%, ACTCON=22%; APEDs: RE>ACT=15%, ACTCON=8%; Recreational Drugs: RE>ACT=28%, ACTCON=22%). In addition, the RE>ACT group demonstrated a greater increase compared to ACTCON in the percentage of individuals who would *confront* the substance use across the two time points, and for each of the four substances (Changes across time points - Dietary Supplements: RE>ACT=35%, ACTCON=8%; Prescription Medication: RE>ACT=29%, ACTCON=10%; APEDs: RE>ACT=22%, ACTCON=1%; Recreational Drugs: RE>ACT=26%, ACTCON=17%). This reflects the fact that student-athletes in RE>ACT were familiarized with confrontation as a potential means for addressing substance use in sport. Figure 11 provides an illustration of how student-athletes in each group responded to addressing APEDs across the two time points (responses to the additional three substances can be found in Appendix 7).

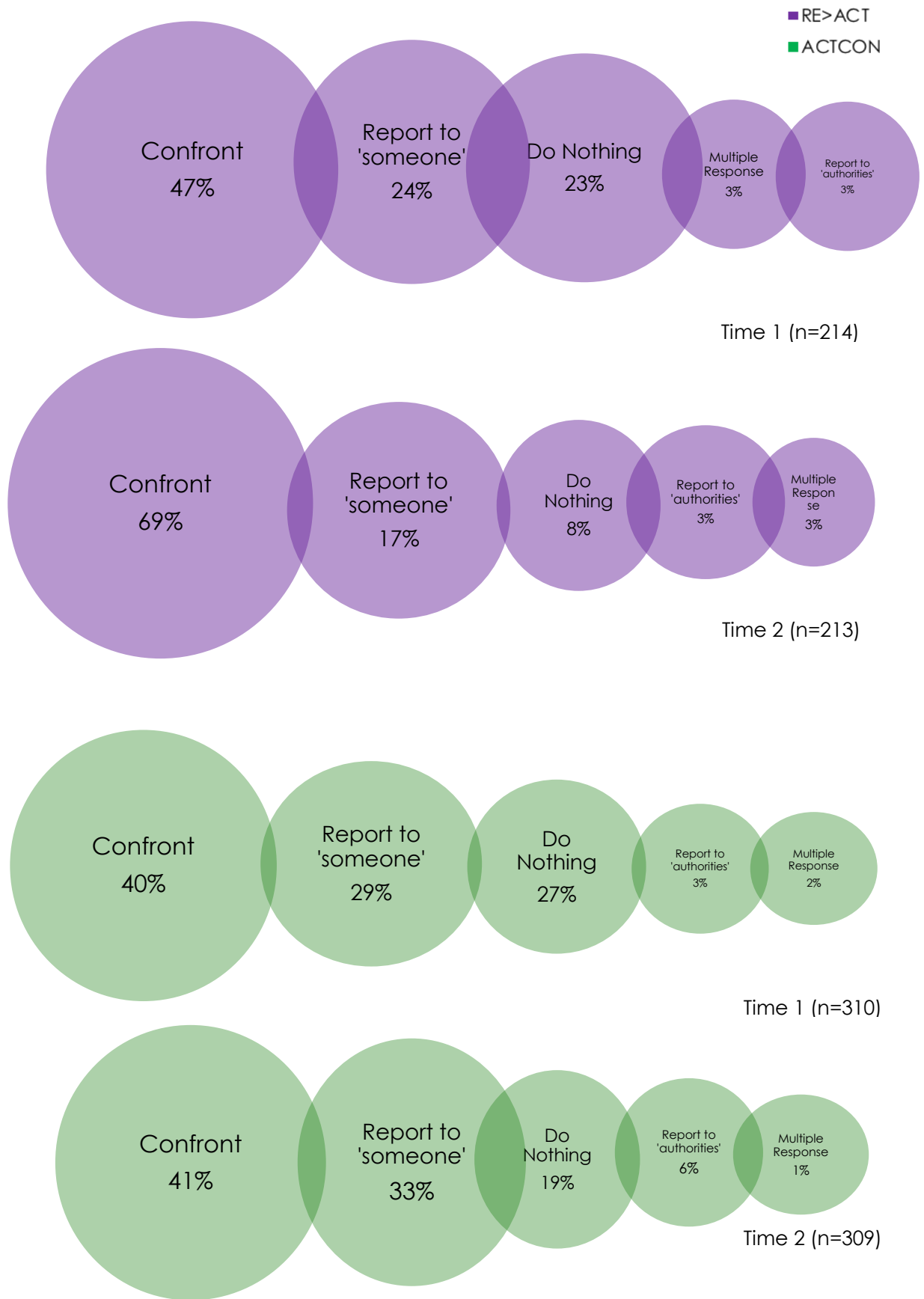


Figure 11: Student-athletes' anticipated responses to a student-athlete at their university using banned APEDs

### Likelihood to Intervene (in relation to banned substance use)

Student-athletes indicated differences in the way that they would approach a team-mate versus a competitor in relation to (1) telling a coach about suspected banned substance use, (2) the likelihood of confronting an individual for using APEDs, and (3) reporting doping.

Figures 12 and 13 show that student-athletes in both groups were more likely to tell a coach if they suspected a (1) team-mate (Figure 12) and (2) competitor (Figure 13) of using a banned substance after participating in an intervention. Meanwhile, at both time points they were more likely to tell a coach about a competitor versus a team-mate.

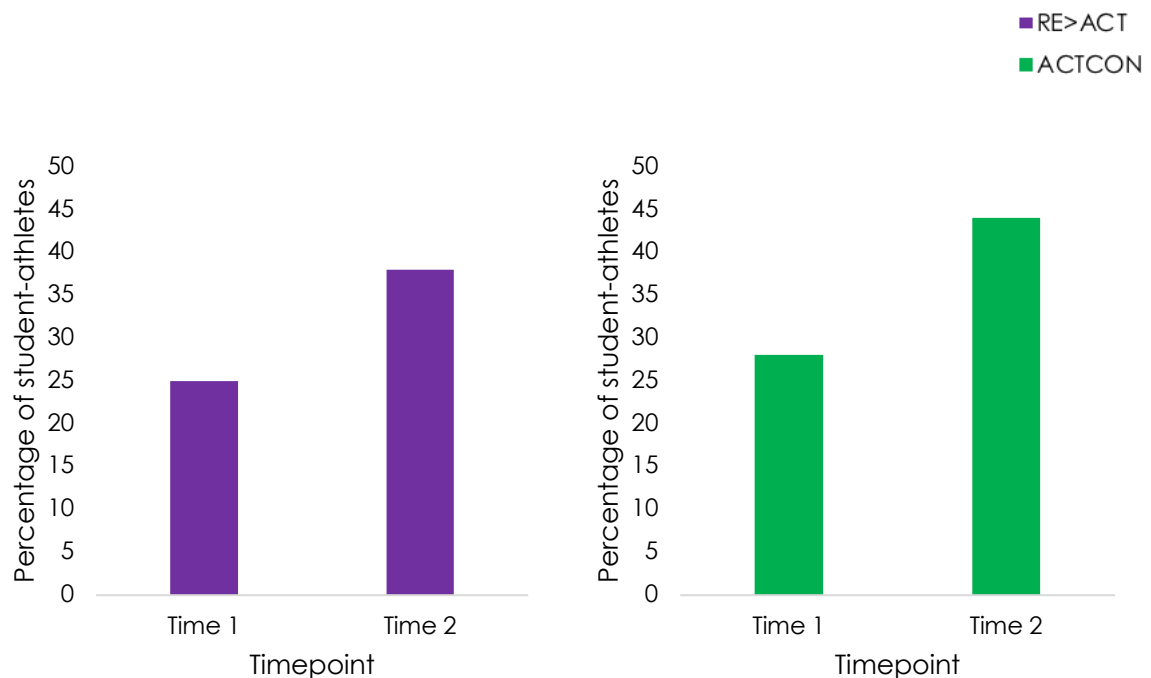


Figure 12: Percentage of student-athletes who were likely to tell a coach if they suspected a team-mate of using a banned substance even if pressured by fellow student-athletes to stay silent (RE>ACT: T1=214, T2= 213; ACTCON: T1=309, T2=309)

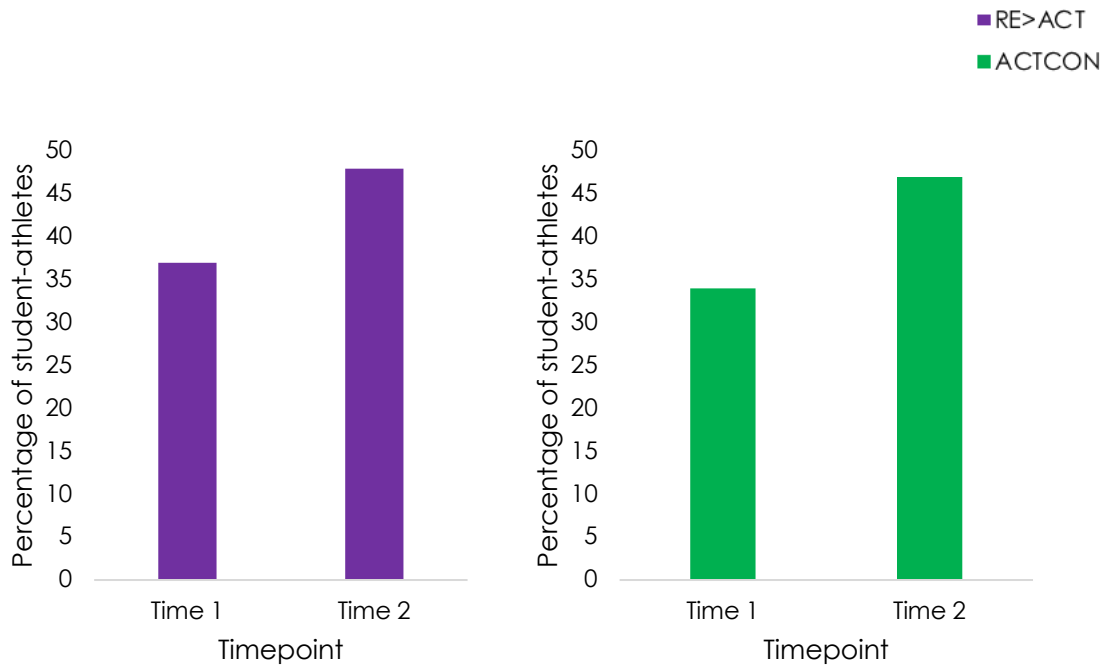


Figure 13: Percentage of student-athletes who were likely to tell a coach if they suspected a competitor of using a banned substance even if pressured by fellow student-athletes to stay silent (RE>ACT: T1=214, T2= 212; ACTCON: T1=310, T2=310)

Additionally, both groups indicated an increased likelihood that they would confront a (1) team-mate (Figure 14) and (2) competitor (Figure 15) if they suspected they were using a banned substance. Yet, they were more likely to confront a team-mate than a competitor at both time points.

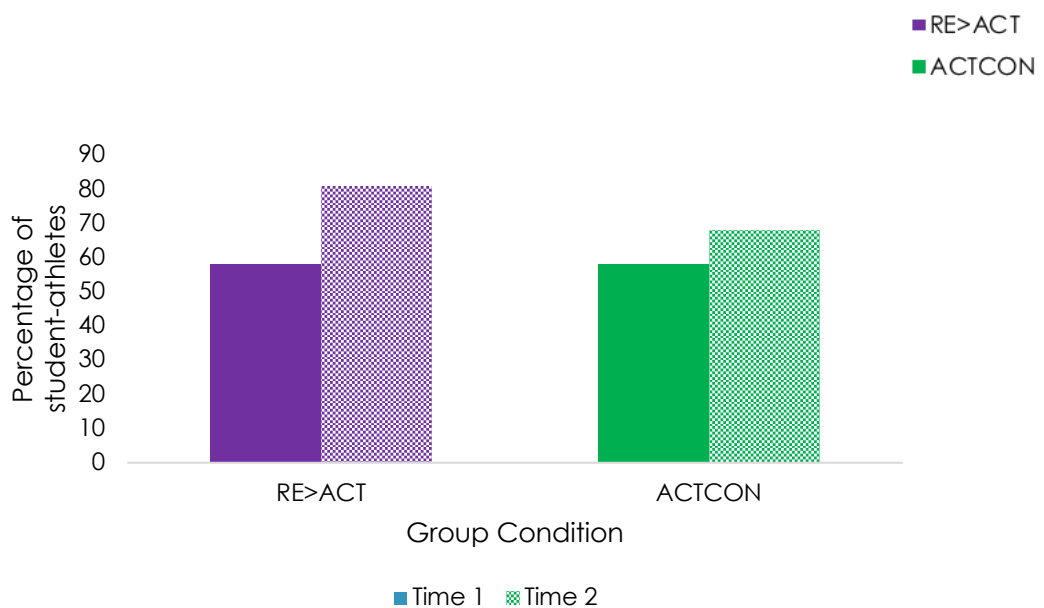


Figure 14: Percentage of student-athletes who were likely to confront a team-mate if they suspected they were using a banned substance (RE>ACT: T1=214, T2=213; ACTCON: T1=310, T2=310)

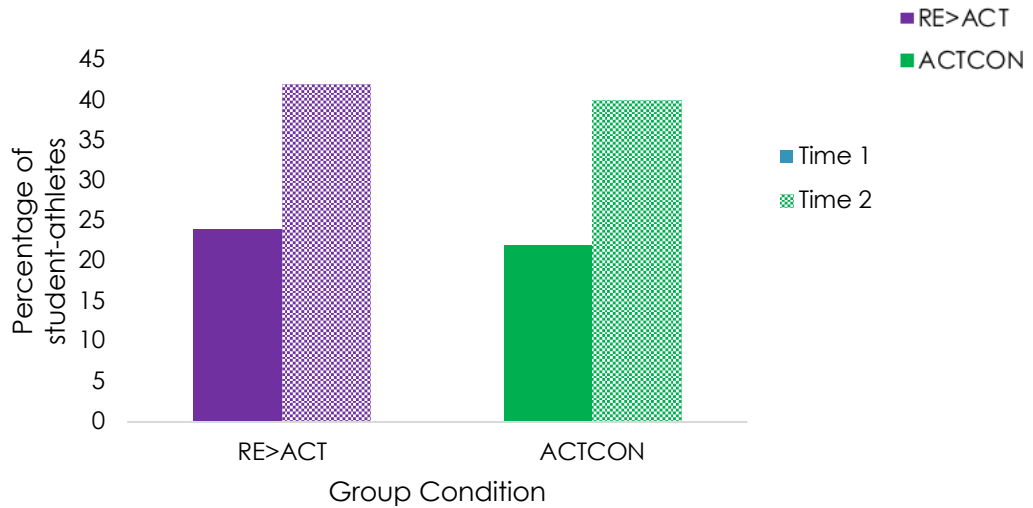


Figure 15: Percentage of student-athletes who were likely to confront a competitor if they suspected they were using a banned substance (RE>ACT: T1=214, T2=211; ACTCON: T1=309, T2=310)

Figure 16 illustrates that student-athletes were more likely to report doping to a Report Doping Hotline after taking part in an intervention. Notably, they were more likely to report a competitor than a team-mate at both time points.

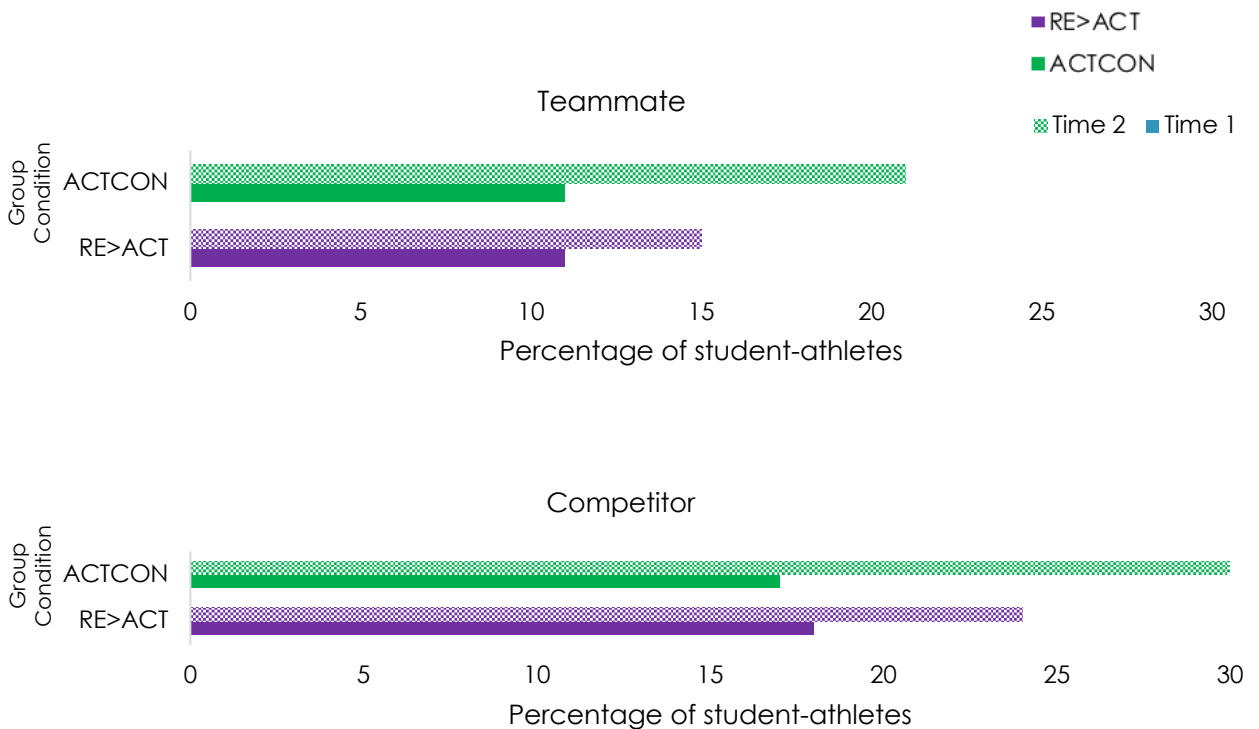


Figure 16: Likelihood to report doping of team-mate (RE>ACT: T1=214, T2=213; ACTCON: T1=310, T2=310) and competitor (RE>ACT: T1=214, T2=213; ACTCON: T1=309, T2=308)



**Aim: Equip student-athletes with the skills and confidence necessary to intervene safely.**

Using a Likert Scale of agreement (1= strongly disagree to 5 = strongly agree), student-athletes in both groups indicated increased agreement that they possessed the skills to confront each of the four substance use situations following the intervention (see Figure 17). Importantly, student-athletes in RE>ACT reported a greater increase in agreement for each substance use situation when compared to the ACTCON condition (Changes across time points - Dietary Supplements: RE>ACT=45%, ACTCON=34%; Prescription Medication: RE>ACT=37%, ACTCON=27%; APEDs: RE>ACT=36%, ACTCON=28%; Recreational Drugs: RE>ACT=26%, ACTCON=21%).

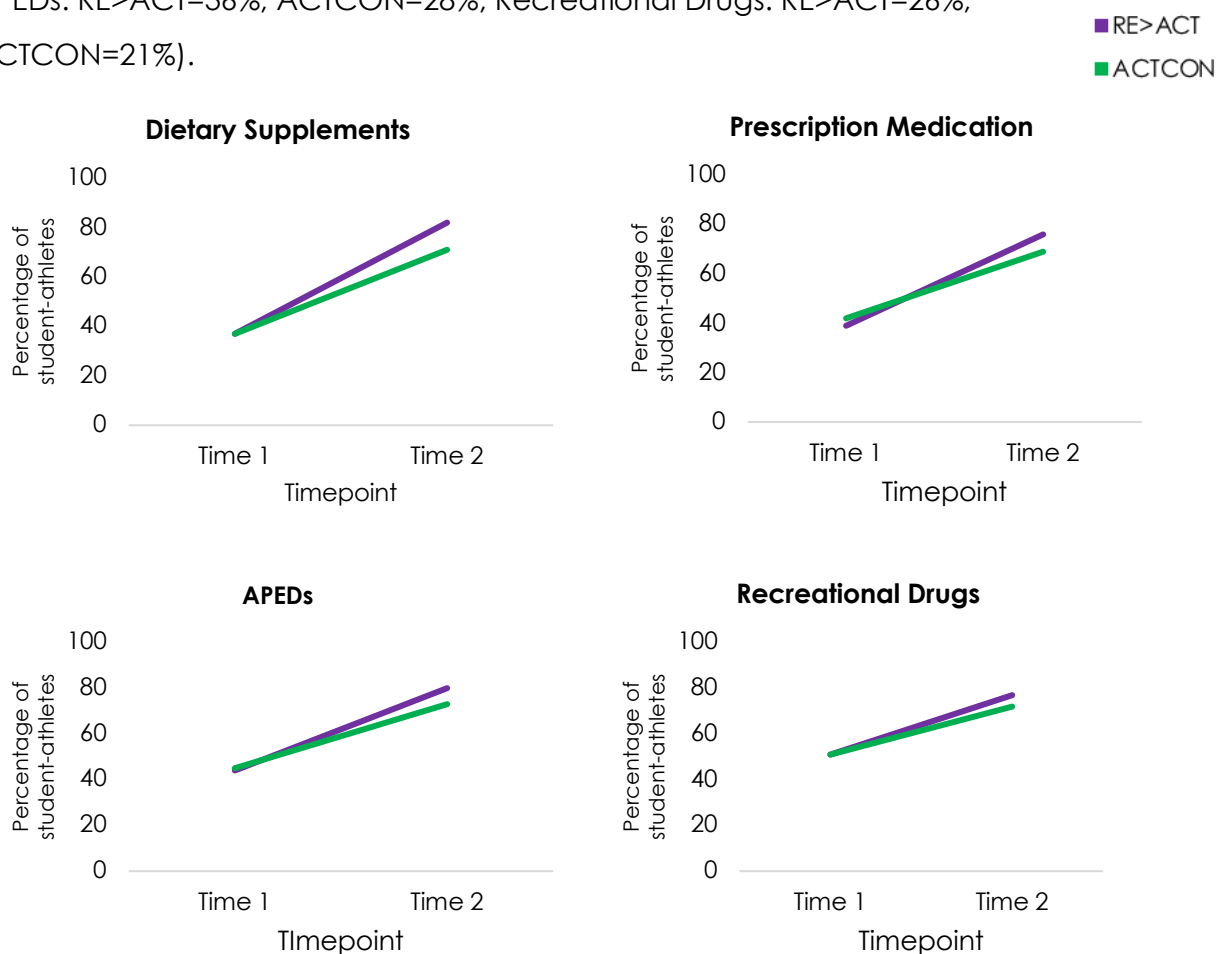


Figure 17: Percentage of student-athletes who reported that they had the skills to confront substance use (RE>ACT: T1=214, T2=213; ACTCON: T1=310, T2=309)

Using the same Likert Scale, student-athletes in both groups also indicated increased agreement that they possessed the *confidence* to confront each of the four substance use situations following the intervention (see Figures 18). Critically, student-athletes in RE>ACT once again noted a greater increase in agreement for each substance use situation when compared to the ACTCON condition (Changes across time points - Dietary Supplements: RE>ACT=26%, ACTCON=21%; Prescription Medication: RE>ACT=24%, ACTCON=17%; APEDs: RE>ACT=25%, ACTCON=15%; Recreational Drugs: RE>ACT=22%, ACTCON=11%).

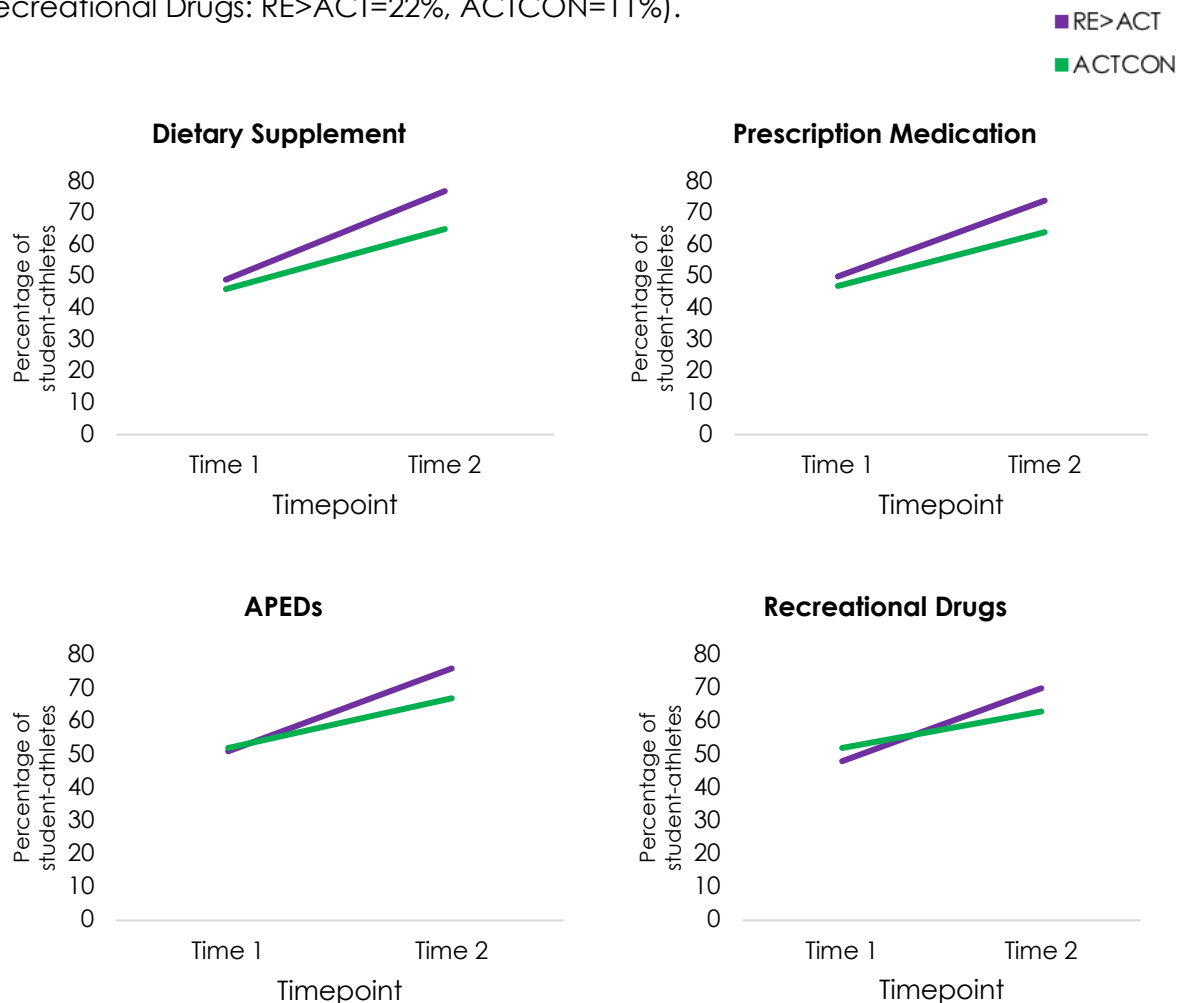


Figure 18: Percentage of student-athletes who reported that they had the confidence to confront substance use (RE>ACT: n=213; ACTCON - Dietary Supplements & Prescription Medications: n=309, APEDs & Recreational Drugs: T1=310, T2=309)

## Social Norms

Across both groups, the percentage of team-mates that student-athletes thought would 'Do Nothing' if faced with each of the four substance use scenarios decreased following the intervention (see Figure 19). Compared to the ACTCON group, the percentage decrease was greater within the RE>ACT group for three substances (Changes across time points - Dietary Supplements: RE>ACT=26%, ACTCON=9%; Prescription Medication: RE>ACT=21%, ACTCON=15%; APEDs: RE>ACT=20%, ACTCON=5%), with the change in addressing APEDs being particularly distinct across the two groups. In contrast, the percentage decrease in relation to Recreational Drugs was slightly greater for ACTCON (14%) rather than RE>ACT (11%).

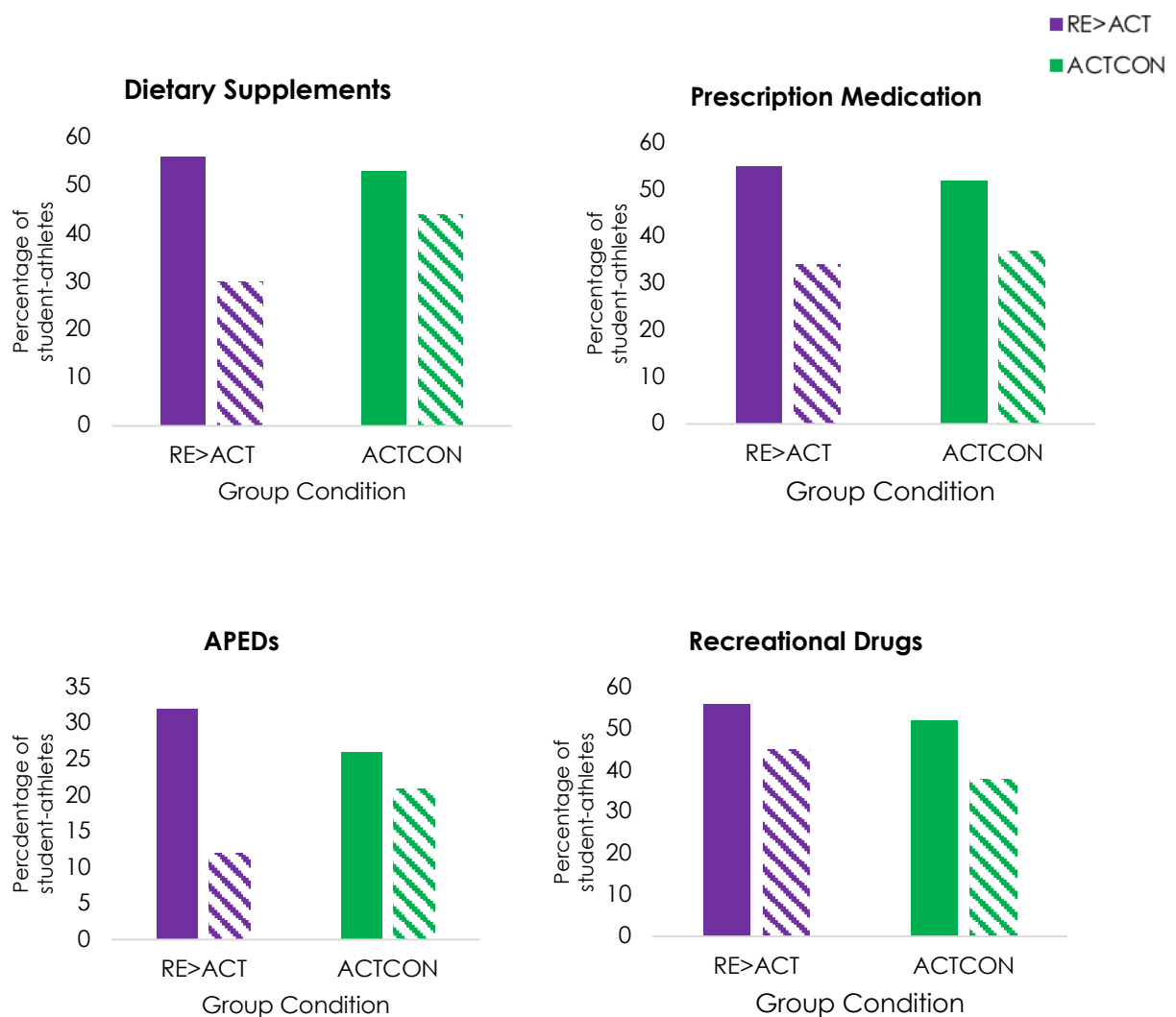


Figure 19: Percentage of student-athletes who thought their team-mates would respond by doing nothing (RE>ACT: T1=213, T2=212; ACTCON: T1=310, T2: Dietary Supplements=307, Prescription Medication & APEDs=306, APEDs, Recreational Drugs=305)

### Follow-up Analysis (Time-Point 3)

A repeated measure ANOVA was conducted for the dataset comprising those participants who provided data across all three time points (n=107).

### Sample Demographics

The total sample (n=107) consisted of 35 males (33%) and 72 females (67%). First and third year were the most represented year group (29% each), followed by second (20%) and fourth (16%). A total of 21 sports were represented within the sample.

Within the RE>ACT group (n=38) there were 13 males (34%) and 25 females (66%). The group included mainly third year student-athletes (40%), followed by first year (32%), second year (16%) and fourth year (13%). The main sport represented was soccer (34%) followed by student-athletes competing in cross country and track (considered 'one sport'; 18%).

The ACTCON group (n=69) consisted of 22 males (32%) and 47 females (68%). There was representation across first year (28%), third year (23%), second year (22%), fourth year (17%), fifth year (7%) and graduate students (3%). The main sport accounted for was track (16%) followed by a three-way tie between basketball, soccer and volleyball (12% each).

### Findings

***Aim: Increase student-athletes' personal sense of responsibility to intervene in intervention-worthy situations.***

***Aim: Equip student-athletes with the skills and confidence necessary to intervene safely.***

Preliminary results from a repeated measures ANOVA indicated that the RE>ACT program significantly increased student-athletes' likelihood to take responsibility to directly intervene by confronting or expressing concerns towards athletes they suspect are doping ( $F_{2,68} = 20.50, p < .001, \eta^2 = .38$ ) as well as significantly increasing their perceived skills ( $F_{1,48,50,41} = 33.18, p < .001, \eta^2 = .49$ ) and confidence ( $F_{1,43,50,08} = 11.12, p < .001, \eta^2 = .25$ ) to confront such athletes about doping over time.

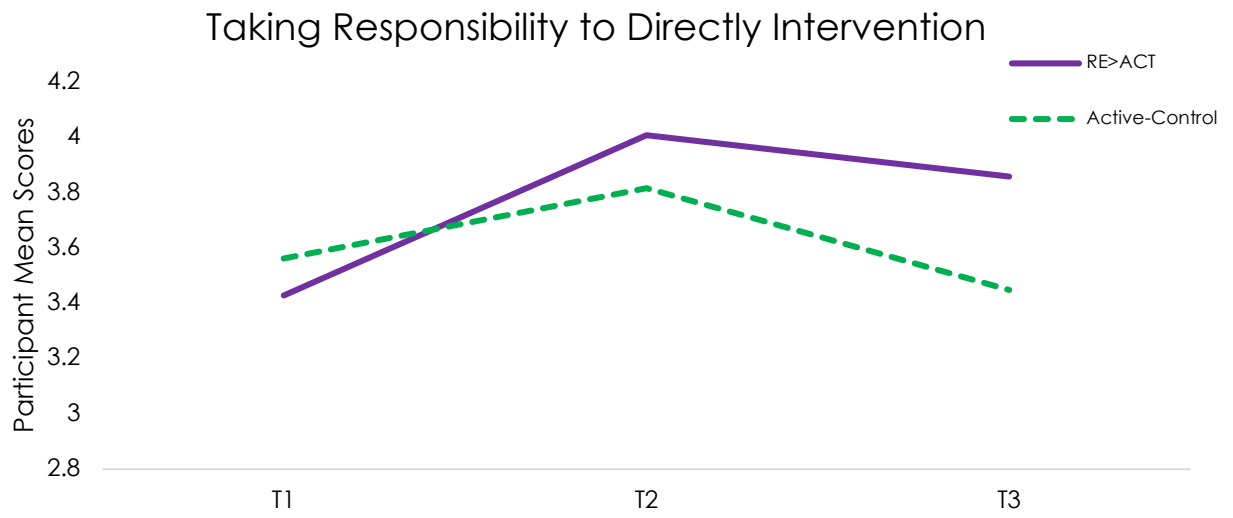
Specifically, student-athletes reported higher mean scores for likelihood to intervene as well as for perceived skills and confidence to confront athletes taking specific

substances at post-intervention and 3-month follow-up compared to pre-intervention.

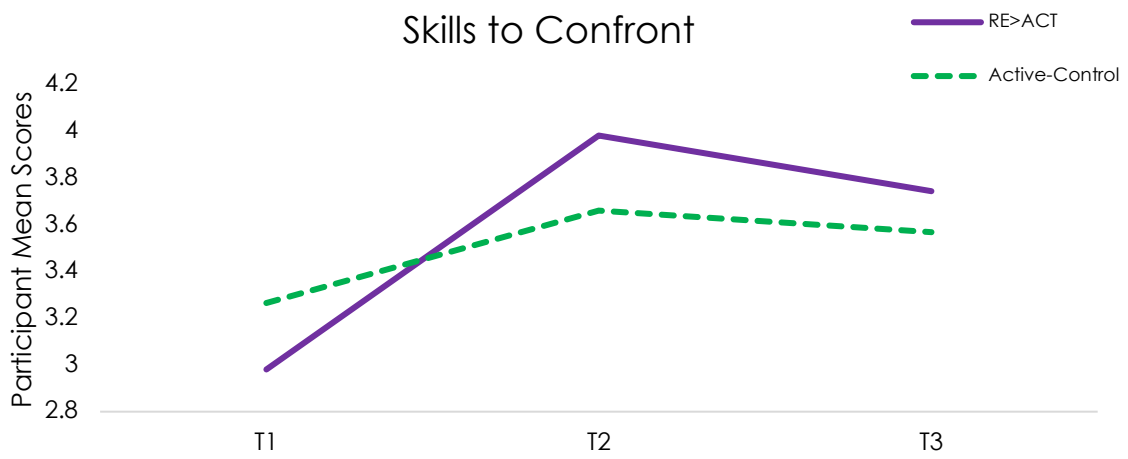
Importantly, significant 3 x time (pre; post; 3-month follow-up) x 2 x group (RE>ACT; control) interaction effects revealed that these increases in likelihood to directly intervene ( $F_{1.67,181.70} = 9.27, p < .001, \eta^2 = .09$ ), perceived skills ( $F_{1.84,181.81} = 10.11, p < .001, \eta^2 = .09$ ) and confidence ( $F_{2,198} = 4.98, p < .01, \eta^2 = .05$ ) to confront were greater following the RE>ACT program compared to the ACTCON group (see Figure 20). Moreover, post-hoc analyses revealed that, as expected, there were no significant differences in either likelihood to intervene and perceived confidence pre-intervention, but importantly student-athletes in the RE>ACT program reported significantly higher likelihood to intervene and perceived confidence to confront compared to the control group (ACTCON) at both post-intervention and 3-month follow-up. In terms of perceived skills, student-athletes in the ACTCON group actually reported higher perceived skills to confront pre-intervention, however despite this, student-athletes in the RE>ACT program still reported significantly higher perceived skills to confront compared to the ACTCON group at post-intervention and 3-month follow-up (although the difference at 3-month follow up was not significant and this is potentially due to the original differences in perceived skills to confront in favor of the ACTCON group at baseline).

Therefore, our findings suggest that the RE>ACT intervention appears more effective at increasing athletes' likelihood to intervene as well as enhance their perceived confidence and skills to confront athletes who are suspected of taking specific substances than the current conventional anti-doping education programs (i.e., compliance-based deterrence) which is evidenced both post-intervention and 3-month follow-up.

(A)



(B)



(C)

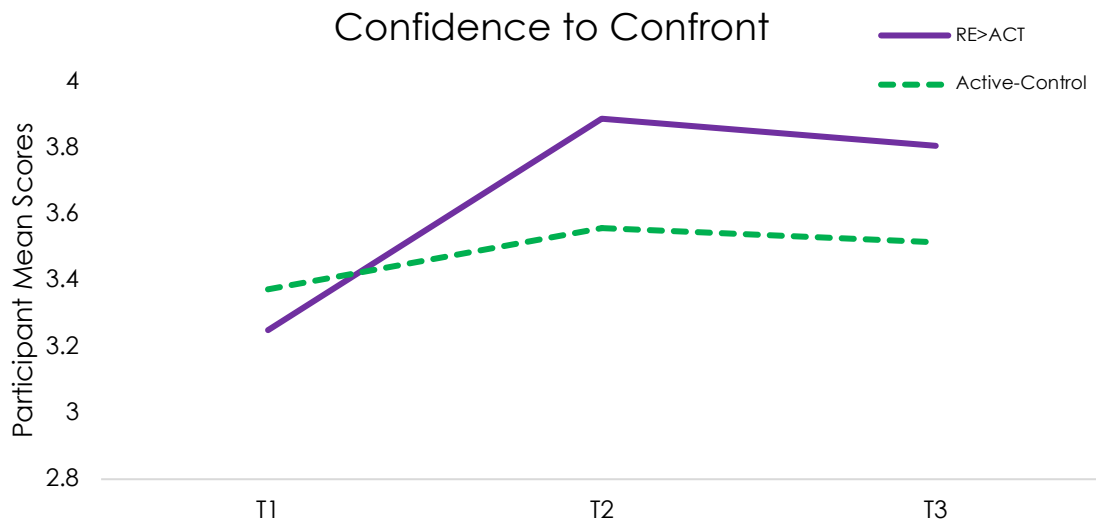


Figure 20. Significant interactions for the effect of the RE>ACT intervention on taking responsibility to directly intervene (Panel A), perceived skills to confront (Panel B), and perceived confidence to confront (Panel C), athletes suspected of doping.

## CONCLUSION

Student-athletes in this sample overwhelmingly indicated a lack of experience with formal face-to-face anti-doping education. It is therefore not surprising that the data collected here indicates that among student-athletes, any form of in-person anti-doping education is better than none. Also, consistent with previous bystander literature (e.g., Burn, 2009), student-athletes in both groups reported concerns over possible negative repercussions stemming from helping (see Figure 10). Among the potential barriers to helping within the context of addressing substance use in sport, relationships emerged as key.

Importantly, while both interventions (i.e., RE>ACT and ACTCON) appear to be better than no in-person intervention, our findings suggest that the RE>ACT intervention was more effective in addressing the three aims of RE>ACT: 1) increase student-athletes' awareness of intervention-worthy substance use situations, 2) increase student-athletes' personal sense of responsibility to intervene in these situations, and 3) equip student-athletes with the skills and confidence necessary to intervene safely. In comparison to the ACTCON group, RE>ACT demonstrated greater increases in student-athletes' likelihood to intervene as well as their perceived confidence and skills to confront athletes who are suspected of taking banned substances. Additionally, in comparison to ACTCON, RE>ACT also produced a greater increase in student-athletes' beliefs that team-mates would intervene in intervention-worthy substance use situations (with the exception of recreational drugs). Thus, indicating positive change in the likelihood to take personal responsibility to intervene at both a personal and environmental level.

It is also worth noting that alongside increasing student-athletes' personal likelihood to intervene and address banned drugs in sport, participating in RE>ACT simultaneously increased student-athletes' likelihood to *report* doping in sport (via a Report Doping Hotline). This is intriguing since RE>ACT aims to encourage and increase action (i.e., confrontation) among those individuals who might be hesitant to blow the whistle on doping. The fact that RE>ACT appears to concurrently increase individuals' likelihood to confront *and* report banned substance use in sport is therefore encouraging and demonstrates that by participating in RE>ACT, athletes



are indeed provided with additional means for addressing doping behaviors and an increased sense of personal responsibility to intervene in such situations.

Finally, the analysis indicates that the design of RE>ACT addresses the three key program aims. The number of participants recruited for the project also demonstrates that it is feasible and desirable to deliver RE>ACT within universities in the amended two session format.

## NEXT STEPS

Despite the updated two-session RE>ACT format successfully increasing university uptake of the project, feedback gathered throughout the delivery indicates that in order to rollout widespread delivery of RE>ACT, the program should be reduced to a single 2-hour session. We are therefore in the process of seeking funding to adapt, deliver and evaluate the delivery of RE>ACT as a single 2-hour session.

In addition, multiple universities enquired about the possibility of extending the delivery of RE>ACT to university athlete support personnel populations (ASP; e.g., athletic trainers, coaches, physios). This possibility was reinforced by RE>ACT participants who suggested that the concepts, theories and principles underpinning RE>ACT (e.g., skills, confidence, bystander effect) could be further enhanced by their ASP being familiar with, reinforcing and encouraging the concepts and behaviors introduced.

To meet the needs of our target population, and with a view to enhance the implementation of RE>ACT, we plan to refine RE>ACT further and condense it to a single 2-hour session. We will also seek to adapt RE>ACT for delivery to ASP populations. To achieve this, ASP will become the central character in the scenarios, therefore prompting them to consider how *they* would approach the specific substance use situations rather than having them ponder how they (perceive) their athletes would respond. Importantly, extending the delivery of RE>ACT to ASP populations presents an opportunity to truly establish a community-based approach to doping deterrence and prevention.

## DISSEMINATION PLAN

Our research team is committed to achieving excellence with impact and we aim to leverage existing resources, relationships and networks to ensure our findings bring about change. Therefore, we will communicate our findings to five key groups: 1) study participants, 2) international and national anti-doping organizations, 3) sport governing bodies, 4) academic beneficiaries, and 5) the general public. At this stage, information about the RE>ACT program itself has been disseminated among a number of key groups and we will now start disseminating the key findings. Dissemination to date is as follows:

### International and national anti-doping organizations

- Dr Erickson presented the research underpinning RE>ACT (i.e., Erickson et al., 2017) and introduced the RE>ACT program, to members of the US Anti-Doping Agency (USADA) in Colorado Springs, CO (January 2017). Ensuing from this, USADA published a Press Release regarding RE>ACT (<http://www.usada.org/react-doping-close-home/>).
- Dr Erickson presented a modified version of this presentation at the Tackling Doping in Sport Conference in London, UK (March 2017).
  - Ensuing from this, an overview of the presentation was included in the World Sports Advocate Monthly Newsletter (<http://www.e-comlaw.com/world-sports-law-report/hottopic.asp?id=1523>)
- Dr Erickson presented another modified version of the presentation at the Institute of National Anti-Doping Organisations (iNADO) Workshop in Lausanne, CH (March 2017).
  - Ensuing from this, RE>ACT was highlighted in the subsequent iNADO newsletter (<http://us11.campaign-archive1.com/?u=624953d267641dc0d1e248e9d&id=6f8e41a632&e=cf8af774a0>)
  - Dr Erickson was invited to share information on RE>ACT with iNADO members via a webinar (24 October 2017)

- Professor Backhouse situated Re>ACT within her webinar with iNADO members entitled *In Pursuit of Clean Sport: Evidence Informed Doping Prevention* (October 2017)
- Dr Erickson also presented a modified version of the presentation to representatives of UK Anti-Doping (UKAD) in London, UK (April 2017).
  - Dr Erickson supported UKAD's Clean Sport Week 2018 with information of RE>ACT:
    - <https://www.leedsbeckett.ac.uk/blogs/carnegie-xchange/2018/05/react/>
- Professor Backhouse situated RE>ACT within a presentation entitled *Evidence Informed Doping Prevention* at the Doping and Public Health Conference (Organized by the Norwegian Anti-Doping Agency, June 2017)

### Sporting Governing Bodies

- Dr Erickson presented the RE>ACT program at the BUCS Conference 2017 (July 12; Hertfordshire, UK).
- Dr Erickson hosted a webinar for Drug Free Sport (DFS) in which she outlined the RE>ACT program (May 23, 2017). She has also confirmed a follow up webinar to share final outcomes of the RE>ACT project for 4 September 2018.
  - The webinar is now accessible online:
    - <https://www.youtube.com/watch?v=Wu0sxJeU5ko&t=106s>

### Academic Beneficiaries

- Dr Erickson was invited to host a virtual lecture for Master's students at West Virginia University to outline the RE>ACT project (20 February 2018).
- Dr Erickson was invited to provide an overview of RE>ACT to members of the Association for Applied Sport Psychology (AASP) via a webinar (20 September 2017).
- The research underpinning RE>ACT (Erickson et al., 2017) was published in March 2017 and disseminated throughout the research teams' personal networks.
- Dr Erickson was awarded the Jean Bilard Research Award for the research underpinning RE>ACT (Erickson et al., 2017) and invited to present an

acceptance speech sharing what the research has led to (i.e., RE>ACT) (Montpellier; 20 November 2017).

### General Public

- Press Releases hosted by Leeds Beckett University:
  - <http://www.leedsbeckett.ac.uk/news/1015-leeds-beckett-research-to-help-global-efforts-to-prevent-doping-in-sport/>
  - <http://www.leedsbeckett.ac.uk/news/0217-research-explores-whistleblowing-on-doping-in-sport/>
- RE>ACT was highlighted as a novel approach to doping deterrence in the lead up to the Winter Olympics: [https://undark.org/article/olympics-doping-sociology-psychology/?utm\\_content=buffere8a50&utm\\_medium=social&utm\\_source=twitter.com&utm\\_campaign=buffer](https://undark.org/article/olympics-doping-sociology-psychology/?utm_content=buffere8a50&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer)
- Twitter: @cleansportreact & #cleansportreact
- Facebook: @cleansport.react
- Website: [www.leedsbeckett.ac.uk/react](http://www.leedsbeckett.ac.uk/react)

Looking ahead, anticipated dissemination activities include the following:

**Study participants:** Importantly, the findings of the research will be disseminated back to student-athletes and the universities from which the student-athletes are sampled. This will inform local educational efforts to prevent doping in sport.

**International and national anti-doping organizations:** The research team will continue to disseminate their findings to national anti-doping organizations through presentations, phone calls, and publications.

**Sport governing bodies:** Through established networks, the findings will be shared with Sporting Bodies across the UK, US and Canada. In all cases, the implications of the findings for governing body's anti-doping programs will be emphasized. In turn, these bodies can facilitate sharing of the findings through their International Federations.

**Academic beneficiaries:** Results of the study will be presented at internationally attended conferences (e.g., North American Coach Development Summit, World Congress of Sociology in Sport) and a collection of papers based on the project will be submitted to peer-reviewed journals for publication.

**General public:** To raise the general public's awareness of doping in sport and the key findings of this research, we will continue to utilize the University website and the Press Office's established networks to host and publish blogs and stories. Links to these articles will continue to be shared throughout the research teams' social networks. We will also continue to utilize and monitor the RE>ACT web page, Facebook and Twitter pages.

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## Appendix 1

### Project Timeline

<b>Details for timeline</b>		
Dr Erickson PhD	Hesitation to blow the whistle on doping identified within sample of US and UK student-athletes (Erickson, Backhouse, & Carless, 2017).	<ul style="list-style-type: none"> <li>• Concern for (non-)existing relationship was key</li> <li>• Demonstrated a willingness to confront doping athletes</li> <li>• Student-athletes recognized substance use as a problem but demonstrated uncertainty in how/if to address it</li> </ul>
March 2016	Literature review of bystander effect & bystander intervention	<ul style="list-style-type: none"> <li>• After extensive review of existing literature, focus was narrowed to the StepUP! program because: (1) it is the most used bystander intervention within NCAA universities, (2) originally designed for student-athletes, (3) we received permission (and support) from the creators to adapt it the context of APEDs</li> </ul>
March 2016	Literature review of confrontation (behaviors)	<ul style="list-style-type: none"> <li>• Student-athletes in the preliminary research (Erickson et al., 2017) demonstrated a willingness to confront drug users directly</li> <li>• Coach confrontation workshop identified (Sullivan, 2013)</li> <li>• We received permission from Professor Sullivan to adapt his content to the context of athletes</li> </ul>
March 2016 – September 2016	Develop RE>ACT Session Content	<ul style="list-style-type: none"> <li>• Familiarizing with StepUP! and Confrontation workshop materials</li> <li>• Literature review of existing student-athlete focused substance use research</li> <li>• Collating of possible scenarios</li> <li>• Researching current substance use issues on university campuses (e.g., news stories, university hosted articles, existing substance use programs)</li> </ul>
March 2016 – September 2016	Design Evaluation Tool	<ul style="list-style-type: none"> <li>• Review of existing measures</li> <li>• Identified a lack of validated measures</li> <li>• Modified existing measures where possible</li> <li>• Linked questions to key aims</li> <li>• Multiple revisions to appearance of survey</li> </ul>
March 2016	Recruiting within US and Canada commenced	<ul style="list-style-type: none"> <li>• Initially reached out to personal contacts</li> <li>• Emailed athletic directors, sport medicine faculty, coaches, compliance officers</li> <li>• Followed up with calls</li> <li>• Continued calling and emailing on a weekly basis</li> </ul>
May 16-17, 2016	Dr Erickson attended StepUP! facilitator training	<ul style="list-style-type: none"> <li>• Gathered practical insights related to effective design and delivery of StepUP! materials</li> <li>• Face to face meeting with Advisory Board member Becky Bell who provided feedback on the initial session content</li> <li>• Formed relationships with representatives of multiple NCAA universities (which supported future recruitment)</li> </ul>

August 2016	Ethics submitted (and approved)	
August 2016	Project logo and website launched	<ul style="list-style-type: none"> <li>Resources (and stories) related to session content provided</li> </ul>
August 2016	Delivered program to a panel of experts	<ul style="list-style-type: none"> <li>Feedback received on (1) content, (2) presentation (i.e., appearance), (3) Dr Erickson's presentation style</li> <li>All sessions refined based on feedback</li> </ul>
August 2016	ACTCON group content designed	<ul style="list-style-type: none"> <li>Based on standard anti-doping information delivery approach</li> </ul>
September 2016	Evaluation tool disseminated to representative student-athlete sample	<ul style="list-style-type: none"> <li>Tool was too long (i.e., required too much time)</li> <li>Content refined to reduce length</li> <li>Only questions closely aligned to the aims remain</li> </ul>
September 2016	Twitter and Facebook presence established	<ul style="list-style-type: none"> <li>Offer a way for student-athletes to stay informed/involved with program</li> </ul>
September 2016	Delivery of RE>ACT commenced	<ul style="list-style-type: none"> <li>First sessions delivered in Canada</li> </ul>
September 2016	Skype conversation with Advisory Board member Professor Philip Sullivan	<ul style="list-style-type: none"> <li>Discussed content of RE&gt;ACT</li> <li>Requested help in recruiting Canadian universities</li> </ul>
Ongoing since March 2016	Recruitment	<ul style="list-style-type: none"> <li>Weekly follow-up emails and calls to personal contacts and contacts identified through various websites (e.g., university athletic department)</li> <li>Consistent interest, but issues around the amount of time required. Also, universities commonly wanted the Intervention (i.e., RE&gt;ACT) <i>only</i>, rather than the ACTCON delivery</li> </ul>
November 2016	Reduced RE>ACT from three to two sessions	<ul style="list-style-type: none"> <li>Stakeholders repeatedly informed us that a three-session design was not feasible. Given our aim is for RE&gt;ACT to be utilized beyond the scope of this project, the original three session design was deemed not feasible for widespread delivery</li> <li>Combined (and refined) the two (60 minute) topic-specific sessions into one 90-minute session</li> </ul>
November 2016	Informed contacts of the refined delivery design	<ul style="list-style-type: none"> <li>Engagement increased</li> </ul>
January 2017	Three-month post-evaluation launched online	<ul style="list-style-type: none"> <li>Utilized Survey Monkey</li> </ul>
January 2017	Changed appearance of project from 'reACT' to 'RE>ACT' for consistency with logo	<ul style="list-style-type: none"> <li>Updated all materials to reflect the change</li> </ul>
January 2017	Delivery	<ul style="list-style-type: none"> <li>Three US universities</li> <li>One Canadian university</li> </ul>
January 2017	Delivered an informal session to coaches and administrators (at a university's request)	<ul style="list-style-type: none"> <li>Received anecdotal feedback on the delivery</li> </ul>

		<ul style="list-style-type: none"> <li>• Coaches and administrators were keen to participate and expressed interest in RE&gt;ACT being delivered to them moving forward</li> </ul>
March 2017	Data analysis for US and Canada Time points 1 and 2	<ul style="list-style-type: none"> <li>• Process of interrogating the data</li> <li>• Comparison of RE&gt;ACT &amp; ACTCON groups</li> </ul>
March 2017	Invited to present information pertaining to RE>ACT design and delivery at BUCS Conference July 2017	<ul style="list-style-type: none"> <li>• Accepted invitation</li> </ul>
March 2017	Confirmed UK Delivery	<ul style="list-style-type: none"> <li>• Two universities in UK commit to participating</li> </ul>
April 2017	Time point 3 survey disseminated in US and Canada	<ul style="list-style-type: none"> <li>• Contacts asked to disseminate the survey to student-athletes</li> </ul>
April 2017	Invited by Drug Free Sport to facilitate a Webinar outlining RE>ACT (i.e., design, content, delivery)	<ul style="list-style-type: none"> <li>• Accepted invitation</li> </ul>
May 2017	Delivery	<ul style="list-style-type: none"> <li>• US University</li> </ul>
June 2017	Interim Report Submitted	<ul style="list-style-type: none"> <li>• Preliminary findings produced</li> </ul>
July 2017	BUCS Conference	<ul style="list-style-type: none"> <li>• Introduced RE&gt;ACT project to UK university athletic departments</li> </ul>
August 2017	Recruitment	<ul style="list-style-type: none"> <li>• UK universities repeatedly invited to take part in RE&gt;ACT</li> </ul>
September 2017	Delivery	<ul style="list-style-type: none"> <li>• RE&gt;ACT delivery commenced in UK</li> </ul>
October 2017	Presented RE>ACT project at multiple conferences and events	<ul style="list-style-type: none"> <li>• Association for Applied Sport Psychology</li> <li>• International Journal of Sport Law</li> <li>• iNADO Webinar</li> <li>• iNADO Athletes &amp; Leaders Summit</li> </ul>
November 2017	Delivery Completed	<ul style="list-style-type: none"> <li>• Final delivery in the UK finished</li> </ul>
January 2018	Evaluation	<ul style="list-style-type: none"> <li>• Time 3 evaluation sent to UK universities</li> </ul>
February-May 2018	Analysis and Report preparation	<ul style="list-style-type: none"> <li>• Final Report prepared for the IOC</li> </ul>

## **Appendix 2**

### *ACTCON Session Content*

#### **Session** (45 slides)

Introduces:

- Governance structure of anti-doping
- Who anti-doping rules apply to
- Definition of doping
- Outline of anti-doping rule violations (ADRVs)
- The Prohibited List
- Checking medication
- Therapeutic use exemptions (TUEs)
- Nutritional supplements
- Testing procedures
- Athletes' rights
- Whereabouts

### Appendix 3

#### RE>ACT Survey Tool

#### Program Evaluation

Thank you for your willingness to answer a few questions related to the RE>ACT training sessions. Your feedback will help us evaluate and improve the program.

As this is an anonymous survey, please do NOT write your name anywhere.

There are no right or wrong answers, so please answer as honestly as possible.

---

#### **Please provide the following information:**

University: \_\_\_\_\_

Year of School: \_\_\_\_\_

Gender: \_\_\_\_\_

Sport: \_\_\_\_\_

---

*For the purposes of this survey, the term 'CONFRONT' means "any direct statement of disagreement, or disfavor, of either ideas or behaviors".*

*Also, 'appearance and performance enhancing drugs' refers to substances used to change one's outward appearance and/or improve their performance (e.g., anabolic steroids, human growth hormone).*

## SECTION 1

The following statements offer situations you may experience in sport. Please read each statement and circle ONE response that best represents your feelings and experiences.

### As a student-athlete...

1. It is my responsibility to intervene when I notice a problematic situation.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2. I need to set an example in my own behavior for what I expect of others.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3. I feel no need to get involved in problematic situations.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4. I feel it is important for all community members to play a role in keeping everyone safe.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5. I feel team-mates will look up to me and admire me if I intervene.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6. I like thinking of myself as someone who helps others when I can.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7. Intervening might make my team-mates angry with me.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
8. Intervening might cost me friendships.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
9. I could make the wrong decision and intervene when nothing was wrong and feel embarrassed.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
10. I could get in trouble if I intervene.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11. I think sometimes it is too much trouble to intervene.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree



**While at university, have you witnessed any of the following situations...**

12. Athlete using a dietary supplement that has not been certified by a third party agency (e.g. Informed Sport/Choice)	Never	Once	A few times within the past year	Within the last month	Within the last week
13. Athlete using a prescription medication (e.g. Adderall) without a personal prescription	Never	Once	A few times within the past year	Within the last month	Within the last week
14. Athlete using banned appearance and performance enhancing drugs (e.g. Anabolic Steroids)	Never	Once	A few times within the past year	Within the last month	Within the last week
15. Athlete using recreational drugs (e.g. Cannabis)	Never	Once	A few times within the past year	Within the last month	Within the last week

**How would you respond to a student-athlete at your university using...**

16. A dietary supplement that has not been certified by a third party agency (e.g. Informed Sport/Choice)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual
17. A prescription medication (e.g. Adderall) without a personal prescription	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual
18. Banned appearance and performance enhancing drugs (e.g. Anabolic Steroids)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual
19. Recreational drugs (e.g. Cannabis)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual

## SECTION 2

The following statements describe different behaviors. Please read each statement and circle ONE response that best represents how likely you are to act when faced with the following situations.

### As a student-athlete, how likely are you to...

1. Give advice to a student-athlete who asks me about whether or not they should use a particular dietary supplement.	Not at all likely	Not likely	Neutral	Likely	Very likely
2. Confront a competitor if I suspect they are using a banned substance.	Not at all likely	Not likely	Neutral	Likely	Very likely
3. Express my concern to a student-athlete who is casually using recreational drugs at a party.	Not at all likely	Not likely	Neutral	Likely	Very likely
4. Tell a coach if I suspect a team-mate is using a banned substance even if pressured by fellow student-athletes to stay silent.	Not at all likely	Not likely	Neutral	Likely	Very likely
5. Report a team-mate if I suspect they are using a banned substance to a Report Doping Hotline.	Not at all likely	Not likely	Neutral	Likely	Very likely
6. Express my discomfort to a student-athlete who tells me they are using a prescription medication (e.g. Adderall) without a personal prescription to help them balance their school and sport commitments.	Not at all likely	Not likely	Neutral	Likely	Very likely
7. Report a competitor who I suspect is using a banned substance to a Report Doping Hotline.	Not at all likely	Not likely	Neutral	Likely	Very likely
8. Get help and resources for a student-athlete who tells me he/she is abusing recreational drugs.	Not at all likely	Not likely	Neutral	Likely	Very likely
9. Tell a coach if I suspect a competitor is using a banned substance even if pressured by fellow student-athletes to stay silent.	Not at all likely	Not likely	Neutral	Likely	Very likely
10. Confront a team-mate if I suspect they are using a banned substance.	Not at all likely	Not likely	Neutral	Likely	Very likely

## SECTION 3

The following statements offer situations you may experience in sport. Please read each statement and circle ONE response that best represents how you feel.

### I feel I have the skills to confront the following situations:

1. Athlete using a dietary supplement that has not been certified by a third party agency (e.g. Informed Sport/Choice)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2. Athlete using a prescription medication (e.g. Adderall) without a personal prescription	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3. Athlete using banned appearance and performance enhancing drugs (e.g. Anabolic Steroids)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4. Athlete using recreational drugs (e.g. Cannabis)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

### I feel I have the confidence to confront the following situations:

5. Athlete using a dietary supplement that has not been certified by a third party agency (e.g. Informed Sport/Choice)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6. Athlete using a prescription medication (e.g. Adderall) without a personal prescription	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7. Athlete using banned appearance and performance enhancing drugs (e.g. Anabolic Steroids)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
8. Athlete using recreational drugs (e.g. Cannabis)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

## SECTION 4

The following statements ask you to consider the likely behavior of others. Please read each statement and circle ONE response that best represents how you think others would respond.

How would your team-mates respond to a student-athlete at your university using...

1. A dietary supplement that has not been certified by a third party agency (e.g. Informed Sport/Choice)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual
2. A prescription medication (e.g. Adderall) without a personal prescription	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual
3. Banned appearance and performance enhancing drugs (e.g. Anabolic Steroids)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual
4. Recreational drugs (e.g. Cannabis)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. coach)	Confront the Individual

How would your university coach respond to a student-athlete at your university using...

5. A dietary supplement that has not been certified by a third party agency (e.g. Informed Sport/Choice)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. fellow coach)	Confront the Individual
6. A prescription medication (e.g. Adderall) without a personal prescription	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. fellow coach)	Confront the Individual
7. Banned appearance and performance enhancing drugs (e.g. Anabolic Steroids)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. fellow coach)	Confront the Individual
8. Recreational drugs (e.g. Cannabis)	Join in	Do nothing	Report to 'authorities' (e.g. Report Doping Hotline)	Report to 'someone' (e.g. fellow coach)	Confront the Individual

## SECTION 5

Below we list a number of substances and products. The list below includes substances which are permitted and prohibited in sport.

**Thinking about the past 3 months**, how frequently have you used any of the following substances, or products which contain these substances? Please circle ONE response for each.

1. Protein supplements (e.g., whey protein)	Never	Once a month	Once a week	More than once a week	Don't know
2. Vitamin and mineral supplements (e.g., Vitamin C; B vitamins; Omega 3 Fatty Acids; magnesium etc.)	Never	Once a month	Once a week	More than once a week	Don't know
3. Growth hormone or IGF-1	Never	Once a month	Once a week	More than once a week	Don't know
4. Creatine	Never	Once a month	Once a week	More than once a week	Don't know
5. Erythropoietin (EPO)	Never	Once a month	Once a week	More than once a week	Don't know
6. Herbal supplements to boost testosterone (e.g., Tribulus, ZMA, HMB)	Never	Once a month	Once a week	More than once a week	Don't know
7. Anabolic steroids (e.g., Testosterone; Clostebol; DHEA; Nandrolone; Stanozolol; Clenbuterol; SARMS)	Never	Once a month	Once a week	More than once a week	Don't know
8. Caffeine and caffeinated supplements for sporting performance (i.e., excluding regular coffee consumption)	Never	Once a month	Once a week	More than once a week	Don't know
9. Supplements specifically for weight loss (e.g., Green tea)	Never	Once a month	Once a week	More than once a week	Don't know
10. Cocaine, heroin, methamphetamines (including crystal meth, ice, etc.)	Never	Once a month	Once a week	More than once a week	Don't know
11. Cannabis (e.g., marijuana, weed, etc.)	Never	Once a month	Once a week	More than once a week	Don't know

## Appendix 4

### RE>ACT Information Sheet



### **Towards a Vision for Prevention: Testing the feasibility and efficacy of a Clean Sport Bystander Intervention Program (RE>ACT)**

([www.leedsbeckett.ac.uk/react](http://www.leedsbeckett.ac.uk/react))

#### **Background**

The 'RE>ACT' ('recognize' and 'take action') project stems from PhD research conducted at Leeds Beckett University (LBU; Leeds, UK) and is being funded by the International Olympic Committee. It also has the support of the National Collegiate Athletic Association (NCAA), UK Anti-Doping and LBU. RE>ACT offers a viable alternative to current anti-doping education practice by developing a bystander intervention to address doping behaviors. Specifically, we will explore if confrontation can be employed as an effective self-regulation approach to address substance use behaviors within the student-athlete population (US, UK and Canada). To do so, we will apply the established situational model of bystander intervention (Latane & Darley, 1970) which outlines five decision-making steps towards intervention:

- 1) notice the event
- 2) interpret the event as a problem
- 3) assume personal responsibility
- 4) know how to help
- 5) implement the help – RE>ACT!

The StepUP! Bystander Intervention Program ("StepUP!," N.D.) has been used as a guiding framework for the development of the RE>ACT intervention. StepUP! was designed specifically for student-athletes and is the most used bystander intervention across NCAA universities. It is backed by research support from various athletic departments (e.g., Long, 2012) demonstrating its effectiveness for increasing bystanders' intentions to intervene and the original design emerged from a pilot study indicating that student-athletes wish to help friends in distress but feel ill-equipped to do so safely and effectively (StepUP!, 2006). Importantly, similar concerns were raised in preliminary research with student-athletes from the US and UK (Erickson, PhD Thesis); student-athletes asserted that doping use warrants action, however, as most were reluctant to report it and uncertain about the appropriateness of confronting users, they frequently suggested overlooking it. Accordingly, our project presents a modified StepUP! bystander intervention specifically targeting substance use behaviors that have been identified as particularly relevant to student-athlete populations (i.e., dietary supplements, appearance and performance enhancing drugs (APEDs), prescription medications, and recreational drugs).

The main aims of RE>ACT are to:

- (1) raise student-athletes' awareness to intervention-worthy substance use (i.e., dietary supplements, APEDs, prescription medications, and recreational drugs) situations on campus,
- (2) help student-athletes recognize their personal role and responsibility in such situations,
- (3) equip student-athletes with the skills/knowledge necessary to safely confront these situations.

Importantly, the life skills (e.g., confrontation, communication) introduced and learned during the sessions will also serve athletes in situations beyond sport (e.g., classroom, relationships, future jobs).

### **Program Design**

We are aiming to recruit 100 (Control Group: N =50, Experimental Group: N = 50) student-athletes from each university across two time points - once for the intervention and again for a follow-up evaluation (i.e., survey). Student-athletes and/or entire teams will be pragmatically assigned to one of two groups (i.e., active-control, experimental) based on availability.

### **Experimental Condition**

RE>ACT consists of two workshops. The first workshop (75 minutes) will familiarize student-athletes with the theories and evidence underpinning the situational model of bystander intervention (i.e., 5 Steps towards Intervention) and introduce concepts related to effective confrontation. This will be followed by a topic-specific workshop (90 minutes) covering: dietary supplements, APEDs, prescription medications (e.g., Adderall, painkillers), and recreational drugs. Each workshop will be interactive, including discussions and opportunities to practice addressing hypothetical substance use scenarios.

### **Active-Control Condition**

Participants will receive a 60-minute anti-doping education workshop that will focus on detection-deterrence approaches. Key compliance messages will be shared (e.g., WADA Prohibited List, Doping Control Procedures) and participants will be signposted to relevant anti-doping websites (e.g., WADA and National Anti-Doping Agency websites).

Each session (i.e., Control and Experimental) will be delivered face-to-face by Dr Erickson. Ideally, all sessions will be delivered over the span of a week. However, given student-athletes' busy schedules, we are prepared to be flexible and accommodating in the delivery approach. We aim to have all sessions in the US and Canada delivered during the 2016/2017 academic year.

### **Program Evaluation**

For the evaluation, both groups will be invited to complete the same questionnaire pre-, post- and three-month post-evaluation (approximately 5 minutes). Participants will also be invited to take part in a post-intervention interview (15-30 minutes) to discuss their experience with the project.

## Appendix 5

### RE>ACT Session Content



#### **Session 1** (45 slides)

Introduces:

- The bystander effect
- Factors influencing the bystander effect
- The five steps towards intervention
- Strategies for overcoming the bystander effect
- The RE>ACT Model

Main methods of delivery and engagement:

- Videos
- Questions posed to student-athletes
- Examples from sport

#### **Session 2** (52 slides)

Covers:

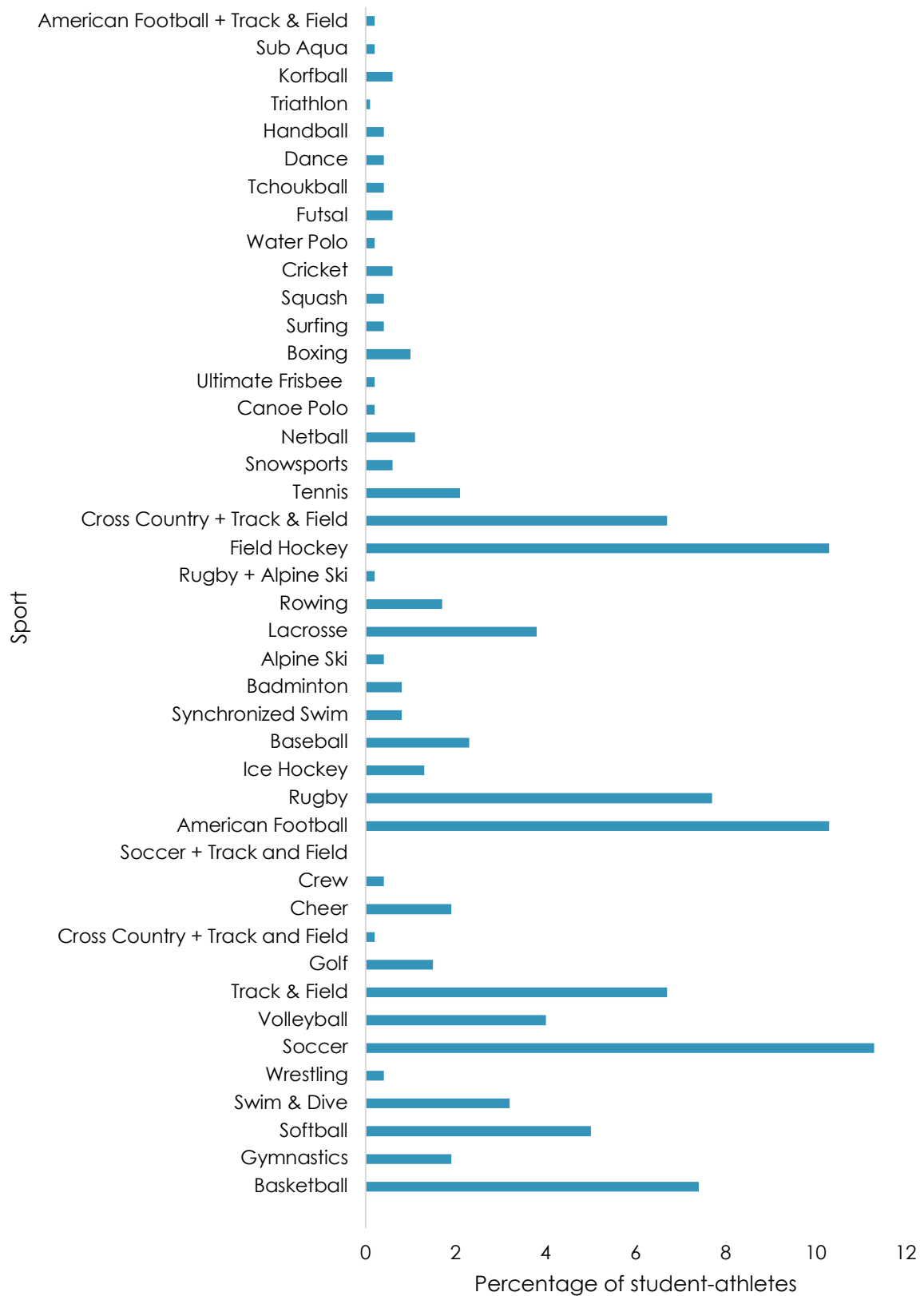
- Definition of 'Doping' and the ten anti-doping rule violations (ADRVs)
- Dietary Supplements (e.g., risks and resources for minimizing these)
- Appearance and Performance Enhancing Drugs
- Prescription Medications (including cognitive enhancers and painkillers)
- Recreational drugs
- Costs of *not* intervening
  - Loss of eligibility, reputational damage, relational damage, future career implications
  - Expectations (and consequences) for athlete support personnel
  - Implications for clean athletes who are impacted by the behavior of doping athletes
- Signposted to available resources for staying involved in RE>ACT and gathering further information on doping related issues

Main methods of delivery and engagement:

- Videos
- Scenarios
- Group discussion, reflection and debate
- Examples from sport

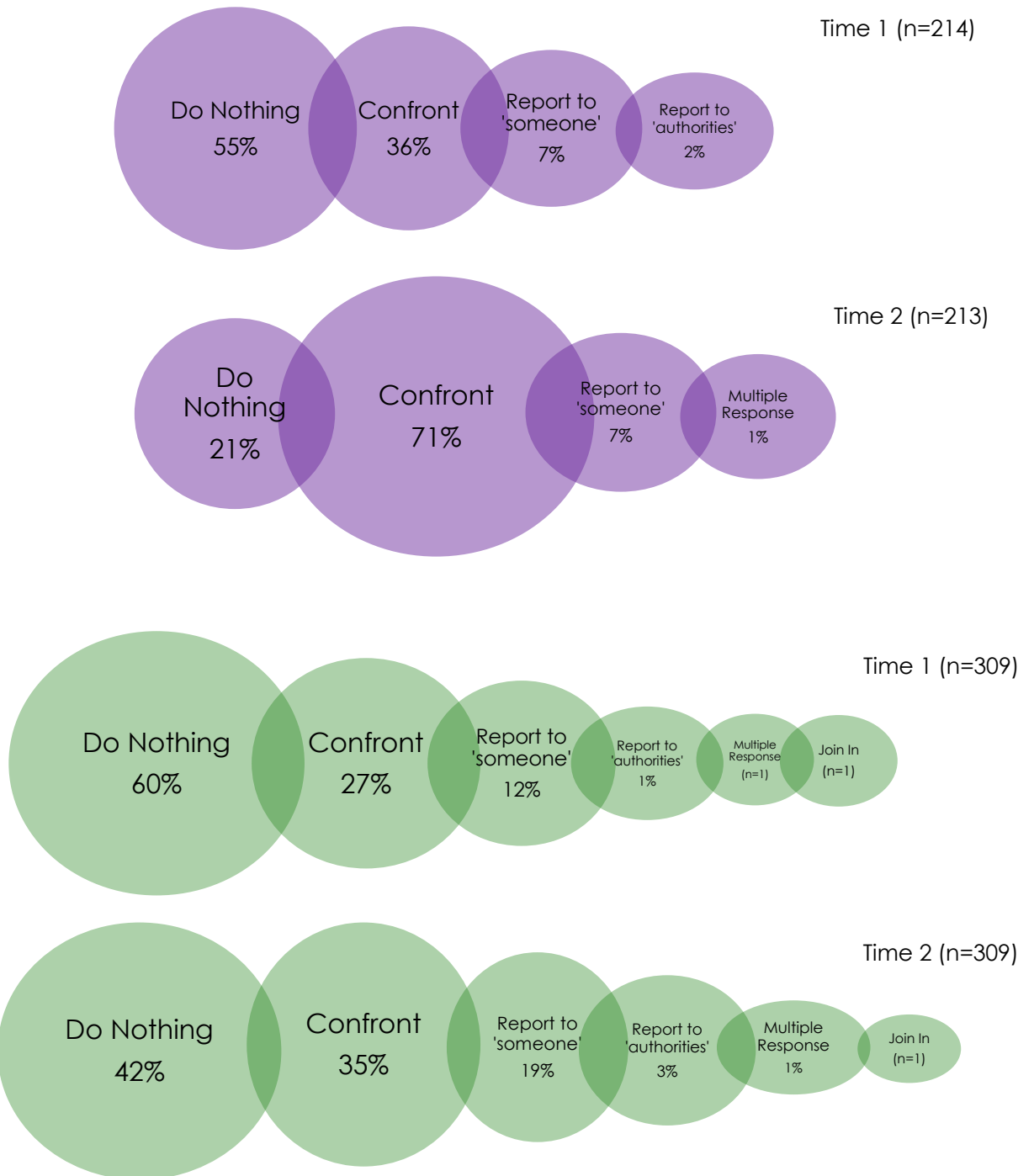


Appendix 6  
*Sport Represented Across Entire Sample*

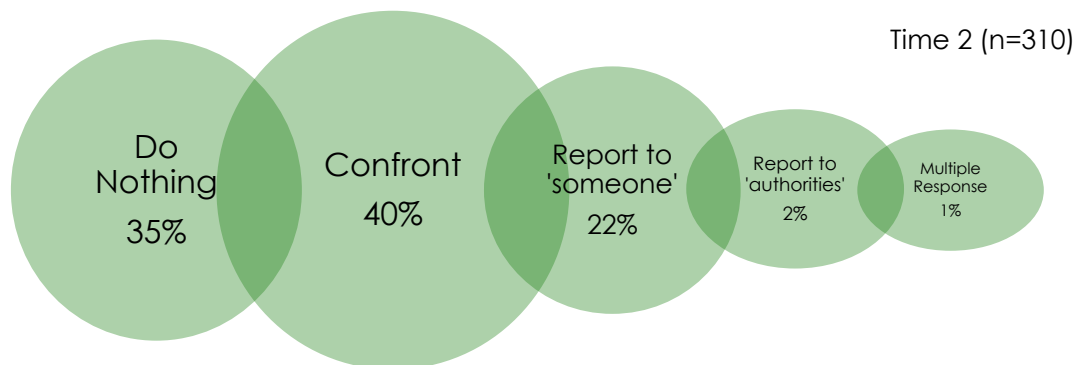
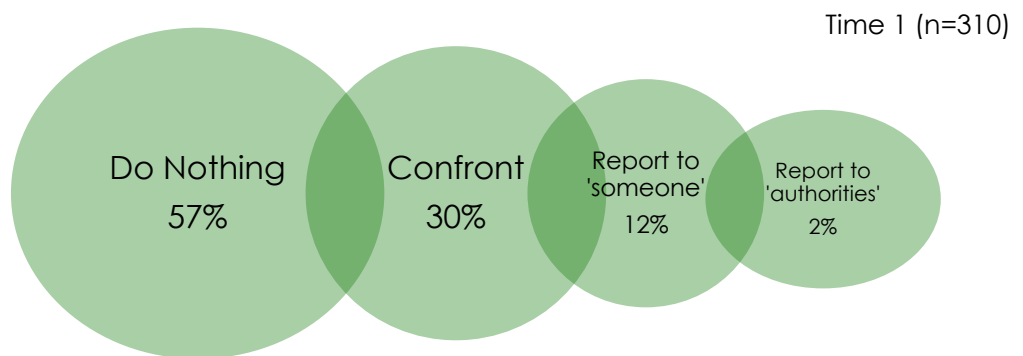
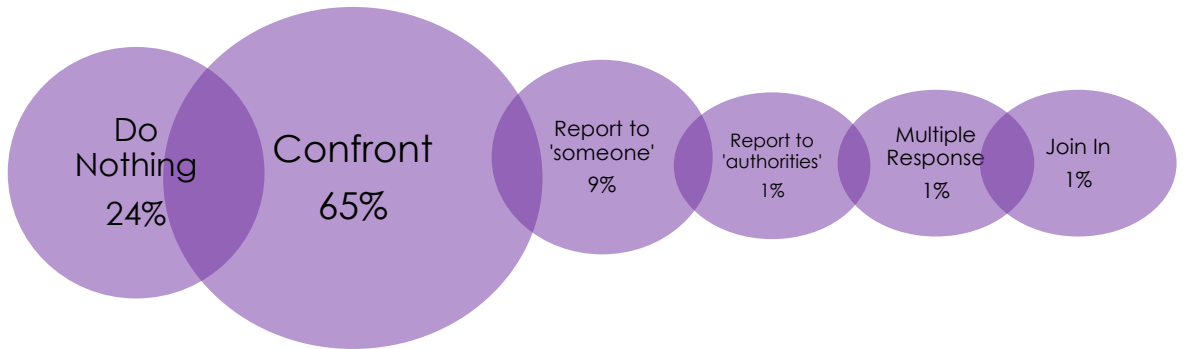
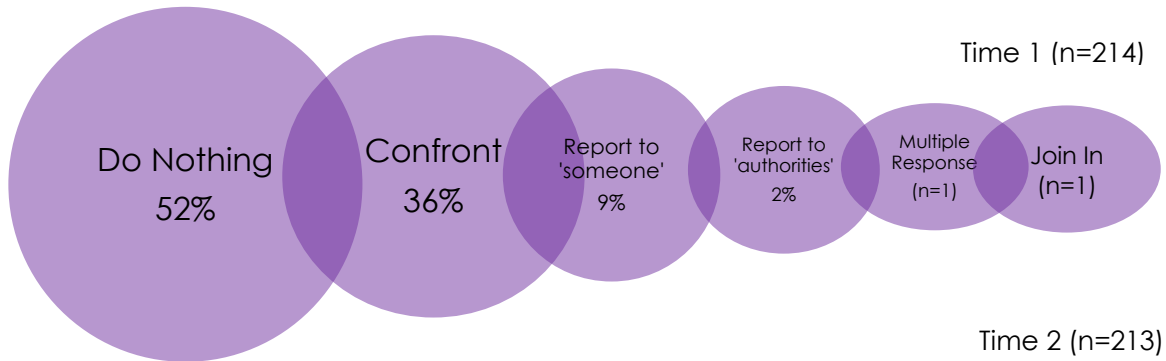


Appendix 7  
 Student-athletes' reported approaches to addressing substance use

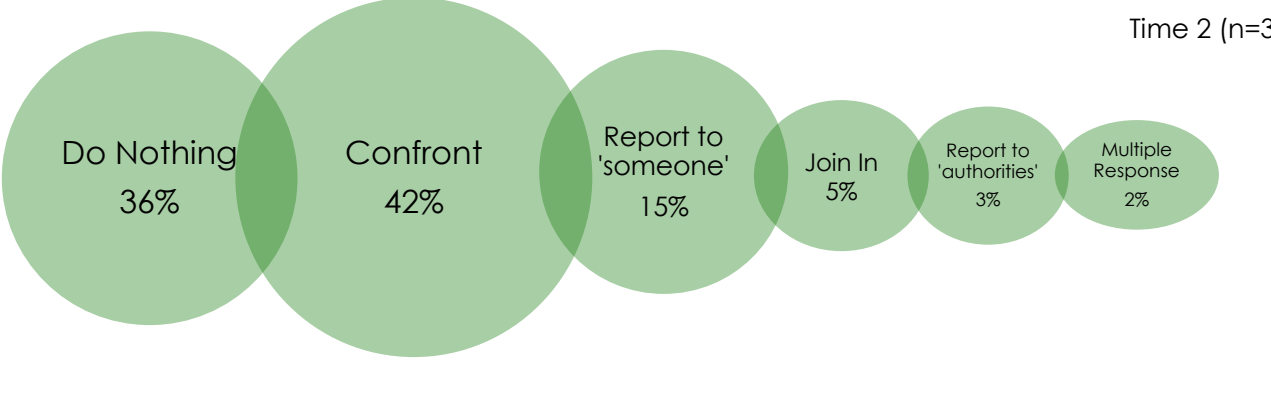
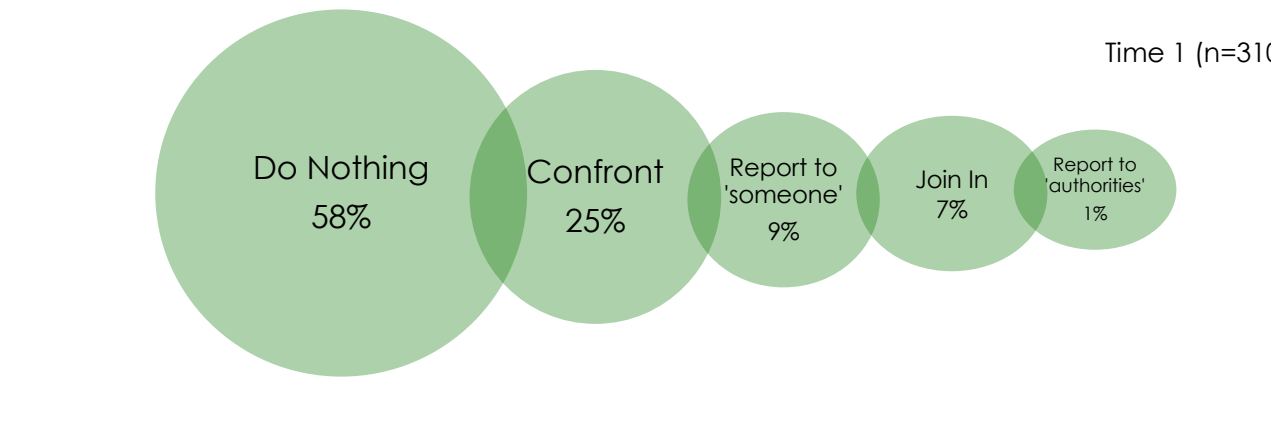
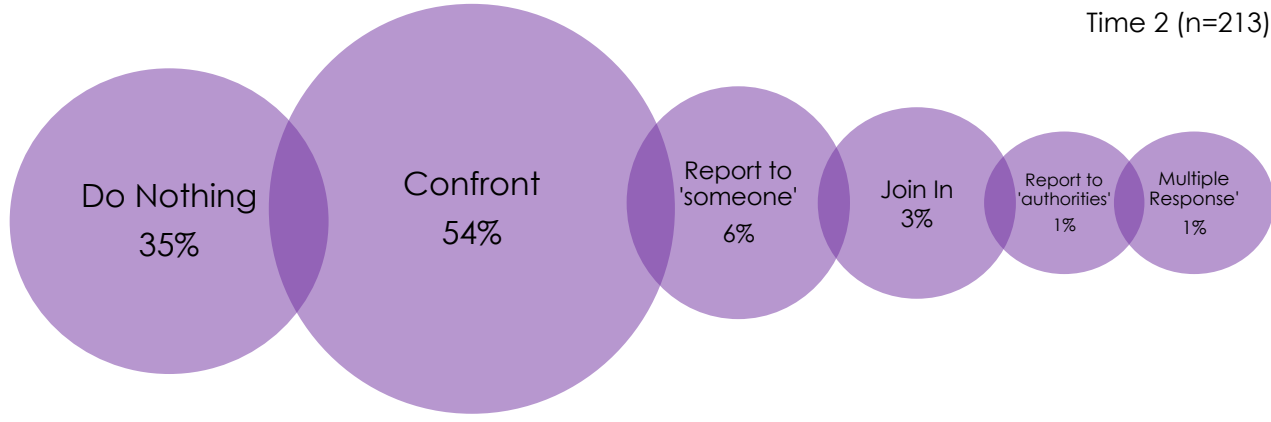
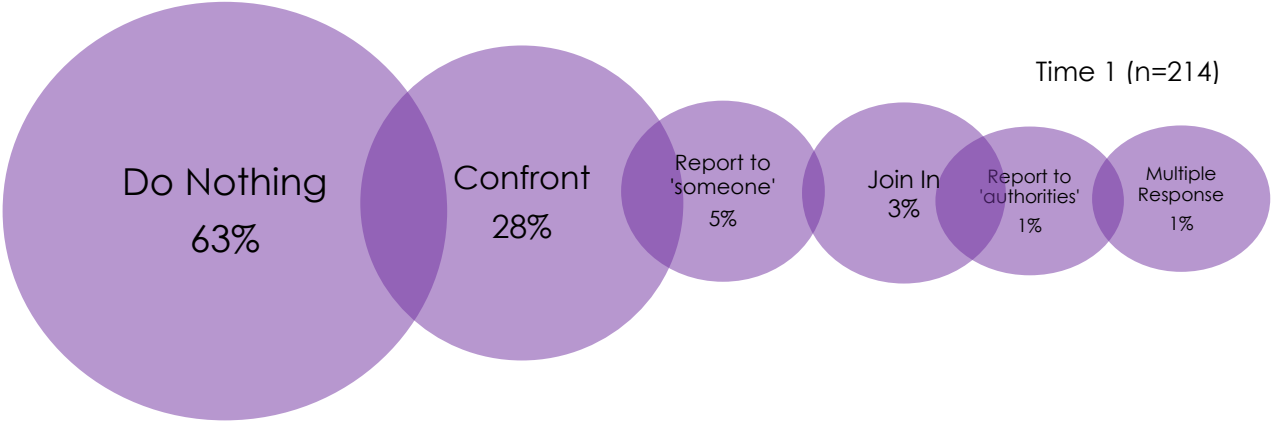
**How would you respond to a student-athlete at your university using a dietary supplement?**



**How would you respond to a student-athlete at your university using a prescription medication (e.g., Adderall) without a personal prescription?**



**How would you respond to a student-athlete at your university using recreational drugs (e.g., Cannabis)?**





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