

Understanding and nurturing the role of young athletes' parents in doping prevention

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Executive summary

Purpose

The aim of the project was to examine the role of parents of young athletes in doping prevention and to identify how they can appropriately help to spread WADA's clean sport message to their children.

Context and Rationale

The importance of pre-emptive measures and cultural messaging around clean sport have grown with the recognition that testing and sanctioning have not been sufficient in the fight against doping. The World Anti-Doping Agency (WADA) has released the International Standard for Education, to be enforced from January 2021, which emphasises the importance of planning, implementing, monitoring and evaluating anti-doping education programmes. Specific target groups are to be educated which should at least include athletes within registered testing pools, but the education of athletes' most influential support personnel is also strongly encouraged in the International Standard for Education. Athlete support personnel should understand their role in doping prevention, be "knowledgeable of and comply with all anti-doping policies and rules", and positively influence athletes (WADA, 2019b, p.11). It is recognised that early education is crucial, and therefore the education of young athletes is important. They should learn about, and adopt, anti-doping attitudes and behaviours when they train within talent development pathways. At an early stage, parents are among the most influential support personnel who can have an advisory or supportive role during the development of their child as an athlete. With regards to doping specifically, parents shape athletes' personal values and morals by "establishing their initial sense of right and wrong" (Erickson et al., 2017, p.115). Research has recognised parents' influence in preventing high risk behaviour such as doping (Backhouse et al., 2009). However, apart from one quantitative study undertaken by Blank et al. (2015) on parents' knowledge and attitudes towards anti-doping, no research has investigated parents' views of the specific role they play in doping prevention and whether they actually talk with their children about the risk of doping, or how and when these conversations may occur. Therefore, there is a need to understand parents' perceptions of their role in doping prevention. This provides opportunities to improve anti-doping education programmes and to contribute to reinforcing WADA's message to young athletes through their parents.

Method

A qualitative approach was chosen with semi-structured interviews in Luxembourg, Canada and the UK of a total of 47 parents of young athletes aged 12-17 years old from 12 different

sports with moderate to high prevalence of doping. Parents' knowledge and attitudes towards doping, experience of anti-doping education, perceived influence over their children's behaviour regarding doping, and challenges and opportunities they face in doping prevention were investigated. Eleven anti-doping officers of the sport federations and seven employees of anti-doping organisations in Luxembourg (ALAD), Canada (CCES), and the UK (UKAD) were also interviewed in order to identify good practices that might be shared or reinforced, and to discuss improvements in the delivery and promotion of anti-doping activities targeting parents. Transcribed interviews were coded and thematically organised using the qualitative data analysis software NVivo.

Findings

Parents' role – parents perceived they play an important role in doping prevention, and this was shared by the sport federations and NADOs staff interviewed for this study. Parents said they are able to instil moral values that support a clean sport approach. However, very few parents reported they regularly talked to their child about doping.

Lack of knowledge – Many parents interviewed lacked knowledge about doping and anti-doping rule violations. Most of parents' knowledge of doping was influenced by the coverage of specific cases in the media, to which they may not relate. They also found it difficult to get comprehensive information about doping.

Low level of awareness – Most parents considered sport to be healthy and the risk of doping to be minimal in the sport and/or country in which their child trains. Although there were parents who are careful about what their child eats, most parents did not consider supplements to be a matter of concern. There was a low level of awareness from parents with regards to the risks of contaminated supplements and the responsibility of their child as an athlete. Parents of children competing in sports which were considered to have a higher prevalence of doping or parents who were former athletes were much more aware and knowledgeable of the risk of anti-doping rule violations.

Moral compass, main doping deterrent – According to parents, the most important doping deterrent was the feeling of guilt their child would experience by disappointing their family and entourage, if they were caught doping. The majority of parents did not believe their child would consider long term health effects or legal sanctions as deterrents for using prohibited substances.

Nurturing parents' role – Through increasing parents' awareness of the anti-doping requirements of their child as an athlete, parents may become more interested to learn about doping and knowledgeable of doping regulations and the associated risks (including

inadvertent doping). This may lead to parents becoming more confident to talk about doping which could lead to more frequent and in-depth discussions with their child about doping.

Recommendations

Policy related recommendations – There is a need for a clear definition of responsibilities of parents within the International Standard for Education, and the related sanctions for a violation of the WADA Code. Parents may be considered as different to other athlete support personnel (e.g. coaches and medical personnel). They are not qualified experts or sports professionals. They have a less formal role in doping prevention and a different type of influence on athletes. Anti-doping policies should be clear and flexible enough to encourage parents to get involved, and to learn how they can support their child, while acknowledging the different situations parents are in. Parents could also take part in an induction process with their child as they move into talent development programme. Those education initiatives should clearly be monitored by sport federations and NADOs in order to track advancements in parent education through relevant key indicators.

Activity related recommendations – Interactive parents' days could be organised that focus on a range of topic of interest to parents, and indirectly on anti-doping. NADOs should encourage partnerships across sports to support anti-doping education. They could also design parents' curriculum to support sport federations in developing tailored education content for parents, while also regularly monitoring parents' needs.

Communication related recommendations – NADOs and sport federations should provide, with the support of local organisations, easily accessible and comprehensive information to parents about doping and anti-doping rules and responsibilities. In that sense, local sport organisations could inform parents of the implications of their child being part of an organisation complying to the WADA Code. Models of good practices between sport organisations could also be shared.

1. Introduction to the research context

The World Anti-Doping Agency leads a “collaborative worldwide movement for doping-free sport” (WADA, 2020). This is undertaken through the harmonisation and coordination of the anti-doping programme in order to protect the athletes’ right to participate in doping-free sport. The World Anti-Doping Programme includes the (1) WADA Code, setting international anti-doping policies, (2) international standards, setting specific technical and operational rules, and (3) models of best practice (WADA Code, 2015). Anti-doping policies and rules are implemented and monitored at national level by National Anti-Doping Organisations (NADOs) who work together with relevant stakeholders in their country in detecting, deterring, and preventing doping. A key part of this strategy is to promote anti-doping education programmes which are delivered at national and local levels by NADOs and regional/national sport federations in order to inform athletes of anti-doping rules, processes, sanctions, and risks related to doping, but not only for athletes. WADA (2015) has recognised the importance of athlete support personnel, including parents (or guardians), in promoting anti-doping behaviour. According to WADA, parents should be knowledgeable and comply with anti-doping policies and rules, and use their “influence on athlete values and behaviours to foster anti-doping attitudes” (WADA, 2019a, 72). WADA strongly encourages the education of parents by providing different education and prevention tools and guidelines such as the Parents’ Guide to Support Clean Sport (WADA, 2017), and the implementation of International Standard for Education. It is however not entirely clear from the WADA Code 2021 the extent to which parents are required to comply with anti-doping regulations, how it is interpreted by various organisations, and therefore what sanctions they may receive, if any, if they “use or possess any prohibited substance or prohibited method without valid justification.” (WADA, 2019a, 73).

The International Standard for Education—approved by WADA Executive Committee on November 7th, 2019 and effective from January 2021—encourage entities accepting and implementing the WADA Code to identify the primary target groups to educate through a detailed education plan (WADA, 2019b). This plan should set clear objectives, activities and monitoring measures to educate specific pool of people comprising of athletes, as well as the most influential athlete support personnel who work with, treat, or assist athletes. A rationale should be provided when athletes or support personnel are not included in the education pool. These education programmes are particularly important for young athletes, when they are under the responsibility of their parents and therefore parents may influence how young athletes view their participation in performance sport (e.g., with integrity),

increase their knowledge and reinforce positive values that shape decision making and their attitude against cheating (WADA, 2013).

Parental support is indeed a key factor influencing the development of elite athletes (Baker et al., 2003; Keegan, Spray, Harwood, & Lavalley, 2014; Wylleman et al., 2007), including their attitudes towards high risk behaviour (Harris et al., 2013; Mercken et al., 2013). Parents can support their child athlete to live, train and perform in the challenging world of high performance sport (Bjørndal & Ronglan, 2018; Knight, 2017). Even though intensive pressure exerted by parents on their child athlete may lead to doping temptation (Laure & Binsinger, 2005; Madigan, et al., 2016), parents can support their children with a strong anti-doping approach. Parents are in a position to help shape clean sport values and disseminate clean sport messages to young athletes when they are highly vulnerable to the potentially negative influence of others (Erickson et al., 2017; Lentillon-Kaestner & Carstairs, 2010). Parents can have an advisory and supportive role, and communicate influential values during the development of their child into a competitive athlete (Bloom, 1985; Côté, 1999; Elliott, Drummond, & Knight, 2018). This development stage occurs particularly between 12 to 17 years of age, when young athletes are recognised as being talented, and as a consequence may endure intensive levels of training and competition (Wylleman et al., 2013) which could be associated with high pressure to perform (Sato et al., 2012). This pressure may lead to increased temptations to use prohibited substances (Pappa & Kennedy, 2013; Weber, 2009), even more so when support personnel may be deficient, uninformed, or complicit. Hence, parents have a crucial role to play to prevent this negative behaviour. However, no research has been undertaken on the role parents have in fostering anti-doping behaviour in order to inform effective education strategies that utilizes their influence with young athletes in a positive way.

This research aimed to examine young athletes' parents' perceptions of their role in doping prevention and to identify how parents can appropriately help to spread and support a 'clean sport' message to their children.

2. Background

A growing body of research has been undertaken to examine individuals' attitudes towards doping, with particular attention to relevant target groups such as athletes (Allen et al., 2015; Bloodworth et al., 2012; Petroczi & Aidman, 2009; Whitaker et al., 2014), coaches (Allen et al., 2017; Backhouse & McKenna, 2012; Laure et al., 2001), and sport physicians (Ambrose, 2011; Auersperger et al., 2012; Backhouse & McKenna, 2011; Greenway & Greenway, 1997). Much of this research demonstrates similar findings, that people perceive doping in sport as unethical or morally unacceptable. However, Mazanov et al. (2014) also show that athlete support personnel's knowledge about their role in promoting anti-doping is limited. Although the critical role of athlete support personnel in influencing anti-doping behaviour has been established by WADA (WADA Code 2015) and through research (Mazanov, Huybers, & Connor, 2011; Huybers & Mazanov, 2012), according to Mazanov et al. (2015, p.218), there is little evidence of how athlete support personnel "understand, interpret or experience their role" in anti-doping. Research has therefore called for educating athlete support personnel to the same extent as athletes themselves (Allen et al., 2015; Allen et al., 2017; Mazanov et al., 2014). WADA, NADOs, and sport federations have implemented a growing number of anti-doping education initiatives targeting both athletes and athlete support personnel (WADA, n.d., 2014; Winand, 2015), with a particular focus on young athletes. Nevertheless, research by Winand (2015) in anti-doping education in the UK found inconsistency in the delivery of anti-doping education programmes between sports, particularly regarding athlete support personnel. Byers and Edwards (2015) also found that there was confusion and inefficient messages from anti-doping controls initiated from NADOs and that social mechanisms of control (such as parent and friends) were more powerful in shaping athletes' values.

Young athletes are considered the most vulnerable to doping (Audy, et al., 2014) due to high pressure to emerge as an established athlete, the widespread use of supplements (Sato et al., 2012) and the assumption that anti-doping behaviour and attitudes are shaped early in an athletic career (Morente-Sánchez & Zabala, 2013). As a result, early engagement of young athletes in doping prevention is warranted (Shah, Janssen, Le Nézet, & Spilka, 2019). According to the WADA Code, young athletes competing at national level are responsible for not taking any banned substances and knowing what constitutes an anti-doping rule violation. Nonetheless, Houlihan (2004) pointed out that parents, as much as coaches, also bear the responsibility to ensure their child athlete (under the age of 18) is knowledgeable and complies with anti-doping regulations and practices. Despite not being recognised as part of athlete support personnel within the 2003 WADA Code, which has been criticised by

scholars (e.g., Houlihan, 2004), athletes' parents feature at the same level of responsibility as support personnel in the Code 2009, 2015 and 2021. The latest version (WADA Code 2021 art. 21.2) identifies six roles and responsibilities for parents, including to cooperating in the fight against doping, being knowledgeable of anti-doping rules, and to using their influence to encourage anti-doping attitudes.

Parental support is a key factor influencing the development of elite athletes (Baker et al., 2003; Bloom, 1985; Coté, 1999; Elliott et al., 2018; Knight, 2017; Wuerth et al., 2004; Wylleman et al., 2007). Parents take a leadership role in the early years of talent development which evolves into an advisory and supportive role in later stages when athletes become more committed to their sport (Keegan et al, 2014). Research by Gould et al. (2002) on parents of Olympic athletes showed that parents emphasise and discuss determination, focus, and work ethic with their child athlete. Athlete support personnel are in positions to influence the behaviour of young athletes, and as argued by Backhouse et al. (2009, p.2) it is vital that they, including parents, "are heavily involved in, and take responsibility for, reinforcing appropriate anti-doping messages."

However, the amount of pressure exerted by parents on their child to perform may cause stress for young athletes (Hellstedt, 1987; Ryan, 1995; Weber, 2009). A study by Lauer et al. (2010) identified negative parental behaviours affecting junior tennis player development, including parents placing pressure to win, being too pushy, and being over involved. Research by Madigan, et al. (2016) showed that pressure exerted by parents on their child athlete to perform is related to positive attitude towards doping. Under pressure from their entourage, young athletes may be tempted to dope (Weber, 2009), and parents are support personnel who could encourage doping (Laure & Binsinger, 2005) either directly or indirectly (Audy et al., 2014). As demonstrated by Shah, Janssen, Le Nézet, and Spilka (2019) the quality of the relationship between parents and their child is crucial and could trigger doping behaviors when parental control is weak. In contrast, researchers (Harris et al., 2013; Mercken et al., 2013) have identified the key role parents play in preventing their children from adopting high-risk smoking or sexual behaviour. However, to date, researchers have not examined whether parents are sufficiently knowledgeable to influence their children when it comes to doping behaviour, and how this can be achieved. A survey by Blank et al. (2015) investigated the attitudes towards doping and general knowledge about doping (i.e. prohibited substances and side effects) of 883 parents in Austria. The authors showed that parents had good general knowledge about doping, but lacked knowledge on the side effects of doping. Male parents were found to be more knowledgeable compared with female parents, and male parents with a past sporting career were also more knowledgeable

probably due to their sporting experience at elite level. Blank et al. (2015) also showed that parents had negative attitudes towards doping. No evidence has however been collected on whether parents believe they may influence their children's attitudes towards doping, or whether parents actually talk with their children about doping and thus perceive that they have a role in doping prevention.

Similar to research on unhealthy behaviours like smoking (Thomas, McLellan, & Perera, 2013), we suggest that parental knowledge and interest in anti-doping can influence children's behaviour, and inversely, that parental indifference, lack of knowledge, and of supervision may increase the risk of doping behaviour. The theories of reasoned action (Ajzen & Fishbein, 1980) and planned behaviour (Ajzen, 1985) help explain how behaviour is predicted by rational decisions. According to these theories, if athletes receive information about the negative effects of doping they would create a negative attitude towards it (Allen et al., 2015; Bloodworth et al., 2012; Petroczi & Aidman, 2009; Whitaker et al., 2014). However, knowing about the dangers of drugs is not sufficient (Roe & Becker, 2005) to prevent doping behaviour.

Social factors such as the influence of family, peers, or media may prevent the development of undesirable behaviours by supporting the social norm that doping is wrong through persuasive communication (Bandura, 1986; Englar-Carlson et al., 2016). Otherwise, the absence of such message or reinforcement of unhealthy messages might lead young people to adopt unhealthy behaviours (McGrath et al. 2006) such as doping. According to Bourdieu (1987), family is a primary source of social capital for young people and parents can provide support, establish and reinforce norms of expected behaviour while children are in their teenage years. This is why understanding the role of parents is crucial to help shape children's anti-doping attitude and behaviours, and how athletes will view doping in their adult life. The entourage of athletes, including their parents, has been identified as an important social influence in athletes' doping attitudes, intentions, and behaviour (Erickson et al., 2017; Lentillon-Kaestner & Carstairs, 2010; Smith et al, 2010; Strelan & Boeckmann, 2003; 2006). Research by Dimeo et al. (2013) in Scotland highlighted that parents act as a potential strong deterrent against doping as athletes would fear their parents' reaction if they dope. This is supported by Kirby et al. (2011) who identified that the most frequent doping deterrent is the feeling of shame or guilt towards their family members if athletes would get caught doping. Personal values, social bonds, and moral factors are key doping deterrents (Bloodworth and McNamee, 2010; Byers & Edwards, 2015; MacNamara & Collins, 2014; Overbye et al., 2013; 2015). WADA itself (Wada Code 2015) acknowledges the beneficial support parents may bring to disseminating a clean sport message at an age when young

athletes are most vulnerable. However, no evidence has been gathered on the parents' perceived role in anti-doping.

There is a need for further qualitative research investigating the role of parents which goes beyond the evaluation of knowledge about doping. Research should examine parental influence on children's anti-doping behaviours through instilling general moral values and anti-doping specific principles. Initiatives parents undertake which could impact children's attitude towards doping could inform research on doping prevention, such as if and how parents discuss with their child about doping and anti-doping rule violations, whether they check their child uses 'safe' supplements and discuss the risk associated to doping and supplements' use. Drawing on the theories of reasoned action and planned behaviour while also acknowledging the social influence of parents on their children and the importance of social norm, we investigated young athletes' parents' perceptions of their role in doping prevention. Given the role sport federations and NADOs play in organising and providing education to athletes and support personnel such as parents, it is also important to investigate how their staff perceive parents' role in doping prevention. Their perceptions of parents' knowledge about doping and engagement in anti-doping sessions they may deliver is also of interest. Therefore, we aimed to provide recommendations that foster parents' role in doping prevention in order to improve the delivery of anti-doping education programmes.

3. Research aims

3.1. Purpose of the research

The purpose of this research was to examine young athletes' parents' perceptions of their role in doping prevention and to identify how they can appropriately help to spread WADA's clean sport message to their children.

3.2. Research questions

The following research questions were addressed:

- what role do parents of young athletes believe they play in doping prevention?
- what challenges and barriers do parents face when engaging in anti-doping conversations with their child?
- how can the parents' role in developing young athletes' anti-doping behaviour be nurtured?
- what are the implications in terms of policy strategy and intervention for anti-doping education programmes?

4. Method

4.1 Research design

A qualitative research methodology was adopted, employing semi-structured interviews to investigate the role of parents in doping prevention and ways to improve current anti-doping education programmes. Qualitative research is appropriate for the study of phenomena in the environment in which they occur and for understanding these phenomena (e.g. parents' role in anti-doping) through social actors' perceptions (Pratt, 2009). The qualitative approach will consist of three phases of semi-structured interviews with (1) young athletes' parents, (2) anti-doping officers, and (3) National Anti-Doping Organisations personnel.

The research was an international project focusing on 12 sports in Luxembourg, the UK and Canada. Sports were selected through theoretical sampling, i.e. the selection of cases relying on theoretical, not statistical, reasons, (Glaser & Strauss, 1967) in order to obtain diverse types of sports considering their limited number (Eisenhardt, 1989). Sports were chosen that had a high prevalence of doping (according to CCES, UKAD and WADA statistics published on their respective websites) and/or have large number of child participants, and have been selected in collaboration with ALAD (Agence Luxembourgeoise Antidopage), UKAD (UK Anti-Doping) and CCES (Canadian Centre for Ethics in Sport).

4.2. Compliance with ethical standards

Given the international nature of the research, ethical approval was sought within each country where interviews were undertaken. The research study design was submitted to and approved by LUNEX Research Ethics Committee (Luxembourg), the University of Stirling General University Ethics Panel (United Kingdom), and the University of New Brunswick Research Ethics Board (Canada). Given the main institution coordinating the project is based in Luxembourg, this project is compliant to the EU general data protection regulation. Respondents were informed that their anonymity would be guaranteed and that they could withdraw from the study at any time, and that they could retrieve their information if they wish to do so by simple request. An information sheet was sent in advance to participants disclosing specific information about the study and their rights while taking part. Each participant gave their consent to participate to the study with the assurance that their anonymity will be guaranteed. The only organisations named are NADOs: ALAD, UKAD and CCES. These organisations have agreed to be mentioned following verification that their quotations and views were reflective of the interviews undertaken with the researchers.

4.3. Participants

An intended number of 66 participants were targeted in the present research with 48 parents of young athletes from 12 different sports, 12 anti-doping officers of sport federations and 6 NADOs' personnel from the NADOs in Luxembourg (ALAD), the United Kingdom (UKAD) and Canada (CCES). This was deemed sufficient to have an in-depth overview of anti-doping education practices in these countries and sports investigated and learn from the perceived role of young athletes' parents in doping prevention. A smaller number of participants were foreseen in Luxembourg (8 parents, 2 sports and 2 anti-doping officers) as compared to Canada and the UK as a reflection of the size of the country, as per request by WADA. The remaining number of participants were intended to be equally distributed between the UK and Canada with 20 parents, 5 sports, and 5 anti-doping officers each.

2.1. *Parents*

Parents of young athletes of the age of 12-17 years old who compete across regions or at (inter)national level (i.e. in development stage according to Wylleman et al., 2013) for at least one year were selected to be interviewed in order to understand how they perceive their role in doping prevention. An equal number of men and women parents were selected as they may have different knowledge, perceptions, or interaction with doping and anti-doping education. Access to parents was gained through the investigators' established networks of sport federations and elite development coaches in the countries. Parents were selected through a combination of convenience and quota sampling procedures to achieve a balanced representation of male and female parents, and across different child age and gender. The research design strategy was to interview four parents per sport, and one individual parent at a time. Parents were contacted by email with support from the sport federations or coaches, and some interviews were conducted by Skype.

2.2. *Anti-doping officers*

Anti-doping officers from selected sport federations were interviewed in order to discuss specific challenges for their sport in anti-doping education of young athletes and their parents.

2.3. *NADO personnel*

Personnel of National Anti-Doping Organisations were contacted to discuss ways to improve anti-doping education programmes. Support have been received from each NADO selected for this study.

4.4. Data collection

Semi-structured interviews were employed to gain an in-depth understanding of young athletes' parents' perceptions of their role in doping prevention. The interviews were semi-structured and conversational in nature to provide rich, thick description of the parents' experiences (Burgess, 1982; Fontana & Frey, 2000). Through theories of reasoned action, planned behaviour, and social influence, it is assumed that knowledgeable parents are able to influence their child's attitude towards doping. In line with those theories, discussions focused on parents' general knowledge of anti-doping regulations, their perceptions of their role in doping prevention, their experience of anti-doping education, their reaction to hypothetical doping situations (to investigate attitudes towards doping), the occurrence and effectiveness of discussion they have with their child about doping, and challenges or barriers they face to engage in doping prevention.

Data collection took place in three stages. The first stage consisted of semi-structured interviews with parents. The second phase focused on sport federations' anti-doping officers, and the third involved discussion on improvements in doping prevention with NADOs personnel. The interview guides are presented in Appendixes B1-3. All interviews were recorded with the agreement of interviewees and anonymity was guaranteed.

4.5. Challenges in data collection

Multiple challenges arose from data collection, in particular access to parents of the specific sports selected. There was a need to investigate other sports than those initially targeted and some sport federations representatives did not follow up on our requests to discuss the preliminary findings of this study. Hence, the number of participants to the research was different than initially planned with 65 participants, including 47 parents, 11 anti-doping officers and 7 NADOs' personnel. Also, the study took more time than anticipated and these challenges in themselves may reveal priorities put on parent education within specific sports. The number of intended interviews is consequently

4.6. Sample description

A total of 12 sports were investigated, with 47 parents (23 men and 24 women) taking part in the study (see appendix C for details) and 11 anti-doping officers or representatives of sport federations as not all have an official staff member in charge of anti-doping. From the twelve sports that were selected (alpine skiing, american football, athletics, football, basketball, cycling, equestrian, golf, ice hockey, karate, rugby, swimming) 10 are part of the Olympic programme (although 2 are not regularly included), 7 sports are individual competitive

disciplines and 5 are team sports. Interviews with parents lasted on average 40 minutes with a minimum of 20 minutes and a maximum of 72 minutes. In total, the study collected more than 31 hours of interviews with parents. Saturation of data was reached towards the end which decreased the length of interviews. Forty-one interviews were carried out in English, 5 in French, and 1 in German. The young athletes competed in at least inter-regional level competition, some were working towards (inter)national level (i.e., age-group recognised national development squads), however, most were already competing at national or international level. While very few children had already been tested, all could have been at previous (inter)national competitions, or could face an anti-doping test in forthcoming competitions.

In the second phase, a total of 11 anti-doping officers or representatives of sport federations were interviewed from 11 different sport federations (5 in the UK, 4 in Canada and 2 in Luxembourg). Interviews with sport federations lasted 34 minutes on average.

Three NADOs took part in the last phase of interviews: UK Anti-Doping (UKAD), Canadian Centre for Ethics in Sport (CCES), and Luxembourg Anti-Doping Agency (Agence Luxembourgoise Anti-Dopage. – ALAD). Seven staff members of those organisations were interviewed in total, and interviews lasted 78 minutes on average. Those discussions also involved reviews of the preliminary findings of the study.

4.7. Data analysis

Interviews were fully transcribed by specialist private companies with contractual protocols including confidentiality agreements to preserve the integrity of sensitive material. Interviews in French or German were later translated in English. Transcripts were reviewed by the interviewer removing identifying names and events before dissemination for analysis by the research team. Anonymity of parents was guaranteed (in line with research ethics considerations) in order to enhance openness in their responses.

The information from interviews were coded and thematically organised using the qualitative data analysis software NVivo 12. Data analysis involved a deductive-inductive process cross-validated by the research team members. Themes identified in the aforementioned theories (e.g. parents' role in doping prevention, their knowledge of anti-doping, their level of experience and engagement with anti-doping education, the extent to which they can influence their child's behaviour regarding doping, deterrent factors, and challenges in doping prevention) were used to frame a deductive analysis of the data with data being organised under these themes to highlight crucial elements of the role of parents in doping

prevention. In addition, researchers adopted an inductive process to remain open to new themes that emerged from the data and to develop subthemes thus providing the opportunity to examine the detail of the data. The findings were contextualised within the wider literature on anti-doping policies and specifically, the understanding of parents' role in preventing their child high risk behaviour.

5. Findings

5.1. Parents' role in doping prevention

There was a consensus among parents that **they play an important role in fostering anti-doping behaviour of their child** by instilling moral values and (indirectly) encouraging an anti-doping culture at home.

"I think a parent's view, right or wrong, has an impact on a child's thoughts and feelings towards doping and anti-doping." (Parent interview 31)

"Yeah, I do [think parents have a responsibility with regards to the fight against anti-doping]. I think as parents, we're here to nurture children through to adulthood when I suppose they make their own decisions. But if you've given them all the information and values, then yeah" (Parent interview 25).

Although parents recognised their role, most noted it is their child's decision at the end.

"Any athlete will ultimately make their own decisions and [...] to be an athlete, you need to make some decisions [...]. You know, you can't control all that but, if the culture around them is anti-doping, then that's as much as you could possibly do." (Parent interview 34)

It is understandable that when children grow up, they make their own decisions and gain autonomy. It then seems more difficult for parents to supervise or advise on which drugs children might use, and in particular for women during painful menstruation.

"You know, it's getting harder to control [medicines they take] though as they become young women but, you know, there are medicines right now that are to do with menstrual pain, so am I there every time that a pill is put into her mouth? No. I know that that's an option for her. But beyond that, even [ibuprofene brand name], we keep it – they just don't have ready access to it." (Parent interview 33)

Sport federations and NADOs staff interviewed indicated that the parents' role in anti-doping is important as they instil values that help their child make good moral choices and adopt an anti-doping behaviour. Therefore, **educating parents is certainly recognised as important by governing body staff.**

"Parents obviously play a massive role in anti-doping. To me, it's a rule of sport and any person's adherence to rules depends upon how their values are developed as a kid. If a parent doesn't really believe in it or believe in a particular rule of sport or rule of anything, the kids are not gonna have that same – or the kids are gonna pick up that exact same type of value." (Federation interview 8)

"Obviously [young athletes] they've got coaches etc but when they're not with us [federation] or not in camps, etc, their parents have to be part of that group as well. So yeah, they [parents] play

a massive role in terms of educating players on making good moral choices, strong values, etc. So yeah, definitely part of it.” (Federation interview 2)

“what the athlete knows when they’re under 18, the parent also needs to know that same information as far as I’m concerned cos they’re at that point in their career, they’re the biggest influence around them in addition to their coach.” (NADO interview 2)

One sport federation representative in particular emphasised parents need to understand what their child is part of and going through, the requirements and the risks of an athletic career. This is also in accordance with the NADO staff’s quotation above that parents need to know what their child does.

“[...] just getting them to understand, what their son or daughter is actually part of and the risks involved with making one bad choice or one error in judgement and the impact that that can actually then have on the player.” (Federation interview 2)

This awareness of the requirements of an athletic career is shared by some parents:

“I think it’s very important as my son goes through and approaches kind of elite level. It’s important that he has a good support network around him and because he is a young man, his mother and I are a very key part of that support network. [...] it’s very important that we’re aware of it and that we help him to understand what is acceptable and what is not acceptable when it comes to his sport and how he conditions and prepares himself for the sport.” (Parent interview 16)

However, not all parents demonstrated this high level of responsiveness for their child and his/her athletic career. Indeed, although parents consider they play an important role in doping prevention, very few parents proactively talk to their child about doping. The majority of parents interviewed do not engage in anti-doping conversation as they deem it is too early or not necessary at their child’s current competitive level.

“I think because she’s busy, she’s a good strong student, she has nice friends, I don’t think it’s a real risk for her. So then we don’t – there’s no big need to talk about it [doping].” (Parent interview 32)

“I do not believe that it is a reality in his sporting life right now. I don’t believe that doping is available to him. We’re talking 12 to 17. I’ve got an 18 year old who’s starting [University] and that’s a totally different question.” (Parent interview 35)

Interestingly, some parents who did not find doping to be a matter of concern for their child did realize when contacted for the interview or during the interview that it is a subject they should take more seriously and discuss anti-doping behaviour with their child. Those parents did not have a high level competitive background.

"After this interview, I'd like broach the subject [with my daughter] cos I'm curious what her position is on it [doping] or, you know, if she's had any kind of exposure." (Parent interview 32)

"I haven't really spent any time thinking about it [doping] until you got in touch." (Parent interview 24)

5.2. Parents' knowledge of anti-doping

Parents seem to have **little (if any) knowledge about anti-doping** and how the system actually works. They hear stories in the media when doping cases are revealed and it is all they know about the anti-doping system. Although it seems sport related, most parents are unaware regarding risks of supplements and Therapeutic Use Exemptions. Parents of young athletes competing in sports with a higher prevalence of doping or more media coverage of doping cases, seemed more knowledgeable as did parents who are former athletes themselves.

"I hear kind of on the news with the Olympics and, you know, testing done and then you'll hear Commissions that go on looking into it. But as far as exactly how it works, I wouldn't know a lot" (Parent interview 29)

"[I] just [know] the basics, that you're not supposed to be taking any illegal substances before you play your sport, as in I'm not really sure what, but I can just imagine like all the kind of bad drugs that are out there, recreational drugs that people take." (Parent interview 21)

All federations' representatives confirmed parents know little about anti-doping, and this was also acknowledged by NADO staff interviewed. They know generalities about doping, mainly from the media and news. Doping cases do raise awareness, but not necessarily for their sport and/or country, so parents and children might not feel concerned. According to the staff interviewed from sport federations and NADOs, most parents are actually surprised that their child could be tested and also of the risks of contaminated supplements parents may buy for their children at high street stores. They emphasised that parents need to know their child could be tested, and this may change their perceptions.

"I would say that it's fairly limited [parent knowledge about doping]. I think again that goes back to education, that they're probably just not – they're not even aware of the specifics. [...] there's always things that people are surprised with that would violate the anti-doping [rules] and it could be as simple as a cough medication or just a painkiller." (Federation interview 7)

"I don't think they do. [have enough knowledge] I think probably for younger athletes, [parents] they're a big risk area. From work that I did way back when I first joined [organisation], so we're talking like 8 years ago but there were a lot of parents who were very surprised about the fact that, in common medications, there were potentially prohibited substances in them, so a cold and flu remedy, for example." (NADO interview 2)

However, one NADO noticed parent interest is improving over the years, and they observed more informed questions from parents on anti-doping. While there are certainly parents interested in becoming more informed and knowledgeable about anti-doping, it may only be a small percentage that feel concerned and it is also dependent on positive cases unveiled, as highlighted by another NADO staff.

“questions we have been getting over the past few years from parents are more direct and more informed. They come less from a place of lack of knowledge and more from a place of insightfulness and concern.” (NADO interview 3)

“Some parents are very much interested [about anti-doping] and they contact us and we inform them. But a great part do not feel concerned, only when there is a positive case.” (NADO interview 1)

In terms of **supplements use, there is a normalized consumption** of protein shakes, sport drinks/bars and/or vitamins which are sometimes suggested by parents. Generally, those supplements are bought at high street stores or in more specialized food stores, and most parents do not realise the potential risks associated with contaminated supplements. For most cases, there does not seem to be a specific advice from a sport doctor or sport nutritionist on the supplements taken.

“Protein powder, we use [it] at home like that’s regularly [taken], so that’s nothing out of the ordinary.” (Parent interview 36)

Some sport federations identified the normalized consumption of supplements as an issue particularly as these substances may be purchased by parents for their children. While athlete strict liability is raised by sport federations, the responsibility of parents in such kind of risk behaviour is of concern, especially when parents are not knowledgeable or are unaware of the risk of buying supplements which have not been batch tested.

5.3. Parents’ engagement in doping prevention

The three NADOs interviewed recognised parents who engage in conversation about doping with their child can make the difference and prevent (future) doping behaviours.

“a parent of a young athlete who is engaged and who is including the child in the process of checking the status of their medications and who is having open conversations about, you know, certain state sponsored doping scandals and what that means and generally around what’s important to the child in terms of values. I think those can all have incredible influence and can mitigate a lot of the potential risk factors that we see in, for example, adolescent athletes.” (NADO interview 3)

However, **most parents acknowledged that they do not regularly discuss doping with their child.** They recognised the frequency of discussion about doping that they have with

their child seems to be influenced by the sporting landscape such as when events like the Olympic Games are held, or when specific doping cases are revealed, which do raise awareness.

“the conversation [about doping] may come up once every 6 to 7 weeks, depending on what season we’re in. And it would definitely come up more if there was a large event that we were watching on TV or if it was an Olympic year or things that were happening in the media, those conversations would almost be daily.” (Parent interview 31)

“When things come up or situations occur or even if you have questions, she has read an article in a magazine – I mean, what happened there and why did this person have to like take 2 years off from the sport and things like that. So those would be opportunities where I could dive in and really review in detail with them because they have a captive audience [...]. I do sessions and I could actually do one on doping and anti-doping in certain situations. It wouldn’t take long, it’s not like it has to be an hour but just to put it in there and then just start the awareness process because, I mean, there’s nothing wrong with that, to know that it exists and that they ought to think about it as time progresses.” (Parent interview 41)

Most parents mentioned directly or indirectly that they have a duty of care for their children and are responsible for their children with regards to what they eat, which can directly be related to doping prevention. **Parents have also conversations with their child about other related aspect of their competitive sport** such as nutrition, hydration, etc.

“we’ve put the emphasis on nutrition, so it has to do more on that than the actual doping stuff.” (Parent interview 30)

“as a parent, clearly you’ve got a duty of care to your kid and certainly for the younger kids, you’re basically – they haven’t really got much disposable income, so it’s kind of up to you what they eat.” (Parent interview 22)

Other topics parents discuss with their child and that may be related to preventing doping behaviour included work ethics, having fun, health, deserving to win, and more generally adopting a healthy lifestyle.

“What I see are children of her age. They are all against cigarettes and alcohol. I believe it’s a generational phenomenon. So, yes. I talk about it with her, but she tells me right away: “Anyway, I’ll never take any of that.” (Parent interview 7)

Many parents actually mentioned the healthy lifestyle their children have because of the importance of sport in their life. According to them, it helps their child develop a strong work ethic and prevents them from adopting any deviant behaviour related to alcohol or recreational drug consumption.

"She's quite academic and we think sports helped in that because she's got a very good work ethic. You get out what you put in and she knows that and it's not just about sport, it's for everything." (Parent interview 25)

"She's at the stage just now where her friends are all starting to drink alcohol and she's stopped going to social things because she's scared that somebody spikes her drink." (Parent interview 25)

On the other hand, one parent raised the concern that parents, in general, might fear in opening up the discussion on doping that it might trigger some risky behaviour. This is the case of parent 29 who avoided discussing details of doping behaviour as s/he feared it might raise the child's awareness of such behaviour.

"I would imagine some could find it difficult to talk about because it's a very adult conversation and not all parents have that relationship with their children that they can have those sort of discussions. I would imagine there's probably some fear in there for some people in terms of they don't want to have to talk to their children about that and what the implications could be. You know, some children, you tell them about this, they're gonna try it. So I would imagine that's probably there. Yeah. Probably fear and anxiety on having the discussion." (Parent interview 23)

"I don't want to introduce a subject that's if he has no idea and I bring it up, that's maybe naïve of me to say as a parent. But people brought up things to me and I ended up doing them. I didn't know about them." (Parent interview 29)

5.4. Parent-coach relationship and doping prevention

Parents mentioned that they had good relationships with the coach(es) of their child, but coaches, as athletes get older, were less inclined to interact directly with parents, preferring to convey any messages through the athletes. Parents did understand coaches wish to make young athletes liable, but some parents felt put aside and wished they had more interaction with their child's coach. One parent however mentioned this sort of attitude might not necessarily help children.

"I keep good contact with my daughter's coaches. I think we would talk if we found anything abnormal, and also about how we could solve a situation, yes, we do have a positive relationship." (Parent interview 4)

"as a parent, you tend to want to shelter your child because they're your baby. And you really have to let that go to a certain extent and let the coaches coach them. [...] Unless you think really visibly there's something that the coach is doing absolutely wrong but otherwise I feel that's extremely important [to let the coach coach]. I see so many parents interfere with the coaching and I think it's terrible. They're really just harming their children, they're not doing good." (Parent interview 39)

Parents were split between whether the coach or the parents were most influential. While the coach seemed to have more impact with regards to the sport and techniques, parents would

still be the main references for questions related to life balance and moral judgements, but it seems parents' influence decreases with as the children age.

"I think my child would listen to us [parents] more [compared to coach]. [...] when it comes to the sports, they should listen to their coach cos that's why they're there. But as far as important aspects in life or, you know, things like doping or other aspects where you feel, you know, they're not 100% sure if that's right or if it's wrong or something, I feel that they would reach out to us." (Parent interview 30)

"I think parents do on general behaviour and athletic behaviour it's coaches." (Parent interview 35)

"She would listen more to her coaches. As parents, we're always there. That's different." (Parent interview 6)

This pattern is also recognised by NADOs where parents are particularly influential with younger children, and that their influence decreases while those of coaches increases as the children get older.

"Parents have obviously a large responsibility to educate children, but also coaches as at a certain age, youth listen more to coaches than parents." (NADO interview 1)

5.5. Doping deterrents

From parents' views, the **main deterrents are the moral values children learn at home** and the emotional reactions (e.g. feeling of guilt and of disappointing their family, entourage, and friends) if they doped.

"Nobody will want to be perceived as a cheater or have done something that they're not supposed to do in order to get an edge. I mean I think it would certainly affect them." (Parent interview 30)

"The only thing that can prevent them [children athletes] is their moral compass, their integrity, their ability to realise the full extent of their ambition" (Parent interview 8)

"It's probably more likely to be that it [doping], it's not a cool thing to do at the moment. That would have more of an influence on him." (Parent interview 18)

"my children would feel guilty [if they were found to dope]" (Parent interview 21)

"She could pinch one of my blue inhalers if she wanted it but it's just the type of girl she is, it's the ethics she's got." (Parent interview 27)

"I think it'd be more shame amongst her peers at the club. [...] They're more important than anyone, I would say." (Parent interview 24)

Parents mentioned their commitment and sacrifices in support their child sporting career are important. This also explains why parents believed they have something to say about their child's behaviour, and they considered children would not want to upset their parents who gave so much to them.

[Parents] just about gave up [their] lives to support [their] kids in their quest to become whatever, whatever it may be. And it's like years of sacrifices [...] as parents, the commitment that we make is great. [...] if they [children athletes] do something to put a spanner in the works [by doping] I've always got something to say about that because of the commitment [financial and time] that I make [as a parent]. Because [...] if they're not 100% committed, well, neither am I gonna be [committed]." (Parent interview 21)

"Nobody wants to upset [their] parents, especially after they've done everything for you [as a child]." (Parent interview 27)

However, one parent clearly identified that this feeling of guilt may, on the contrary, explain why children could be reluctant to talk to their parents about doping.

"[Parents] can be a big deterrent but also you could be part of the problem cos they don't wanna disappoint you and they know they've done wrong. [Children would then] Don't talk to anybody, [they'll] just carry on and not say anything and hope that it's alright in the end. So I think it's a two edge to that one." (Parent interview 8)

Another parent raised the potential deterrent of potentially ruining the child's future sporting career, although it is not entirely clear the extent to which young athletes are aware of this associated risk beyond the direct feeling of guilt.

"Her [child athlete] ultimate goal is to play professional [sport]. So if that is a realistic opportunity for [her], then she knows that if she was to go on bevvies [be drunk] and try drugs, she's got the potential of ruining that opportunity for the rest of her life." (Parent interview 14)

While health risk was seen by a few parents as a concern for their child, **most parents did not think their child cared much about long term health impact**, nor did they knew anything precisely regarding sanctions related to doping. Indeed, most parents believed their child were not entirely aware of the risk of doping with regards to legal sanctions and health risks. They explained that their child would generally know there would be consequences, but not specifically which ones.

"[the health risk] is less important to her [child] than the shame of being caught doing something like that. I think the risk of being caught and treated as a cheat, would seem worse to her at the moment than long term health risks." (Parent interview 24)

"I don't think they would know. I think if I would ask my son, do you know if you take doping, that there's risk, I don't think he would. [...] I don't think so [that they realize the health risks of doping]. They live in the moment, they don't think about the future." (Parent interview 36)

"I would say not at all. I would say that they have a general sense it's not right but the specifics behind it, I would say they have no sense of the ramifications." (Parent interview 34)

"I don't think that they would look far enough ahead to think that something that they would put into their body could potentially impact in 6 months, 6 years, 10 years from now." (Parent interview 33)

One parent, though, mentioned that their child knows the risks as it is talked about a lot at home, reinforcing the importance of discussion. The same parent also encourages educating children about nutrition and what is illegal and the effects that doping may have.

"They [children] do realise [health risks associated with doping] cos we do talk about them a lot about this, [...] the effects that it can have. So they do realise. I think it's one of the main reasons why they stay away from it." (Parent interview 30)

"[...] the one thing that we've spent a lot of time with our kids is what they put in their bodies, to know what they put in their bodies and what effect it has with their sports from eating healthy, you know, drinking the right fluids and so on. So really educate them about what they put in their mouth is really important as far as their performance and obviously educate them that if they take anything that's illegal, it is illegal and they shouldn't do it, not only because it's cheating but because it's gonna hurt them physically as well." (Parent interview 30)

5.6. Sport federations' role in educating parents

In general, **sport federations' representatives felt they have a role to inform parents and to develop awareness about anti-doping**. Some of them, however, clearly expressed that although they recognise educating parents is important, **it is not their priority**. And one sport federation representative clearly said it is not the sport federation's role, but more clubs' role to educate parents.

"No. It [parent education] wouldn't be something that is high priority for us at this time." (Federation interview 7)

"As a federation, you have so many things that you have to think about and [...], we do it [educating about anti-doping] but it's very on a like short way. It's not like that we don't do it. I think that everyone should be aware of it but it definitely could maybe be done on a more focused way and I think that we were talking about it but then sometimes it goes under other things" (Federation interview 10)

"I see it as the club responsibility to inform the parents that this is what's gonna happen. I don't see that it's – because (a) for a start, I don't know who the parents are. So I would be putting that responsibility to the club." (Federation interview 3)

Most sport federations representatives did not organise specific activities for educating parents about doping. Generally, such education was directed at young athletes, and parents were invited. Only a few sport federations dedicated specific activities for parents such as parents' days or specific talks with individual parents. However, sport federations which were very active in educating young athletes made them more knowledgeable, which in turn fostered discussions with parents.

"my impression at the moment is that [the governing body] have been very good at getting the message across and she [child athlete] has been very aware and taken it very seriously and discussed it with me." (Parent interview 20)

Overall, there is a general **lack of monitoring about education within sport federations**. Education does not seem to be a topic of concern within strategic plans, and certainly not parent education. For the few sport federations that deliver parent specific education, there are no particular targets to be reached. One representative actually explained that success in anti-doping is difficult to measure compared to failure, easily identified through the number of doping cases.

There is some evidence of monitoring at the NADOs' level although it does not seem to be part of a broader coordinated strategy (yet), or be particularly focused on parents. One NADO mentioned that they may (or intend to) monitor reach, level of engagement and satisfaction of parents going through educative sessions physically or online.

"We haven't put in place the ways to measure all of this [monitoring activities] and follow that up. We can't do it with the fund we have [at the moment]." (Federation interview 1)

"we would report on [...] which parents had received that education session if they have got children that are under 18 on that programme." (Federation interview 2)

"we don't have any formal plans or objectives at the moment [for parent education], [...] we track the kind of engagement we have, numbers, quality, audience make up, content and tone of questions being asked." (Federation interview 3)

"there is a reporting mechanism there that we'll be doing evaluation on once the programme grows a little bit more." (Federation interview 3)

5.7. NADOs' role in educating parents

Staff of NADOs interviewed acknowledged their organisation plays a role in parent education, but this role is to provide and share content to be used by sport federations to educate. NADOs' staff considered they should not necessarily educate parent directly, although some may do so upon request from sporting organisations or event organisers.

Educating parents from the NADOs' perspective is therefore mainly seen as providing information to parents through sport federations/clubs or to inform them through their website or handouts.

"NADOs should provide information (to educate)" (NADO interview 1)

"we have the responsibility to make education available. It is the responsibility of our national sport organisations to take advantage of that offer and to actually provide that education." (NADO interview 3)

"We certainly take our responsibility to educate parents. That's why we're putting together these fairly content heavy – well, I guess there is a lot of content." (NADO interview 2)

It is clear from NADOs' point of view that **education is carried out effectively through a partnership of multiple stakeholders** in anti-doping which certainly include sport federations reaching out to sport clubs, but it may also involve National Olympic Committee, sport schools and academies and sport doctors. Those partners may have direct contact with parents to relay NADO's information and clean sport messages. Therefore, managing stakeholder relationships is particularly important for NADOs, especially with regards to educating parents who they do not have direct contact with.

"Education is a partnership" (NADO interview 3)

"Stakeholder management is important [in education]. We manage the three key partners: [NOC], sport school and sport federations reaching out to clubs. [...] in addition another important partner is the sports medical services where affiliated members are examined by sports doctors (NADO interview 1)

5.8. Challenges in parent education

While some parents did not raise any particular challenges, most of them identified the **lack of knowledge as an issue with engaging discussion with their child about doping**. They also mentioned it is **not easy to obtain information about doping** and there is **not enough training available** for them to learn about doping. Most parents interviewed were actually not aware where to find information about doping.

"I think the biggest challenge for me is that I don't have a vast knowledge of the subject matter." (Parent interview 13)

"I think it's a challenge [to start a conversation with child about doping] because they don't see what can happen, actually. It is not easy to explain [hey...] why is it forbidden? [...]. When something is forbidden, at some point, they [children] may want to know more about it: "What do you mean by it is forbidden?" I think it is better to explain. To be able to explain, you have to be informed too. That's it." (Parent interview 6)

"I think [we need] a good website to know where to go for that information." (Parent interview 36)

"The technical side of it [is challenging] and just maybe the breadth of the drugs and substances and interventions that are considered doping. [while looking for specific information about doping] it was challenging to find that information." (Parent interview 44)

Sport federations also acknowledged the information about anti-doping may not be easy to find for parents, or could be complex to understand. Sport federations also lack resources and expertise to deliver session to parents.

"They would have to be very proactive to go to the [NADO] website to find that information and it's not always easy to find out what's relevant to [sport] either." (Federation interview 4)

While talking about the lack of knowledge about doping of parents, one parent also raised the complexity of anti-doping regulations and the lack of awareness from parents. This parent also mentioned not being impressed by his previous experience in anti-doping education. Parents generally understood the challenge of educating about doping due to the complexity and perceived tediousness of the topic, and also the need to tailor the message to each target group

"I think education's a massive barrier for parents. I just don't think they know. I just don't think they're aware. I don't think they know how they could be doping. I don't think they know what they could be doping with and what to look out for and I think there's a real low level of perception in parenting of sports people out of anywhere. Anything that I've been exposed to, I don't think that's a very high educational thing that parents have." (Parent interview 12)

"I think keeping it interesting [is a challenge... and] getting into the complexity and how you [athletes caught] end up in there, how you get that story to different children, young people at different stages in their life. I think that's the challenge." (Parent interview 8)

Discussion with their child athletes might consequently be difficult for parents because of the lack of knowledge and level of complexity of anti-doping. Some parents felt that they may not be taken seriously by their children, or parents may not dare to engage in the conversation that early in an athlete's life. Also, children might have little time or interest in discussing such topics with their parents, or opening up on the topic of doping with their parent.

"Well, I think she'd think, what on earth do you know about it, you're just my mother and don't do [sport]. So possibly that sort of teenage parental barrier. The fact that I don't know anything about it. And it's always probably a bit uncomfortable to talk about drugs with your parents." (Parent interview 24)

"a barrier I would think would be not having the knowledge, not having the access to the information possibly." (Parent interview 25)

I think they're a little young, you know, I feel that there's an age for awareness. I don't really know what it is, but I do a lot of things like when it feels like the right time, it will happen and I will do it. (Parent interview 41)

"It's not always an easy conversation [talking about doping]. They seem to sometimes think they know it all. And obviously you don't need to keep telling them anything. I think they'll say the right things to avoid these types of discussions. It doesn't just come out naturally, I think it's something that we need to initiate the conversation more." (Parent interview 31)

The main challenge according to sport federations is to **encourage parents to join education sessions**, to get them together to talk about anti-doping, or even in the first instance, to actually **get in contact with parents**. While the majority of sport federations have direct contact with parents of elite pool athletes, most said they have little contact with athletes under this level, and reach is achieved via sport clubs. Communication with parents is mainly by email, and in some instance, direct face-to-face contact.

"Getting them [parents] to turn up [to education sessions]. I think that's probably the big thing, actually getting them to the sessions." (Federation interview 2)

"it's really difficult with parents because you don't necessarily, as a sporting governing body, have direct access to them." (Federation interview 5)

"[communication with parent] Mainly email, we use Facebook, we use Instagram a little bit but my communication with parents is directly when it comes to athletes that are doing anything that's [national team]. Anything else, we communicate with the clubs and the clubs disperse the information to the parents." (Federation interview 8)

Parents are seen by sport federations as having little interest about anti-doping, or they may perceive their child is not affected. There is also a perception that doping is a concern within other sports/countries, which is shared by parents interviewed.

"people think that in [country] nobody takes something and therefore maybe it's also not that of a concern." (Federation interview 10)

Some federations identified that intentional doping is not an issue in their sport/country, because there have been no reported cases, and the probability of testing young athletes is low. This may create a perception that there is no need to educate about anti-doping before athletes reach senior level, after it may actually be too late. It is then important to raise awareness early by tailoring the clean sport message at an early stage in an athlete's personal and career development. It is also important to reach the athlete's entourage early with an appropriate message in line with the level and career stage of the athlete.

"there are not a lot of cases where you dope to make the performance better especially in [sport]. So I think what happens for [country] is more like the accidents where you took something that you didn't know." (Federation interview 10)

In some sports, staff may not see the necessity of education as they perceive there is no risk. However, as a NADO interviewed mentioned, “that’s until there’s a case and then they’ll realise”. (NADO interview 2), and then they would educate. Although anti-doping may not be seen as a priority for sport federations given their remits, staff engagement seems to improve.

“Volunteers within sport federations have a lot to do already. And the fight against doping is not a priority. It is only back in the discussion when there is an issue.” (NADO interview 1)

“the level of engagement and buy-in from NSOs is extremely high.” (NADO interview 3)

All NADOs shared there are still a lot to be done with regards to education, and certainly with respect to educating parents. They also raise that not all NADOs are on the same level regarding their capacity to develop and run education programmes.

“education, as much as I don’t want it to be, is a few steps behind comparatively to other areas of anti-doping.” (NADO interview 2)

“parents are then totally left out of the conversation for most of the prevention work.” (NADO interview 3)

“You can’t expect a NADO to deliver the same education programmes that we do when we’re operating with a team of 7 and some are operating with a team of 1 or 2.” (NADO interview 2)

“There are always more documents to put in place, with new standards, now Code. It’s a big job.” (NADO interview 1)

The NADOs’ biggest challenge in parent education is access to parents. They have to count on sport federations to contact parents.

“We are not contacting parents. We don’t even have their addresses. We can’t have their addresses.” (NADO interview 1)

“I think access would be the biggest challenge and I think once you have access to parents, it’s easier to give them the information.” (NADO interview 2)

“They [sport federations] ultimately have better access to parents than we do. So we don’t have any formal pathway in terms of accessing parents.” (NADO interview 2)

“parents are not a group that we have a kind of direct contact with. [...] Our main challenge in education is just one of access.” (NADO interview 3)

“when we get there [to educate], we’re strangers. So I would say access is one [challenge]. Relationship is another.” (NADO interview 3)

One general challenge considered by sport federations is of young athletes developing outside traditional talent pathways. This is the case in some sports and may pose a risk as the athlete might not receive adequate education, and neither would the parents, with little contact with formal sporting structures.

Another challenge raised is related to the fact that parents and young athletes receive information about doping through the media which raises public awareness, but one NADO representative highlighted they have *“to educate the media [to ensure] the content that’s going out in the media [is correct], if that’s not correct or not factually correct, then obviously that’s gonna be diminishing their understanding as to what the actual process is”* (NADO interview 2).

5.9. Good practices and opportunities in parent education

Parents believed that **local sport organisations should relay (more) information on anti-doping** as they have difficulties to find specific information about anti-doping. This was something sport federations’ representatives also recognised and that should start early, but parents also acknowledged clubs certainly have other priorities, and that parent education should stay informal.

“Maybe some sort of sessions offered to parents [...] Or even like local clubs all getting together and then saying that we’re doing a session on anti-doping and invite, not just specifically for that club, do it maybe regionally and I suppose that could be driven through the [national sport federation].” (Parent interview 11).

“I think that the clubs could maybe also like – we could go and give the information to the clubs and maybe they could make it more a subject” (Federation interview 10)

“[better nurture parents to play an active role in educating their child need] starting early [...] a lot of work around just values base and principle driven sport.” (NADO interview 3)

“you don’t necessarily want to alienate a cohort of adults by saying, please sit down and complete this formal education.” (NADO interview 3)

Sport federations’ representatives recognised it was or would be useful to **organise a parents’ day where parents come together** and be educated about anti-doping. But, in order to raise interest, the sessions should not be only focused on anti-doping. It should be oriented more generally on how to support their children and go through important aspects of their life as young athletes, including nutrition, hydration, supplements use, sport-life balance, which are all related to anti-doping. As a parent mentioned, supporting athlete well-being is about finding different ways to talk about anti-doping, how to ensure the information is

accurate and appropriate, and how to make the information easier to find and to understand by providing a toolkit on 'supporting your child athlete'.

"It might be something more around parental tool kits, other things to look at that are a bit easier to find cos you get – well, WADA have got a list. OK. So then you try and find it and it ain't easy to find. It's not an easy click and there it is. So I think there's something about resources in there and a little bit more about how you get parents to be more interested in [...] and] different ways of talking about different aspects of it [doping]." (Parent interview 8)

"Parents have a lot of commitments, so it [anti-doping education] should be integrated with a session where they come for something else." (NADO interview 1)

Staff of two NADOs interviewed mentioned they are preparing resources that specifically target parents. This is in line with the Australian Sports Anti-doping Authority which released a parent guide to clean sport and eLearning course for parents to support their child athlete.

"[we have a] parent's guide for younger athletes that is in development [...] we want to equip parents with a bit more information about what considerations might have to be made that a youth athlete is not necessarily gonna be proactive about." (NADO interview 3)

One parent added that in order to raise awareness, parents should be informed of the issues and previous cases of doping. In particular, it could be a former athlete eventually caught for doping who could raise interest and awareness, or parents deliberately talking to each other about doping.

"First, present the situation to us with supporting statistics to show that it is not too far from us. [...] We always think it only happens to others, actually. Maybe the stories of other parents who experienced it can open up our eyes and especially that of our children. If there are young people who have experience it, let them come and tell their stories." (Parent interview 5).

"[An idea is] getting parents to talk to parents" about the need to be knowledgeable about anti-doping and educated [and] getting them to understand as to why other parents are checking their education" (NADO interview 2)

"parents like to learn from parents cos actually there's a commonality there, they've got the same issues and challenges that they're trying to overcome and manage." (NADO interview 2)

This parent continued by explaining that sessions organised by sport federations are not very popular with parents, so they should work together to organise those sessions and attract more parents while keeping the interest and engagement of parents whose children are competing in different sports.

"When they [sport federations] call a meeting, there is one man and his dog, as they say. I think all sport federations should work together." (Parent interview 5).

"I don't think there's one thing that fits everybody and that's the challenge, isn't it? You spend a lot of time creating something. I think that narrative and easy hooks is the key and thinking about different ways of engaging parents." (Parent interview 8)

One parent mentioned there needs to be more opportunities where children could ask questions about doping, be listened to, and share concerns they have with regards to doping.

"Well, you'd need to educate the coaches and [...], have those coaches talking to the parents and talking to the kids and create an environment where kids can ask questions safely. [...] You need safe places for people to go to talk if they had concerns or feel vulnerable or uncomfortable for what the coach is asking or what a peer might be asking or whatever." (Parent interview 32).

Social media and e-learning are also interesting opportunities to incorporate new technologies in order to raise awareness and pass on key messages about anti-doping. However, these channels are not necessarily as effective for education compared to face-to-face sessions as one parent explained. It certainly does reach a large number of individuals but they are not necessarily the ones targeted, and may not be tailored to the needs of specific audiences, such as parents.

"We are doing more and more through our social media channel to try and educate and to get messages out there" (NADO interview 2)

"We have an e-learning programme that they [coaches and federations] can use." (NADO interview 1)

"Personally, I would not want to go down the e-learning route because I don't think, for me anyway, I would never learn as much even if there was a test at the end of it, I would skim it and get through the test. Whereas if I was sitting with somebody speaking and going through something, I would definitely take that on board more, especially if there was already a meeting set up." (Parent interview 20)

Monitoring is recognised as an important element in order to identify the effectiveness of education session. Surveys are used by NADOs to identify the impact of education sessions on individuals' knowledge, whether (young) athletes or parents. However, it seems difficult to develop and implement those indicators.

"we are looking at – like we are building those entrance and exit surveys [for education]." (NADO interview 1)

"if there were metrics that I would want to know about, it would be around probably their confidence in helping their child avoid an unintentional anti-doping violation." (NADO interview 1)

6. Conclusion

6.1. Anti-doping education of and through parents

This research demonstrated that parents agreed that they can potentially play an important role in doping prevention. Although very few of the parents interviewed talked with their children about specific elements of doping and the risks, the current study suggests parents can instil moral values that encourage anti-doping attitudes. The low level of knowledge about doping and lack of awareness of the requirements of an athletic career (even at young age) were critical elements that seemed to prevent parents engaging in discussions with their child about the specific requirements of anti-doping. Some parents also did not see the relevance of anti-doping discussions due to the young age of their child. In relation to the low level of knowledge and awareness, one of the major challenges identified during the study was the normalized use of supplements and the associated risks which are not fully recognised by parents.

A common belief from parents is that they considered sport to be healthy and their child hence enjoys a healthy lifestyle and work ethic. While parents' narratives supported this, it also may blind parents to the potential risk of anti-doping rule violations. The low level of knowledge combined with the duty of parents to care for their children (e.g. providing food, supplements, etc.), raise a potential risk particularly for inadvertent doping which is identified as of particular concerns for most sport federations and NADOs interviewed.

Parents' knowledge about doping mostly stem from media stories or cases revealed or suspected. The media indeed plays a critical role in making parents aware of anti-doping rule violations. However, parents may not directly relate such cases to their child as they concern professional sports or sports their child does not participate in. Therefore, parents did not necessarily feel concerned about doping and they may not look for information about doping. In some cases, where parents previously competed at higher levels or in some specific sports with higher prevalence of doping, parents seemed more aware and vigilant. Though some of those parents mentioned the difficulty in finding and/or understanding information about anti-doping rule violations that can directly be applicable to the situation of their child.

WADA offers comprehensive guidelines for parents, but parents were not aware of them and they were not used by sport federations. These guidelines, however, outline the contribution parents can make to support their children and are designed to help parents enhance their

children's knowledge of how to protect themselves in their sport career (WADA, 2017). However, as previously outlined, without awareness or interest, the dissemination of those guidelines are limited. Strategies to develop parents' awareness of athletes' responsibilities could include accurate media press releases, sport clubs and federations openly sharing information about anti-doping rule violations and the associated risks, easy accessible information on relevant websites, and information released at events when parents accompany their children.

As summarized in Figure 1, anti-doping education of parents should start by increasing their awareness of the requirements of an athletic career, as related to anti-doping, nutrition, conduct, etc. Consequently, they may become more interested to learn about what their responsibility is with regards to anti-doping, and their child's liability, which could lead to them search for information about doping and doping rule violations leading to increased knowledge. This may allow parents to become more confident in talking to their children about doping and supplements use, which could contribute to reinforcing pre-emptive measures. Indeed, while parents increase the frequency and depth of discussion about doping with their children, it may increase children's own knowledge, but also may reinforce the importance of moral values specifically those associated with clean sport. Children would more strongly appreciate that transgressing those values would lead to disappointing their entourage, which was identified by parents as one of the most important deterrents to doping.

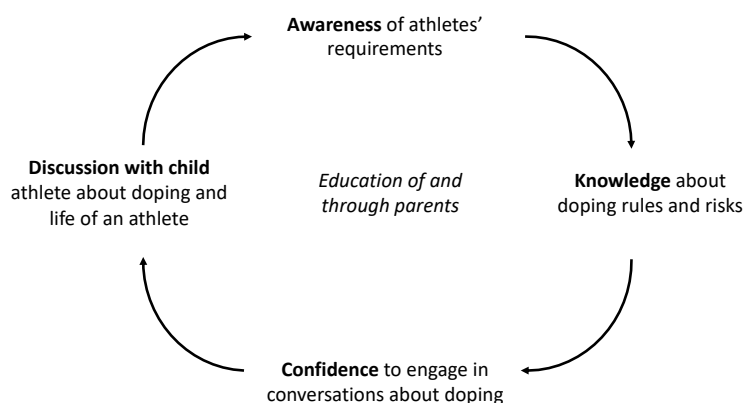


Figure 1. Virtuous cycle of parents' active role in doping prevention

This study suggests it is important to educate parents about doping and anti-doping values so they can effectively influence their children's attitude, but firstly it is crucial they become aware of the requirements and responsibility that is placed on their child when s/he engages in (competitive) sport. Parents certainly influence their children's approach to high performance sport and become a medium in relaying clean sport messages to their children.

6.2. Recommendations

The results were discussed with sport federations and NADO staff in each country, and based on these discussions a number of recommendations are outlined. Those recommendations are categorised into three main areas. *Policy related recommendations* address elements that would need the implementation of a formal policy by sport organisations. *Activity related recommendations* involve specific actions that can be put in place to support parent education. *Communication related recommendations* address issues related to the availability and diffusion of information associated to doping that can benefit parents as well as others. It is not the intention to make all of those recommendations compulsory, particularly within the realm of anti-doping which is also based on the deliberate commitment of numerous stakeholders. In particular, parents have multiple remits and other important responsibilities and anti-doping might not be considered a priority in their routine. These recommendations, however, fundamentally require a transparent governance process from governing bodies that emphasize the importance of parent education, as described in this study, and a follow up by assessing the measures in place. Consequently, stakeholders would need to be encouraged to adopt relevant and advanced pre-emptive measures which are outlined below.

6.2.1 Policy related recommendations

Further clarity on the responsibility of parents with regards to the WADA Code is needed. The current Code outlines that parents shall not use or possess prohibited substance without justification, however it is unclear what risks and sanctions they are exposed to. We hence call for a **clearer definition of parents and their role**. Parents may be considered separately within the International Standard for Education given they are not qualified experts or sports professionals, and have a less formal role in doping prevention compared to other athlete support personnel such as coaches and medical personnel. Currently no differences are made between types of athlete support personnel. However, this study identified the specific influence parents can have on athletes which, associated with their low level of knowledge, calls for a separate consideration of parents within WADA anti-doping policies and standards.

While there is a need to precisely outline parents' responsibility with regards to anti-doping rule violations (e.g. could parents be sanctioned if their child dopes?), **WADA's approach regarding parents' level of responsibility has also to be flexible enough to accommodate different situations while encouraging parents to get involved, and to become more knowledgeable**. Involving parents when their children are at lower level of performance is challenging because of the size of the population in some countries, lack of

resources to engage (with) them, or lack of a sense of importance from parents or local organisations. At that level, mass information strategies focusing on healthy participation or performance in sport with an emphasis on moral values and fair play could be conveyed to parents by a range of stakeholders including sport federations, sport clubs and schools. With regards to athletes at higher level of performance, their parents may be involved in the weeks preceding an event in which their child is competing at a level in which they might be tested in or out of competition. If out of competition, parents definitely need to know the rules and procedures. If in competition, they need to be aware of the testing process (including the use of chaperones) and the requirements of their child to expose themselves. We hence call for **clearer guidelines for parents** that take the level of competition of their child into account, and which will support their awareness and involvement in doping prevention.

One of the policy measures that could be implemented is a **compulsory induction process for young athletes, with their parents**, who enter a formal talent development programme. Although we recognize talent development programmes may be different according to sport/country, the induction process could introduce the main requirements of athletes and risks related to doping. It is important that parents are involved at the start of the process and made aware of their child's liability and their own responsibility as a parent.

Sport clubs, who have close contact with parents, can support the dissemination of anti-doping messages. Sport federations may include this recommendation within their membership affiliation as a supporting mechanism for doping prevention.

The International Standard for Education requires the planning, monitoring and evaluation of education activities undertaken by signatories to the Code (WADA 2019b, p.12). We call for the **implementation of a comprehensive monitoring and evaluation system** identifying specific objectives in terms of anti-doping education programmes at sport federation and NADO levels. As key targets, it could include the number of individuals within the education pool to be educated (including parents as essential athlete support personnel), what education session(s) they received and when. Going beyond those measures, the monitoring process could also evaluate the effectiveness of education activities in terms of engagement with the sessions, knowledge acquired, and ultimately changes in parents' level of confidence to help their children avoid an anti-doping rule violation.

6.2.2. Activity related recommendations

Sport federations should organise interactive **parents' days** to discuss and present ideas about supporting child athletes which would include anti-doping messages, but would

convey topics of high interest to parents such as nutrition, hydration, supplements use, etc. This recommendation to integrate anti-doping education into wider education with regards to good nutrition and healthy training has already been suggested in previous research on coach education (Allen et al., 2017). It is recommended to more fully engage parents in anti-doping education. Those sessions with parents could also benefit from inviting knowledgeable parents to discuss key issues with other parents, a senior athlete or an athlete caught for an anti-doping rule violation, in order to raise interest and improve understanding.

The range of national, regional and local partners involved in doping prevention (sport clubs and federations from different sports, Olympic Committee, NADO) could join forces and coordinate the efforts in disseminating clean sport messages targeting young athletes and their parents. This would in turn help with **developing partnerships in doping prevention** during the organisation of specific parents' day as outlined above, or at specific sport events. At the same time, organisers (sport federations or clubs) should **use events or competitions** where parents are accompanying their children and available to raise awareness about doping and anti-doping.

NADOs could **design a parent curriculum** that precisely outlines what parents should know about doping and anti-doping rule violations, how they can help make sure their children is safe, and how/when can they contribute best in their child's sporting career. This curriculum should be integrated into existing information on talent development pathway in order to be part of the wider perspective of athletes' career development and how parents can offer their support. Sport federations and NADOs should also regularly monitor parents' needs so that the curriculum remains relevant and up to date for parents. Parent education could be offered through **online channels** such as webinars, online applications, virtual reality tools, as undertaken already by a few NADOs (e.g. Australia). Although the effectiveness of such virtual sessions is yet to be demonstrated with regards to doping prevention and increasing knowledge of doping, it is considered a very good way to raise awareness.

6.2.3. Communication related recommendations

The **information about doping** on relevant websites for parents needs to be **more easily accessible and comprehensive** so that parents can clearly understand it. Many parents expressed difficulties in finding the right information and understanding the complexity of anti-doping. While online platforms are available with such information, the first objective is to create awareness that they exist. **Tools that support clean sport** and particularly help prevent inadvertent doping such as *Global DRO* or Informed-Sport **need to be further**

disseminated as most parents interviewed were unaware of these resources. National and local sport organisations could support the dissemination of information since they are those in contact with parents.

Parents also need to know the implications of their child being in an organisation which is compliant to the WADA Code. Indeed, by simply joining a sport club, parents put their children under the jurisdiction of the WADA Code. This information should be more explicitly available to parents when they register their child and particularly when their child joins a high performance pathway.

Collaboration between sport organisations has been identified by NADOs as a very important factor. However, there does not seem to be much collaboration between sport federations in the fight against doping. We call for sport organisations to **share models of good practices in anti-doping education** through dissemination of information and strong partnerships.

6.3. Limitations

This research is limited by the number of participants who took part and countries that were targeted. In addition, the results are influenced by the nature of the parents' previous experience in high level performance sport, and the extent to which they have participated in anti-doping sessions. We have, however, gathered a considerable amount of qualitative data within twelve different sports, 3 countries of different sizes, and through 3 main categories of participants: parents, sport federations and NADOs. It is acknowledged this study assumes parents are conscious of, and benevolent towards, their child's health and safety. Therefore, we assumed parents have a moral compass that is in line with a clean sport approach and this was verified during the data collection given the strong negative attitudes of parents towards doping. Nevertheless, we recognize not all parents have such level of high moral values, or some instil a winning mentality at all costs. Identifying parents who, despite knowing the risks, have pushed their children to take illicit substances or behave illegally according to WADA Code would be of particular interest for future research. Such a study would offer another perspective and could provide policy implications and insightful recommendations for education.

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Appendix A - Authors bio

Principal Investigator

Mathieu Winand (PhD) is a Professor of Sport Management and Head of Department of International Sport Management at LUNEX International University of Health, Exercise and Sports in Luxembourg. His research examines performance management and organisational innovativeness of non-profit sports organisations, particularly the diffusion and implementation of innovations and standards at national and local levels, such as anti-doping policies. Mathieu has published in numerous peer-reviewed journals and book chapters and is co-editor of the first *Research Handbook on Sport Governance*. Mathieu is Deputy Editor of *Sport, Business and Management* and is on the editorial board of *Managing Sport and Leisure*. He is Past Chair of the Strategic Interest Group 'Managing Sport' at European Academy of Management (EURAM) and is Director of the Executive Masters in Sport Organisations Management (MEMOS) in French supported by the International Olympic Committee and Olympic Solidarity.

Co-investigators

Justine Allen (PhD) is a Senior Lecturer in the Faculty of Health Sciences and Sport at the University of Stirling where she is Programme Director for the MSc Sport Performance Coaching. Justine's research examines the coaching process, coaches' development and support, coaches' influence on athletes' experiences in sport, and the psychosocial development of young people through sport participation. She has published numerous peer-reviewed journals and book chapters including publications examining coaches' and athletes' perspectives on anti-doping, talent development environments, and the psychosocial climate created by coaches and its impact on sport participants. Justine works with sport governing bodies to develop and deliver coach education and has also been a coach in the talent pathway.

Terri Byers (PhD) is an Associate Professor at University of New Brunswick, Canada. She taught/researched in Higher Education in the UK for 19 years. Terri's expertise is in managing sport organisations and governance, with particular interest in innovation and ethical behavior in sport organisations. Her most recent project is funded by the New Brunswick Innovation Foundation examining increasing capacity for diversity and inclusion through virtual reality in sport organisations.

Paul Dimeo (PhD) is an Associate Professor in the Faculty of Health Sciences and Sport at the University of Stirling and Associate Dean for Internationalisation. His research has mainly focused on anti-doping history, sociology and policy, and he has published numerous articles, two books and been the editor of several collected volumes on this subject. He is Co-Director of the International Network for Doping Research and Associate Editor for *Performance Enhancement and Sport*.

Marie Overbye (PhD) is a Lecturer in Sport Management at the University of Stirling in Scotland. Her research areas relate to performance-enhancing strategies in elite sport, elite sporting lives and working conditions, doping and anti-doping policy, and how preventive measures are perceived by athletes and coaches. She has also worked in other areas such as sponsor networks associated with professional sport clubs and volunteerism at sport events.

Gabriela Tymowski-Gionet (PhD) is an Associate Professor in the Faculty of Kinesiology at the University of New Brunswick in Fredericton, Canada. Her teaching and research focuses on applied ethics within the realm of sport and healthy, active living. Her research has considered the ethical issues affecting children, from one end of the activity spectrum where they are over-involved in competitive and high-performance sport to the other end where they are under-involved in physical activity and sport, and often overly sedentary and overweight. She is concerned with children's rights, particularly the child's right to an open future and how that right may be compromised by circumstances in a child's early years. Of late, she has been working on the morally problematic activity of "sport" hunting and the inherent vulnerability of animals to the predation of humans, along with other sporting and recreational activities involving animals.

Research Assistants

Francisco de Sá Fardilha is a doctoral researcher at the University of Stirling, in Scotland. While his primary research interest is on the study of creativity in professional football academies through a transdisciplinary lens, Francisco has collaborated on international projects situated at the intersection between Sport Coaching and Psychology, e.g. coaches' mental health and perceptions of anti-doping education in elite sport. He is a member of the British Association of Sport and Exercise Scientists (BASES) and the Portuguese Society of Sport Psychology (SPPD), having published peer-reviewed articles in the *International Review of Sport and Exercise Psychology* and *Sports Coaching Review*. Francisco is also an invited researcher at GAPP (Performance Psychology Intervention Group), in Portugal.

Sebastian Merten is a Research Assistant in the Department of International Sport Management at LUNEX International University of Health, Exercise and Sports in Luxembourg and lectures in Marketing, Business Administration and Trends in Sports Business. His research focuses on Digital Transformation, particularly the influence of knowledge management on successful digitalization processes. Before joining LUNEX University in January 2018, Sebastian was team leader of an international marketing team in an e-mobility company situated in Luxembourg. Between 2010 and 2015 he worked for professional football and basketball clubs in Germany's first divisions, mainly in supervising positions. Since 2014 he worked as secondary activity for 4 years as an adjunct lecturer in marketing and brand management at RheinAhr Campus Remagen.

Jacob Weinstein is Account Manager at Ottawa Sports and Entertainment Group, Canada. Building on his experience in management, technology development and innovation in various industries, he completed his MBA Sport and Recreation Management at the University of New Brunswick (UNB) in Canada in 2018 where he also served as teaching and research assistant at the University. Projects completed include Evaluation of Elite Sport Program in New Brunswick and Understanding the Role of Parents of Young Athletes in Doping Prevention.

Appendix B.1 – Interview guide for parents

| | |
|---------------------------------|--|
| Time, Date & Place : | Name of sport: |
| Parent's gender: | Child's age/gender/competitive level: |

Experience in sport and (anti-)doping

- What is your experience in sport? Have you been a competitive athlete? At what level?
- What do you know about anti-doping? Have you ever been exposed to doping behaviours?
- Do you think doping is wrong? Why? What if unintentional?

General knowledge of anti-doping regulations

- Do you know anything about anti-doping regulations? (e.g. testing, prohibited list, TUE, supplements use/risk, violations, sanctions, 1 year to lifetime ban (2-4 years in general), public disclosure (exceptions for minors), side-effects, education, and appeals).
- Do you think it's important you know something about doping?

Experience of anti-doping education

- Have you attended session talking about anti-doping recently (or ever)?
 - If yes, how effective have these activities been? If no, why not?
- How can you find information about doping?
- Has your child already been subjected to anti-doping testing and did it change his/her awareness/interest on the topic?

Role in doping prevention

- As a parent, do you think you have a responsibility with regards to the fight against doping (in general and for your child in particular)?
 - If yes, what would that be? If not, why not, and who would have then?
- Do you think parent, in general, play an important role in preventing children's doping behaviour?
 - If yes, how do they do that? If not, should they?

Discussion with their child about doping and impact

- Do you have any discussion with your child about doping in sport?
 - About what exactly? Is it often? Is it important to discuss such issue in sport? Why? Is it effective? If no effective, why?
 - If no discussion, why not?
 - Do you discuss work ethic with your child? (train hard, no cheating, deserving to win, etc.)
- Do you think talking with your child about the risk of doping is important?
 - Would/Does it prevent that s/he takes illegal substance now or when s/he adult?
- Do you have any discussion with your child about risk behaviours that can affect his/her sport performance (taking recreational drugs, medicine, alcohol consumption).

Deterrent factors (legal, social, self-imposed, health)

- What do you think prevent your child to take any illegal substance?
- Do children realise the legal risk of doping, linked to legal sanctions, ban and/or fine? Have you talked about it with your child?
- Do children realise the health risk of doping, linked to negative side-effects? Have you talked about it with your child?
- Does family play a role preventing children to choose to dope? (guilt if caught)

Influence on child's behaviour with regards to doping

- Who do you think has the most impact on your child's behaviour in his/her sport (e.g. parents, coaches, other athletes and role models)?

- Does this impact persist until their adult life?
- What is your relationship with your child's coach? Would your child listen to his/her coach more? In what situation (taking supplements)?

Act preventing or favouring doping behaviour

- Do you purchase or provide dietary supplements for your child? If yes, from where do you get it?
- Who checks what your child takes (e.g. supplements)?
- How do you ensure that your child does not take anything prohibited?
- In your experience, do you think there are parents who encourage their children to do whatever it takes to succeed in his/her sport even if it is not ethical? Why? What kind of behaviour do they encourage?

Hypothetical doping situations and perceptions

- What would be your reaction if your child or one of her/his friends doped? (intentional vs unintentional)
- Do you believe your child's opponents are doping? Does it influence a child if there is doubt?

Challenges in doping prevention

- How difficult is it to engage in doping prevention with your child? Why is it (challenges and barriers)? What can facilitate it/ help?
- As a parent, what support would you wish to receive with regards to anti-doping?

Appendix B.2 – Interview guide for national sport federations

| | |
|---------------------------------|------------------------------|
| Time, Date & Place : | Name of organisation: |
|---------------------------------|------------------------------|

Role of parents in doping prevention

- Do you consider parents play an active role in doping prevention? How?
- What can a parent do to prevent anti-doping behaviour of their child?
- What does/can your organisation do to support?

Importance of parent education

- Do you believe educating parents of young athletes about anti-doping is important? Why?
- Would parents education be a priority for your organisation?
 - Why not? / How does this compare to other priorities you have?
- Who do you think has the largest responsibility for doping prevention in young athletes?

Parents' knowledge of anti-doping regulations

- How much do you think parents of a child athlete know about anti-doping regulations?
- Do you consider parents have sufficient knowledge about anti-doping to influence their child behaviour?

Activities targeting parents in anti-doping education

- What anti-doping education activities does your organisation deliver that involve parents?
 - Can you give examples of anti-doping education activities developed by your organisation that target parents?
- How effective do you consider these anti-doping education activities targeting parents?
- Do you collaborate with other sport federations in anti-doping education?

Communication with parents

- Does your organisation have direct contact with parents?
- How do you communicate with parents? (via clubs? ensure messages are communicated?)
- How do you ensure parents know about anti-doping activities, are informed or take part?

Parents-coaches

- How would you describe the relationship between coaches and parents of young athletes?
- Do you encourage coaches to interact with parents regarding related anti-doping matters (nutrition, supplements, moral values, etc.)?

Monitoring of anti-doping education

- Do you have objectives with regards to parent education?
 - Do you evaluate the success of anti-doping activities targeting parents? How?
 - Are anti-doping education activities being part of your organisation's annual report?
- Do you evaluate or monitor parents' knowledge of anti-doping regulations?

Challenges in doping prevention targeting parents

- What challenges do you face in educating parents?
- How can your organisation nurture parents to play an active role in educating their child against doping?

Recommendation to WADA/NADO education policies

- What would you recommend to be done to effectively educate parents?
- What about a parent day where parents would be informed largely about doping/nutrition?
- What policy WADA/NADO should implement to support parent education?

Presentation of preliminary findings and discussion

Appendix B.3 – Interview guide for National Anti-Doping Organisations

| | |
|----------------------|-----------------------|
| Time, Date & Place : | Name of organisation: |
|----------------------|-----------------------|

Importance of parent education

- Is it important to educate parents of a young athlete who may not be tested? Why?
- Who do you think has the largest responsibility for doping prevention in young athletes?

Responsibility for parent education

- Would you say it is SF's sole responsibility to educate parent?
- How do you ensure SFs do educate parents?

Parents' knowledge of anti-doping regulations

- Do you consider parents have sufficient knowledge about anti-doping to influence their child behaviour?
- How can we increase parent's awareness about doping?
- How can we increase parent's knowledge about doping and the risks?

Activities targeting parents in anti-doping education

- What anti-doping education activities does your organisation deliver that focuses on parents?
- How effective do you consider these anti-doping education activities targeting parents?

Monitoring of anti-doping education

- Do you have objectives with regards to parent education? How do you monitor those?
 - Do you evaluate the success of anti-doping activities targeting parents? How?
 - Are anti-doping education activities being part of your organisation's annual report?
- Should parents' knowledge of anti-doping regulations be tested?

Challenges in doping prevention targeting parents

- What challenges do you face in educating parents (or do you see in parents' education)?
- How can your organisation better nurture parents to play an active role in educating their child against doping?

Recommendation to WADA education policies

- What would you recommend to be done to effectively educate parents?
- Would you support parent days where parents would be informed largely about doping/nutrition?
- What policy WADA should implement to support parent education?

Presentation of preliminary findings and discussion

Appendix C – Descriptive information about the sample of parents

| ID | Country | Main sport of child | Parent gender | ID | Country | Main sport of child | Parent gender |
|----|------------|---------------------|---------------|----|---------|---------------------|---------------|
| 1 | Luxembourg | Karate | Man | 25 | UK | Athletics | Woman |
| 2 | Luxembourg | Karate | Woman | 26 | UK | Swimming | Woman |
| 3 | Luxembourg | Basket | Woman | 27 | UK | Swimming | Man |
| 4 | Luxembourg | Basket | Woman | 28 | UK | Golf | Man |
| 5 | Luxembourg | Basket | Woman | 29 | Canada | Am. Football | Man |
| 6 | Luxembourg | Basket | Woman | 30 | Canada | Hockey | Man |
| 7 | Luxembourg | Karate | Woman | 31 | Canada | Swimming | Woman |
| 8 | UK | Cycling | Man | 32 | Canada | Football | Woman |
| 9 | UK | Cycling | Man | 33 | Canada | Football | Woman |
| 10 | UK | Cycling | Man | 34 | Canada | Hockey | Man |
| 11 | UK | Cycling | Woman | 35 | Canada | Swimming | Man |
| 12 | UK | Cycling | Man | 36 | Canada | Hockey | Woman |
| 13 | UK | Football | Man | 37 | Canada | Swimming | Man |
| 14 | UK | Football | Woman | 38 | Canada | Am. Football | Woman |
| 15 | UK | Football | Man | 39 | Canada | Am. Football | Woman |
| 16 | UK | Rugby | Man | 40 | Canada | Equestrian | Woman |
| 17 | UK | Rugby | Woman | 41 | Canada | Equestrian | Woman |
| 18 | UK | Football | Man | 42 | Canada | Swimming | Man |
| 19 | UK | Rugby | Man | 43 | Canada | Ski | Man |
| 20 | UK | Rugby | Woman | 44 | Canada | Ski | Woman |
| 21 | UK | Golf | Man | 45 | Canada | Hockey | Man |
| 22 | UK | Swimming | Man | 46 | Canada | Ski | Woman |
| 23 | UK | Swimming | Man | 47 | Canada | Equestrian | Woman |
| 24 | UK | Athletics | Woman | | | | |

Note. To preserve the anonymity of staff from sport federations and NADOs, further descriptive information about the sample will not be presented.