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A qualitative examination of knowledge of doping and anti-doping education among elite US and Canadian female triathletes

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Abbreviations

EPO: Erythropoietin
PED: Performance enhancing drugs
USADA: United States Anti-Doping Agency
WADA: World Anti-Doping Agency

Executive Summary

Context:

This 2-year project was funded by the World Anti-Doping Agency (WADA) Social Sciences Research Grant Program. The main purpose of this study was to qualitatively investigate the levels, types, and sources of knowledge regarding doping in Canadian and US female elite triathletes. The second purpose of this study was to examine the potential motivating factors to partake in illegal doping, as well as to better understand athletes' reasons and/or impediments to refrain from doping practices. The final purpose of this study is to use the resulting thematic data to inform current and future anti-doping education programmes that are targeted toward aspiring professional triathletes.

Background:

The sport of triathlon, an event that combines swimming, cycling and running, has grown significantly over the past three decades. It has also evolved into several different genres of competition, including sprint, Iron and Olympic distance races, the latter of which features a 1.5km swim, 40 km bike and a 10km run. The popularity of the sport globally contributed to it becoming one of the fastest recognized Olympic sports (contested in both a men's and women's category) with its introduction during the 2000 Sydney Australia Olympics.

However, while triathlon is still in its infancy as an Olympic sport, in the past several years, triathletes have been identified in World Anti-Doping Agency (WADA) annual doping reports as being consistently among the World's top 5 sports returning "adverse analytical findings," or positive doping results. As reported in various media outlets since the inaugural Olympic event in Sydney, Australia, the sport has yielded several high profile positive doping tests. For instance, Brigitte McMahon, the Sydney Olympic triathlon gold medallist, was removed from the Swiss National team and promptly retired when faced with a two year ban, and most recently, Lisa Huetthaler, a former European U-23 champion, was given 3 months of probation and an 18 month ban for doping.

As the sport of triathlon evolved into an international and Olympic sport categories of

competition based on both age and ability were established including, Junior 16-19, U-23, 18-23 and Elite. This organizational structure provided a useful means of investigating the understanding of doping awareness at various levels of athlete development and allowed for a greater understanding of how knowledge about doping evolves over time as athletes move from one competitive level to the next. In addition, these stages of triathlete development also presented an opportunity to see how athletes are educated about doping during the course of their careers.

The rationale for this project, which consisted of two studies, comes directly from previous literature. Hanson (2009) suggested three areas of future research, two of which have relevance to the present study. First he stated that more research is needed to simply identify athletes' level of knowledge regarding performance enhancing drugs. While much of the research has been on the use of anabolic steroids among male athletes, little is known about these and other drugs (e.g., EPO, Insulin, HGH) among female endurance athletes such as triathletes. Second, Hanson recommends further research on how athletes make sense of anti-doping education, and messages more generally, at different states of their careers. Investigating female triathletes as they transition from Junior (16-19) to under-23 to the elite division of competition may help to identify any factors that change during this crucial period of progression in the sport. Additionally, we followed the suggestions by Backhouse et al. (2007) to examine multinational populations and female athletes in future research on anti-doping research. Focus groups and individual interviews have been used to effectively examine athletes' and other stakeholders' perceptions of performance enhancing drugs, and they provide a means of providing some empirical evidence that may be used to inform the various theoretical models related to doping in sport.

The current project:

The first phase of the project consisted of two 6-member focus groups that included younger neo-pro triathletes from the US and Canada. Individual follow-up interviews (which ranged from 30-60 minutes) were also conducted with 11 of the 12 participants. The second phase of the research involved individual phone interviews with 12 current and former professional female triathletes, all of whom competed at the world class level. Interviews were similar to

the focus group interviews (and followed many of the same questions from the interview guide) but investigators also asked about: 1) the athletes' perceptions of anti-doping education across time, 2) how they view(ed) the influence of their national governing bodies and WADA with respect to the anti-doping movement, in general, and 3) their perceptions of how the availability and affordability of doping related to their feelings about doping.

Phase 1 Results Summary (Neo-Pro Focus Group Data)

1) Meanings of doping to participants
2) General knowledge of doping
3) Understanding of anti-doping movement and practices
4) Divergence between US and Canada focus groups
5) Suggestions for anti-doping education

Phase 2 Results Summary (Experienced Elite Level Interview Data)

1) Changes in sport over last 15 years
2) Perceptions of prevalence and availability of doping
3) Perceptions of anti-doping efforts
4) Sources and efficacy of education
5) Athlete suggestions for more effective anti-doping efforts and education

Conclusions:

The findings of this 2-year project yielded new, and in some cases, unexpected findings that will contribute to the quest for a drug-free sport. The following is a summary of the major findings of the two studies that comprised this project.

- The results revealed that there was a significant gap in understanding of anti-doping policy between neo-pro participants and seasoned elite competitors (including a glaring education gap). The young pros from both the US and to a lesser extent Canada struggled to articulate the process of anti-doping education. While one might expect the older, more experienced athletes to have a fuller comprehension of these issues, the concern is that younger pros might be vulnerable to dope during the transition from neo-pro to the top level of the sport, as previous research has suggested of athletes in other sports.
- On a related point, there was some inconsistency in education models between US and

Canada at the introductory level of the sport. Within the US, unless they had some sort of education in the NCAA system, athletes did not receive any formal anti-doping education until they breached the higher amateur or neo-pro level. In Canada, the process was somewhat more systematic, although even these athletes noted that aside from a constant emphasis on being aware of the banned list and an on-line tutorial, there was not the sort of rigorous, systematic education that one might expect of athletes being primed as future world-class competitors.

- Findings showed that there was a utilization of technology and social media to help athletes stay informed, although as noted above and discussed further in the next sections, the ultimate effects of these efforts seemed suspect.
- In both focus groups, the data revealed that some participants lacked faith in coaches' ability to be a consistent or credible source of information with regard to anti-doping information.
- Participants noted that they had limited opportunities to reconcile inconsistent or ambiguous issues or questions regarding performance enhancement issues, in general. For example, several athletes questioned why some performance enhancing substances and procedures were legal and others were not (e.g., altitude tents vs. EPO vs. blood boosting vs. altitude training).
- Despite the aforementioned misgivings, most participants in both studies expressed a general faith in the current anti-doping system

Future research is warranted on several facets of this project:

- Given the participants' perception of ambiguity in anti-doping policy and education, further research is needed on how athletes from different Olympic sports perceive these issues in their sports. In addition, future research is certainly needed on how female athletes from non-Western cultures, and how differing norms and practices may influence the efficacy of anti-doping education and perceptions of doping, in general.
- Further interview-based research on high-level competitors should continue to use qualitative evidence to inform, confirm, or perhaps even counter some of the theoretical models of performance-enhancing substances and methods.
- Another suggestion for future research, given the prevalence of various social networking

devices in contemporary youth culture, is to examine the effectiveness of incorporating new media communication spaces (e.g., cell phones, Facebook, YouTube, etc.) on the delivery of a comprehensive anti-doping education program.

Introduction

Purpose of the project:

This 2- year project, which included two separate studies of female triathletes, was funded by a WADA Social Sciences Research Grant Program.

The growth in the Olympic sport of triathlon has, not altogether unexpectedly, been accompanied by a rash of doping cases among elite competitors. However, the social science research on doping, and strategies to combat doping, has yet to examine the perceptions and experiences of the cohort of athletes that are not yet in the Olympic ranks. Further, few studies on doping across various Olympic sports have used in-depth qualitative interviews to investigate the nuances of athletes' knowledge of doping, and the factors that contribute to their refusal to dope, or their motivation to experiment in the doping culture. In addition, little research has specifically examined the ways that high-level female athletes negotiate the topic of doping, what they know about it, and where they learn about it.

The purpose of this project was to qualitatively investigate elite female triathletes' knowledge related to doping, as well as the motivating factors related to their refusal to dope or their willingness to partake in doping practices. A secondary purpose of this project was to examine female triathletes' experiences with and perceptions of anti-doping education.

Background literature:

Until quite recently, there was a dearth of social science research aimed at investigating the use of performance-enhancing drugs by elite athletes (Mazanov, 2009; Mazanov & Huybers, 2010). Indeed, much of the research on doping in sport has come from the physical sciences and has focused primarily on the effective detection of prohibited substances in order to help the governing bodies of sport catch athletes seeking to gain an advantage by circumventing the established rules of their sport. The way to a drug-free sporting environment, according to this model, is to slowly weed out the dopers by catching them directly via the two-pronged method of in and out of competition testing.

In contrast, Mazanov and McDermott (2009) suggested that social science researchers are well situated to contribute to a 'prevention-based deterrence' model that examines, 'how the individual, the group and the organization/institution might influence drugs in sport'. In other words, researchers should begin studying the experiences of the athletes themselves, and focus on why athletes choose to take prohibited substances in conjunction with the development of more effective drug testing.

A central component to any prevention-based deterrence model would be an understanding of how athletes perceive and make sense of doping, the (formal and informal) education they receive, and their overall understanding of the anti-doping movement at large. As Sas-Nowosielski and Swiatkowska (2007) stated, 'An important aspect of doping prevention is assessment of athletes' knowledge of and attitudes towards doping, which would allow identification of areas at which particular [preventative] programs should be aimed.' (p. 58) Indeed, over the past decade there has been a steady growth of research exploring athletes' knowledge of doping, the anti-doping movement, and the efficacy of anti-doping education initiatives (Donahue, Miqelon, Goulet, Buist, & Vallerand, 2006; Hanson, 2009) In addition, scholars from sport psychology, sociology, sport philosophy, and other academic fields have proposed a number of models, theoretical frameworks, and methodological approaches for explaining and further investigating doping in elite sport. One aim of these research projects was to apply their findings in order to contribute to the creation of anti-doping education programs that incorporate the personal and sociocultural worlds that athletes live in.

Study 1

Design and Procedures:

Due to the location of the researchers and our contacts within both the Canadian and American triathlon community, the participants were selected based on convenience sampling and focus group interviews were conducted at two separate locations, one in the United States and one in Canada. These stakeholders were informed of the purpose of the investigation and that the ultimate aim of the project was to dissuade promising high-level

female triathletes from utilizing prohibited doping practices. With the cooperation of organizational representatives in each country, two focus groups were scheduled; one with a sample of six American athletes, and the other with a sample of six Canadian athletes. The six participants per group represents a significant cross-section of the relatively small number of younger female triathletes in North America, and all of the participants had been identified, by virtue of their performances and future potential, as part of their nation's inner circle of triathlon training. The American focus group interview was conducted at a national training centre in the Western US, and the Canadian athletes were interviewed several days before a national competition in Western Canada.

The main objective of the focus group sessions was to allow the athletes to tell their stories-in their own words-of how much they knew about doping in general, what types of doping practices they were most familiar with, and where they received their information on doping from (e.g., other athletes, coaches, the media, etc.). The athletes were also prompted to discuss their knowledge of and feelings about the anti-doping movement and the mechanisms of anti-doping education. Focus group interviews lasted one hour and fifteen minutes for the American athletes, and just over one and a half hours for the Canadian athletes.

Following the completion of the sessions, focus group interviews were transcribed verbatim and reviewed for accuracy. The transcripts were then read and re-read by all three investigators in order to become familiar with the athletes' responses. The data were analyzed inductively, following the 3-step analytical coding process established by Coté, Salmela, Baria, and Russell (1993). All three researchers coded the data, and then met to discuss any inconsistencies in analysis and come to a consensus on the meanings of any data where there was a discrepancy in coding themes. In addition the researchers attempted to analyze the data not as a series of individual interviews that happened to be gleaned from within a group setting, but rather, to analyze the individual responses within the context of the group dialogue that helped to shape the individual responses (Morgan, 1997). As Morgan stated, focus group data analysis involves recognizing, 'that what individuals do in a group depends on the group context but also what happens in any group depends on the individuals who make it up'. Thus, the inductive analysis yielded several themes that

represent a careful consideration of the voices of the individual participants, as well as the rich dialogue that the group setting produced. In addition, both intra and inter-group differences were considered when examining the American and Canadian athletes.

Other measures were taken to ensure academic rigour of the study. First, the researchers kept reflexive journals throughout the research process. The reflexive journals were used as a tool for the researchers to reflect on important decisions regarding the research process, including issues related to the interviews, data coding, thematic analysis, and relationship between findings and previous anti-doping research. In addition, the researchers met regularly for peer review sessions during the course of the study, including once shortly after each session, and once during the final analysis of the data into the finalized thematic categories.

Research Interview Guide:

The focus group interview guide was developed using the primary research questions as a guide. In addition, theoretical concepts from the literature were added as additional probe questions. (See Appendix C)

Sample (Participant) Characteristics:

Athletes ranged from 18 to 28 years of age, and had competed from 1 to 14 years in the sport of triathlon, although most had previous high-level (i.e., All-American, Olympic Trials, varsity, international competition, etc.) experience in the individual sports of swimming, cycling, and running. For reasons of confidentiality, other background information, including college or university experiences, etc., are not included in this report.

Results of Phase 1:

The analysis of the focus group data yielded five interconnected thematic categories, including: 1) Meanings of doping to participants, 2) General knowledge of doping 3) Understanding of anti-doping movement and practices, 4) Divergence between US and Canada focus groups, and 5) Suggestions for anti-doping education.

1. The first part of each of the focus group discussions involved the participants' feelings

about doping, and the use of performance enhancing substances and practices in general. Not surprisingly, the most prevalent theme that emerged was the notion that doping involved a serious transgression of the established rules of competition, and perhaps even the law. However, while athletes were unanimously opposed to doping, and viewed it as illegal, unfair, and a threat to the integrity of sport, they also struggled with what they saw as some ambiguities in defining doping, regardless of how the anti-doping agencies and governing bodies defined it. The participants' recognition of the fact that the lines between doping and "natural" means of enhancing performance become blurry when critically examined led some members of both focus groups to question whether any form of absolute fairness is even possible.

2. Regarding participants' general knowledge of doping, the athletes in this study consistently noted that they received the most information about doping from various organizations, and the popular media. Both the American and Canadian athletes stated that their national governing body's website was a source of information about doping, although most participants mentioned that the main purpose of the sites were to show athletes what substances were on the banned list, rather than to educate them about what doping is and how it works.
    a. Perhaps not surprisingly, given the age of the athletes, both the US and Canadian groups talked at length about the doping knowledge that they gleaned from various media sources, including the mass media, as well as new media, specifically top athletes' blogs and twitter accounts. Much of this information was as much gossip and hearsay as it was factual information about doping, but nonetheless, they seemed to understand the power of the media to frame doping, and suspected athletes accused of doping, in particular ways. One athlete stated that, "I think because it is, it is such a controversial issue, like the media can play it up as much as they want. You get a lot of it [information about doping] from there."
    b. In contrast to their views of the popular media, however, athletes seemed to view the blogs and twitter messages of their world-class counterparts in the sport of triathlon as important sources of knowledge about doping. In fact, the Canadian focus group talked about how they sought out the online comments

of Canadian Olympians like Simon Whitfield and Paula Findlay, and it was clear from the content and tone of their responses that they held a great deal of respect for their fellow competitors. Thus, in terms of how younger triathletes gain knowledge about doping via the media the messenger and medium clearly matter.

In summary, results of the focus group interviews revealed a startling overall lack of knowledge on specific procedures and effects of doping. While some of the athletes were more versed on doping than others, none of them exhibited anything resembling a coherent, much less comprehensive understanding of doping.

3. Regarding participants' understanding of the anti-doping movement and education, the most prominent stories revolved around the lengthy list of banned substances that they received from their governing bodies, their coaches, and from online sources. In fact, it is not an overstatement to characterize the bulk of their understanding of anti-doping as an ongoing effort to avoid the "bad stuff" on the list. Importantly, participants also overwhelmingly believed that, aside from knowing what was on the list, much of the anti-doping efforts were not relevant to them because they saw doping as external to their racing community. In other words, most of the athletes saw doping as a problem only at the most elite levels, and even then generally not in their countries.
    a. The final part of our discussion about anti-doping involved participants' thoughts on the lengths to which anti-doping organizations should go to ensure fairness in the sport of triathlon. Almost unanimously, participants supported the use of out of contest testing, and even called for more testing using blood rather than just urine.
    b. However, they did voice some misgivings about the inconvenience of out of contest testing. As one athlete stated, "That's a hassle… Like it's worse than the drug testing itself. It's just like, "Yeah, I have to know where I'm going to be three months from now?" When confronted with the increasingly invasive anti-doping efforts that involve random, out of contest testing and the mandatory reporting of one's location, several athletes in both focus groups offered up the extreme idea of GPS device implantation.

4. There were several points of divergence between the US and Canadian focus groups. In summary these included: 1) A greater sense of community among the Canadian athletes. These athletes clearly knew each other, and thus had a perspective that was, in general more similar than the American athletes. The US athletes, as opposed to training in designated camps, had mostly trained alone or in their local areas. Of course, this could change after their experiences at the US Olympic Training Centre, which is where we conducted the interviews. 2) While not conclusive, it appeared that the anti doping education, at least for triathletes, was more advanced in Canada, as those athletes knew far more about, and had a more nuanced understanding of, doping and anti-doping efforts. 3) One point of convergence however, was the overall fractured delivery of anti-doping education, and the general message of anti-doping, in both the US and Canadian samples.

5. With respect to suggestions for improving anti-doping efforts, participants offered several suggestions, including:

   a. More education on the actual effects of doping:
   b. Details on physiological effects (i.e. how doping works).
   c. Short and long term health implications: Participants felt that more education on the (negative) health implications of PED use would serve as a deterrent. There was wide agreement in the focus group discussion that anti-doping strategies, while often mentioning health considerations, tended to focus on issues of fair-play and career consequences.
   d. Clearer articulation of sanctions: In several of the focus group exchanges, it was clear that the neo-pro athletes did not have a consistent understanding of the exact penalties for doping infractions. They suggested that a clear and easy to understand overview of sanctions would be welcome.
   e. Increased education of elite level coaches: A majority of the focus group participants felt as if their coaches were not well informed on the broad issues of doping and anti-doping beyond reference to the banned list. They suggested that a comprehensive and uniform educational program

for coaches would be beneficial so that clear and consistent messages about anti-doping policies could be trusted.

f. Confrontation of ethical and definitional issues (i.e. training at altitude vs. EPO vs. altitude tents): The athletes suggested that creating a forum for discussing the broader philosophical issue of doping would be beneficial. Understanding the rationale for policy as it relates to acceptable vs. prohibited "performance enhancement" substances and/or techniques, according to the data, might help the athletes reconcile seeming inconsistencies in policy.

Study 2

Design and Procedures:

In contrast to the first phase of this project, this study relied on in-depth, semi-structured interviews conducted with elite female triathletes. While it was possible to organize focus groups with the younger athletes due to their similar racing schedules and other factors, this was not possible with the elite population. In addition, this sample of experienced athletes were scattered across the US and Canada, making focus groups impossible. Finally, due to the sensitive nature of the topic, the researchers felt that confidential, one-on-one interviews would yield the best data.

Research Interview Guide:

The interview guide generally followed the same style as the focus group interviews conducted in phase 1 of this project. However, the researchers added questions related to the participants; perceptions of changes in doping and anti-doping over time, given the experience levels of the participants. In addition, two questions were derived from one particular theoretical framework concept related to the perceived prevalence and availability of doping and doping products (See Appendix D).

Sample (Participant) Characteristics:

Six American and six Canadian female triathletes participated in this phase of the study. The researchers attempted to include a representative sample of female athletes from different countries, since few studies have studies female athletes in relation to doping, or closely examined any differences that might exist in doping education across national boundaries. Again, while confidentiality issues prevent a great deal of background information, suffice to say that the sample from both countries included seasoned, and in most cases highly successful athletes with world-class competition experience.

Interviews were conducted by phone, and lasted between 35-90 minutes. Data were again analysed thematically and inductively within the context of the specific research questions. All three researchers coded transcripts individually, and met to finalize the thematic categories.

Results of Phase 2:

The following is a brief summary of the major themes that emerged from the individual interviews. (Note: Link to full article will be posted when published) The analysis of the data yielded five interconnected thematic categories, including: 1) Changes in sport over last 15 years, 2) Perceptions of prevalence and availability of doping, 3) Perceptions of anti-doping efforts, 4) Sources and efficacy of education, and 5) Athlete suggestions for more effective anti-doping efforts and education.

1. When asked to discuss the changes in the sport of triathlon, one of the more consistent findings, mentioned by each of the 12 participants, was the acknowledgement of the increasing popularity of the sport and the concomitant professionalization at the pro level. Most participants articulated an observable shift in the landscape of the sport from quirky athletic pastime to a more high-profile and professional sport with lucrative corporate sponsorships and World and Olympic championships at stake. Moreover, with the introduction of the sport of triathlon to the Olympic Games in 2000, many of the participants observed a considerable rise in the profile of the sport due to the interest from corporate partners and the influx of resources from national sporting bodies. In

addition, the following sub-themes were discussed by a majority of the participants:

- Financial aspects (post Olympic introduction)
- Quality of competitors, domestic and international
- Type of athletes who are successful
- Increase in systematic and organized training (centres)

2. With respect to the perceived prevalence and availability of doping, the findings indicated that participants really did not really think about doping on a regular basis at all. Despite the general acceptance that doping was indeed taking place within the sport, most of the participants had an internal focus and seemed to concern themselves only with their own performances. As one athlete explained, focusing on what other athletes are doing (with respect to doping) only takes away from the energy needed to prepare for competition:

Yeah, because I think as athletes, there's only so many things you can control and you need to focus on the things you can control. I can't control what somebody else is putting into their body. I can for sure get mad or wrapped up or think "that's unfair" or all of those things but that's just taking away energy and focus that I have from the things that I can control.

a. Over time, however, cracks in the faith that athletes are clean and that the sport itself is untarnished by doping begin to emerge. One of the harbingers of the perception of doping tended to be revealed in the suspicion that "break-out" or unusually dominant performances by particular competitors raises the spectre of a performance enhanced result as the following quote demonstrate:

…as I mentioned earlier when an athlete does nothing before a big race, knocks it out of the park in the big race, and then nothing after? That's the only time that we've been, you know, questioning or wondering.

This said, ultimately the athletes overwhelmingly felt that the increased

testing had been a deterrent, and as mentioned above, they had a collective desire to believe that most athletes were racing clean.

b. One very interesting finding involved the availability of performance enhancing drugs. While most of the athletes seemed to have little knowledge about this topic, a few did tell stories of times when they were, in effect, presented with an opportunity to dope. Certainly, there have been many cases, in cycling most notably, where doctors and other sports medicine professionals have been implicated in helping athletes to dope. As the following quote shows, this practice may exist in triathlon as well:

I've been close to meeting with somebody who was recommended to me by a swimmer, an Olympic swimmer. I actually sat down and had a meeting and found out what it all was and I remember when my significant other and I left I was like, "huh, I think that's cheating." He said "I think that's cheating," I said, "it feels like cheating," he's like "I think it would be cheating" and I remember it was a part in my life where I was one decision away from being able to get stuff.

3. Regarding participants' perceptions of the anti-doping efforts in triathlon, the research participants generally agreed that, besides blood doping, the process was working overall and had certainly been further improved since some of them had finished competing. However, many still mentioned that, even as recently as the last several years, the testing process was rather inconsistent in terms of the regularity of out of competition testing. In addition, and similar to the responses by the younger athletes in Phase 1 of this project, few athletes saw the increased surveillance via out of competition as anything more than a minor nuisance. In fact, a couple athletes saw their inclusion in the testing pool as a badge of honour that indicated their performances were "worthy" of being tested. This finding stands in contrast to several recently published research articles criticizing the use of invasive forms of anti-doping procedures, and thus more research should be done on this issue.

a. One minor but important finding that echoed results from the first phase of the study was the notion of the "Non-North American doped other." For the most part, US and Canadian pro female triathletes were willing to give the benefit of the doubt to each other. However, when athletes from other nations turned in extraordinary performances, they were much more suspicious not only of the athletes, but of the national governing bodies of their sport. Given that this same theme was found in a recent study of British athletes, we suggest more research in this area.

4. Several findings emerged that related to the athletes' perceptions and experiences of the various educational approaches used by national anti-doping organizations as well as WADA. In general there was consensus that the anti-doping infrastructure had become much more professionalized over time. Several athletes mentioned the availability of on-line resources and the added convenience and ease that technology has facilitated. Moreover, when the participants did access education materials including videos, they were perceived to be of generally high quality.

   a. One finding that tended to echo the results from the 1st phase of the study had to do with the perceived information that coaches and fellow competitors understood and shared. Overall, the participants mentioned that their coaches were not important sources of particularly credible anti-doping information aside from the constant reminder to be sure to understand and adhere to the banned substance list posted online. The athletes themselves reported that they did not talk with fellow competitors about anti-doping issues with any regularity.

   b. Participants articulated the perception that anti-doping education from the anti-doping agencies (either national body or WADA) tended to fall into three categories with greater or lesser degrees of impact including: 1) moral and ethical issues related to fairness in competition, 2) health and wellness consequences of doping (seen as the weakest form of anti-doping education), 3) damage to reputation of athlete and sport due to positive test results (seen as the most compelling form of anti-doping education). Importantly, though the

health consequences of doping was seen as a relatively ineffective educational tack, most of the athletes interviewed mentioned that this point was also the least emphasized by anti-doping agencies and that they would like to see more information on the health impacts.

5. The final part of the interviews dealt with suggestions that athletes had for improving anti-doping efforts in triathlon. In essence, this part of the interview was very similar to how we asked the younger pros in the first phase of this project. Among the suggestions offered by the participants were the following:
    - Systematic education for younger athletes
    - Pro card orientation
    - Increased use of social media
    - Increased use of blood tests
    - Overall, though, no magic cure to doping issue

Discussion and Implications from Study 1 & Study 2:

The research findings speak to the anti-doping movement, generally, and WADA's educational efforts regarding doping, specifically, in several ways. As outlined in the results above, it is clear that there should be some changes made to the anti-doping education that athletes receive, particularly as it relates to the actual physiological and health effects of doping (not just negative consequences of positive test results) and the perceived "grey areas" involved in ergogenic aids and procedures. Of course, this does present some risks of opening the "can of worms" so to speak. But, our research showed that athletes are already raising questions related to these issues. Second, our findings suggest a much greater need to present anti-doping in a coherent, systematic manner in both the US and Canada. In addition, given the prominence of social media use among younger athletes, we suggest that WADA may be able to further capitalize on social networking sites like Facebook and Twitter in addition to leveraging the increasing popularity of apps for smartphones and tablet computers in their efforts to educate athletes in a way that is perceived as being relevant to youth cultures.

The findings of the second phase of the study certainly point to a number of possible improvements that might be made in the efforts to curb doping in triathlon. First, although

athletes did not view anti-doping efforts as invasive, they did desire an increased level of transparency in terms of the process of anti-doping, including the science behind it. Second, and similarly to the phase 1 results, an even more streamlined, systematic, and coordinated effort should be made in terms of education. Our results showed that, all too often, the national governing bodies, national anti-doping agencies, and WADA were either not on the same page, or more often, not clearly defined in the minds of the athletes, including both the younger pros and established and retired competitors.

Finally, the results of phase 2 of this project gave some insight into what types of education might be most effective in preventing doping among elite female triathletes. While moral and ethical arguments were effective, our results showed that this was often the case with athletes who, for personal reasons, socialization, etc., were probably more predisposed to those types of arguments against doping. While educational efforts that highlighted harmful side effects were not seen as effective, and in fact not used as much with this sample of competitors, the results of phase 1 suggest that convincing current athletes to avoid doping due to supposed harmful side effects might be a challenge, especially when they do not regularly see athletes suffering from any side effects, or when some of the substances or procedures can be used safely under medical supervision. So, according to our results, education aimed at highlighting the damage to the reputation of athletes and their sport due to positive test results might be a fruitful direction to pursue more aggressively. However, whether or not education based on fear and shame will be the most effective means of preventing doping in women's triathlon is questionable.

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NOTE: References include citations used only in published version of work

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Appendices

Appendix A: Consent form for Study 1

Agreement to Participate in Research

Responsible Researchers: Ted M. Butryn, Jay A. Johnson, & Matthew A Masucci; Department of Kinesiology, San José State University

Title of Protocol: A qualitative examination of knowledge of doping, and motivations and/or deterrents to dope, among American and Canadian elite female triathletes

1. You have been asked to participate in a research study investigating knowledge of doping in triathlon, and motivations and/or deterrents to dope in the sport.

2. You will be asked to participate in a focus group with between four and eight other elite female triathletes, and also a follow-up individual interview. The total amount of time for these interview sessions should range between 3 and 5 hours.

3. Both the focus group interview and the individual interviews will be audiotaped and arranged at the participants' and researcher's convenience. The focus group interview will also be videotaped, to ensure that the participants' responses are properly identified during the interview transcription process.

3. There are no anticipated risks associated with participation in this study.

4. While there are no expected benefits associated with participation in this study, it is hoped that you will gain a better understanding of the ways that you make sense of doping in the sport of triathlon, and why you make the decisions they do regarding doping

5. Although the results of this study may be published, no information that could identify you will be included. You will be referred to only by a code name.

6. There will be no compensation for participation in this study.

7. Questions about this research may be addressed to the primary researcher, Dr. Ted Butryn, at (408) 924-3068. Complaints about the research may be presented to Dr. Shirley Reekie, Chair of the Department of Kinesiology, at (408) 924-3020. Questions about research subjects' rights, or research-related injury may be presented to Pamela Stacks, Ph.D., Associate Vice President of Graduate Studies and Research, at (408) 924-2488.

9. No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose to "not participate" in the study.

10. Your consent is being given voluntarily. You may refuse to participate in the entire study or in any part of the study. You have the right to not answer questions you do not wish to answer. If you decide to participate in the study, you are free to withdraw at any time without any negative effect on your relations with San Jose State University or with any other participating institutions or agencies.

11. After you receive and sign two consent forms, you will receive one for your records, signed and dated by the researcher, and the other to return to the researcher.

"**I, _____, have read the above statements, and by signing and dating my name above the researcher's name and date, I am giving my consent for the researcher to use my information for the benefit of the study.**"

_____ _____
Participant's Signature Date

_____ _____
Researcher's Signature Date

- **The signature of a subject on this document indicates agreement to participate in the study.**
- **The signature of a researcher on this document indicates agreement to include the above named subject in the research and attestation that the subject has been fully informed of his or her rights.**

If you wish to receive a summary of the findings of this research, which will be available around June 2010, please check yes and provide your address below.

Yes ___ No ___

Address

_____

_____

Appendix B: Consent form for Study 2

Agreement to Participate in Research

Responsible Researchers: Ted M. Butryn, Jay A. Johnson, & Matthew A Masucci; Department of Kinesiology, San José State University

Title of Protocol: A qualitative examination of knowledge of doping, and motivations and/or deterrents to dope, among American and Canadian elite female triathletes

1. You have been asked to participate in a research study investigating knowledge of doping in triathlon, and motivations and/or deterrents to dope in the sport.

2. You will be asked to participate in a focus group with between four and eight other elite female triathletes, and also a follow-up individual interview. The total amount of time for these interview sessions should range between 3 and 5 hours.

3. Both the focus group interview and the individual interviews will be audiotaped and arranged at the participants' and researcher's convenience. The focus group interview will also be videotaped, to ensure that the participants' responses are properly identified during the interview transcription process.

3. There are no anticipated risks associated with participation in this study.

4. While there are no expected benefits associated with participation in this study, it is hoped that you will gain a better understanding of the ways that you make sense of doping in the sport of triathlon, and why you make the decisions they do regarding doping

5. Although the results of this study may be published, no information that could identify you will be included. You will be referred to only by a code name.

6. There will be no compensation for participation in this study.

7. Questions about this research may be addressed to the primary researcher, Dr. Ted Butryn, at (408) 924-3068. Complaints about the research may be presented to Dr. Shirley Reekie, Chair of the Department of Kinesiology, at (408) 924-3020. Questions about research subjects' rights, or research-related injury may be presented to Pamela Stacks, Ph.D., Associate Vice President of Graduate Studies and Research, at (408) 924-2488.

9. No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose to "not participate" in the study.

10. Your consent is being given voluntarily. You may refuse to participate in the entire study or in any part of the study. You have the right to not answer questions you do not wish to answer. If you decide to participate in the study, you are free to withdraw at any time without any negative effect on your relations with San Jose State University or with any other participating institutions or agencies.

11. After you receive and sign two consent forms, you will receive one for your records, signed and dated by the researcher, and the other to return to the researcher.

"**I, _____, have read the above statements, and by signing and dating my name above the researcher's name and date, I am giving my consent for the researcher to use my information for the benefit of the study.**"

_____ _____
Participant's Signature Date

_____ _____
Researcher's Signature Date

- **The signature of a subject on this document indicates agreement to participate in the study.**
- **The signature of a researcher on this document indicates agreement to include the above named subject in the research and attestation that the subject has been fully informed of his or her rights.**

If you wish to receive a summary of the findings of this research, which will be available around September 2010, please check yes and provide your address below.

Yes ___ No ___

Address

_____

_____

Appendix C: Interview Guide for Study 1 (Focus Groups)

1. *Grand Tour Question*: What does it mean to you to be an elite US/Canadian athlete? **(10 minutes)**

2. What does "doping" mean to you?
    a) What things fall under "doping" for you?
    b) What are your thoughts about doping as a "problem" in triathlon?
    c) How is doping related to fair competition?
    d) "natural vs unnatural"?

3. Where do you get your information about doping in sport?
    a. Substances and Practices?
    b. Coaches?
    c. Other competitors?
    d. Organization(s) (including workshops?)
    e. Message boards/internet?
    f. Media?
        i. Can you talk about how you view the media coverage of doping?
        ii. Do you have a sense of the doping practices of others, and if so how?

4. Can you talk to us about how well you understand efforts to prevent doping in triathlon?
    a. How have you gained this information?
    b. What do you feel about these efforts?
        i. Effective?
        ii. Invasive?

5. Considering your understanding of this issue, what suggestions do you have for effective education on doping?

6. Is there anything else you would like to add regarding your knowledge of doping in women's triathlon that we have not discussed?

Appendix D: Interview Guide for Study 2 (Individual)

1. *Grand Tour Question*: Can you talk a bit about your career as a pro?
    a) How long did you compete?
    b) Best accomplishments?
    c) Biggest changes in the sport that you've observed?

2. What are/were your perceptions of the issue of drugs or doping in triathlon?
    a) How *prevalent* and *available* do you think doping is/was?
    b) How much of a concern is/was the issue of doping to you personally?

3. What are/were your perceptions of anti-doping efforts in triathlon?
    a) Any changes you've seen?
    b) Biggest positive developments?
    c) Any perceived missteps?
    d) How *confident* are you/were you in the effectiveness of anti-doping efforts?

4. What kind of *education* have *you* received/did *you* receive regarding doping during your career?
    a) Where do/did you get this information
        i. Coaches?
        ii. Other competitors?
        iii. Organization(s) (including workshops?)
        iv. Message boards/internet?
        v. Media?
    b) What approach(es) did the efforts to educate you take?
        i. Fairness (ethics, morality, etc.)
        ii. Health consequences
        iii. Consequences to career (bans, image damage, etc)
    c) Can you talk about your own experiences with drug testing?

5. Considering your understanding of this issue, what suggestions do you have for effective education on doping, and anti-doping efforts in general?

6. Is there anything else you would like to add regarding your knowledge of doping and anti-doping education in women's triathlon that we have not discussed?