



Youth Sport Participation and Substance Use: Understanding the Relationship

Background

Sport is the most popular extracurricular activity among Canadian youth (Canadian Heritage, 2013) with hockey, soccer, golf, baseball/softball and racquet sports being the top five most popular sports. Of all age groups, students aged 15 years and older (46%) and youth aged 15 to 19 years (54%) have the highest participation rate in sport (Canadian Heritage, 2013). It is estimated that 84% of children and youth aged 3 to 17 participate in some form of sport, and 60% participate in an organized sport (Solutions Research Group, 2014).

These prevalence rates coupled with the Government of Canada's "Canadian Sport Policy" (Canadian Heritage, 2012), which aims to increase the availability of sport to all Canadians, are encouraging as sport can be linked with positive development and a decrease in risky behaviours. For instance, past research has shown youth who participate in sport do better in school, are less likely to be suspended or sent to the principal's office, have higher class attendance rates, are less likely to drop out of school and are more likely to plan to go to college or university (Eccles & Barber, 1999; Marsh, 2003; Snyder & Spreitzer, 1992; Whitley, 1998). More recent research indicates an inverse relationship between physical activity and depressive symptoms (Johnson & Taliaferro, 2011), as well as a positive relationship between certain levels of physical activity, and brain development and cognitive functioning (Khan & Hillman, 2014), and an increase in self-esteem, self-regulation and general life skills (Clark, Camiré, Wade, & Cairney, 2015). Sport can also lead to a decrease in risky activities such as unsafe sexual behaviour and tobacco use (Bjarnason, 2000; Fejgin, 1994; Thorlindsson, 1989; Thorlindsson & Vilhjalmsson, 1997; Diehl et al., 2012).

While some advocate for the use of sport as a means to reduce substance use among youth (McKiernan, 2016), little is known about the relationship between sport participation and youth substance use. Of what is known, the evidence suggests that in some cases participation is linked to increased use of substances. As a result, some researchers caution against the use of sport as a means to reducing youth substance use, as the feelings that youth get from participating in sport might actually mirror the same feelings produced from engaging in risky behavior such as drug use (Coffield & Gofton, 1994; Measham et al., 1994; Parker et al., 1995; Parker et al., 1999), violence (Sonderlund et al., 2014), higher alcohol use (Diehl et al., 2012; Kwan et al., 2014) and, in extreme instances, criminal activities (Gilman & Pearson, 1991).

In 2015, the Canadian Centre on Substance Use and Addiction conducted an environmental scan of youth sport programs that address substance use. Stakeholders had identified a need for an overview of how sport is being used in the field of youth substance use prevention. Some sport programs have been shown to be effective in reducing the use of some drugs. The results of the scan highlight programs that rely on evidence-based practices and include key considerations for developing future programs based on the program evaluations reviewed in the scan (McKiernan, 2016).



That being said, the evidence is mixed as to whether sport can be effective in preventing substance use. Evidence-informed programs do exist that use sport to prevent substance use among youth. To do so effectively, these programs must contain certain core components (e.g., peer-to-peer programming and providing alternative healthy behaviours) (McKiernan, 2016). However, a better understanding of the conditions under which sport participation can be effective for substance use prevention is warranted (National Institute on Drug Abuse, 2008; Terry-McElrath, O'Malley, & Johnston, 2011).

This topic summary briefly summarizes the evidence on the relationship between sport participation and youth substance use, and outlines why it is challenging to understand in a Canadian context, the gaps in the research and future research implications. The summary is intended for a broad audience, including health promotion and drug prevention professionals, educators, health professionals, researchers in the field and sport administrators.

Youth Substance Use

Young people experiment with a variety of different drugs at various stages throughout their youth. For this brief overview of the prevalence of substance use among youth, the focus will be on alcohol, cannabis and other illicit drugs.

Of the top five substances used by youth ages 15 to 24, alcohol is ranked as number one. In 2015, young adults aged 20 to 24 had the highest rate of alcohol use among all age groups at 83%, while 59% of youth aged 15 to 19 reported using alcohol in the past year (Statistics Canada, 2016).

Cannabis is the second most commonly used drug among Canadian youth (ages 15 to 24). In 2015, those aged 20 to 24 had the highest rate of use within the past year at 30%, while 15 to 19 year olds followed at 21%. Comparatively, 10% of those 25 and older had used cannabis in the past year at the time of the survey (Statistics Canada, 2016).

In terms of illicit substances, 5% of youth ages 15 to 19 and 9% of young adults ages 20 to 24 reported illicit substance use which included cocaine, including crack, speed, ecstasy, hallucinogens, heroin and salvia. Broadening this list, 22% of 15 to 19 year olds and 31% of 20 to 24 year olds admitted to using “any drug” in the past year, which included cannabis, cocaine, including crack, methamphetamines and crystal meth, ecstasy, hallucinogens, salvia, inhalants and heroin, and the misuse of pain relievers, sedatives and stimulants to get high (Statistics Canada, 2016).

Effect of Sport Participation on Substance Use

Sport involvement has been viewed by the research community as a valuable opportunity to foster positive youth development (Holt, 2008). However, research shows that sport participation can have both positive and negative impacts on substance use (Moore & Werch, 2005; Lisha & Sussman, 2010; Khan & Hillman, 2014). The different effects could be related to differences in the type of sports, sport-specific environments and structures, as well as competition levels. The following subsections review, summarize and examine these relationships.

Positive Association

A quantitative analysis involving 11,957 American youth aged 12 to 17 who had high overall sports participation (active play, sports, exercise), sports participation with parents and used recreational sports centres found they were less likely to participate in a range of risky behaviours such as illegal drug use as compared to less active youth. This analysis also showed that adolescents involved in sports in school were less likely to have low self-esteem and more likely to have higher grades



(Nelson & Gordon-Larsen, 2006) – protective factors against substance use (Smith, Lizotte, Thornberry, & Krohn, 1995). Another study involving 10,992 youth found that the negative influence that low parental monitoring, lone parent families and decreased time spent with parents had on alcohol use by youth decreased when youth were involved in formal sport. Thus, participation in sport might protect those adolescents who are at an increased risk of alcohol use due to their home environment (i.e., lack of parental involvement) (Halldorsson, Thorlindsson, & Sigfusdottir, 2014).

Negative Association

In their study of 970 students followed after high school (1 to 4 years after Grade 12), Veliz, Schulenberg, Patrick, Kloska, and McCabe (2017) found that participation in competitive sport in high school was linked with increased likelihood of binge drinking post-graduation. Similarly, students who had participated in a “high contact sport,” such as hockey, football, lacrosse or wrestling, were more likely to binge drink and use cannabis than those who had not participated in this type of sport in high school.

Mixed Results

Several studies found mixed results when measuring the relationship between sport participation and substance use among youth. Moore and Werch (2005) found that based on the type of sport – whether it was in school or out of school, whether it was a team sport or individual – and the athlete’s gender, the relationship might have been positive or negative. For instance, females who were involved in dance, cheerleading and gymnastics that were school-sponsored were at a decreased risk of alcohol use, while females who participated in out-of-school dance, cheerleading and gymnastics were at an increased risk of using at least one type of drug. This result might lead one to believe that activities held within the school might be protective against substance use, but this was not the case for males. Males in out-of-school swimming were at a decreased risk of heavy alcohol use, while those in football, swimming and wrestling that were school-sponsored were at an increased risk of using at least one substance (Moore & Werch, 2005).

A systematic review by Lisha and Sussman (2010) provides an overview of studies measuring the effect of sport participation on substance use in youth that further reinforces the inconsistency in results of this relationship. For instance, they found that in the case of alcohol, 22 studies supported the finding that sports led to an increase in use by youth and two studies found it led to a decrease. Of note, two studies found no relationship and another two studies found this relationship was dependent on sport type and gender. The authors reasoned that alcohol use by athletes stems from the sport culture of competition, which includes the perception that other team mates are similarly drinking large quantities, that one needs to save face and “hold their liquor” regardless of their intake, and that the stress of athletics leads to alcohol consumption. With regards to illicit drugs, it was most commonly found that sport acted as a protective factor against drug use, with nine studies seeing a decrease in substance use related to youth sport participation, but two studies did find a positive relationship between sport and drug use and three others found this relationship was also dependent on sport type and gender. With regards to smoking cigarettes, there is an immediate detrimental effect on the athlete’s body, which works to discourage use among these types of adolescents.

A study done by Terry-McElrath et al. (2011) illustrates how sport type can play a role in the relationship between substance use and sports participation. When comparing athletic team participation with general exercise (i.e., frequency of participating in sports, athletics or exercising), and participation in relation to the substance use of students in grades 8, 10 and 12, the authors found that high levels of general exercise was associated with lower levels of alcohol, cigarette and cannabis use. In contrast, participation on an athletic team led to higher levels of smokeless tobacco, alcohol and steroid use



and lower levels of cigarette and cannabis use across grades. Similarly, Halldorsson et al. (2014) found that adolescents who participated in formally organized sports were less likely to use alcohol than those who did not, but this effect was reversed for those who participated in informal sports.

Lastly, CCSA conducted a quantitative analysis of data from the 2008–2009 cycle of the National Longitudinal Study of Children and Youth with 4,271 participants aged 14 to 18. This analysis examined the relationship between sport participation and substance use among a sample of Canadian youth. The study found that sport participation in general was associated with decreased cannabis use and decreased use of other drugs (e.g., hallucinogens, prescription drugs and illicit drugs such as cocaine), but increased alcohol use. A study conducted by Sztainert (2015) found that school sports decreased alcohol use, while out of school sports increased cannabis use. With regards to sports where a coach was present, coached sports decreased cannabis use and sports without a coach increased alcohol use, but decreased other drug use.

Complexity of Measuring the Effect of Sport Participation on Substance Use

The results of studies to date illustrate the need to consider the wider social and sport-related contexts to understand the relationship between youth substance use and sport (Halldorsson et al., 2014; Kwan et al., 2014). These contexts include the multiple environments where sport is conducted, supervised and unsupervised, as well as the level of competition that affects the pressure placed on athletes. These considerations are described below

Contextual Considerations

One reason for such mixed results could be related to the different mechanisms being measured when understanding sport and substance use by youth. For instance, the type of sport might play a role in whether participation will have a protective effect on a participant. As seen in the above literature, certain team sports can be a risk factor for alcohol use due to the culture and sports in which individuals compete alone can be protective. Similarly, competitive sports can have a much different environment than less competitive sports, possibly influencing substance use differently.

The administration of sport varies with some teams being school-based and some extracurricular; some include a coach role and others do not. The presence of a coach is important, as research has shown that the coach might be the most influential figure for college athletes, more influential than any other individual on campus (Martens, Dams-O'Connor, & Beck, 2006). Similarly, it has been argued that the coach might be one of the most important influencers in preventing substance use among young athletes (Anshel, 1991). Finally, previous research in the area shows that gender plays a role in how substance use and sport interact (Veliz, McCabe, & Boyd, 2016). The combination of these contextual factors can greatly inhibit the ability of researchers to understand clearly the relationship between youth substance use and sport participation.

The Experience of Sport

Another social factor that has been identified as a major contributor to the effect sport has on substance use is what is known as the “experience” of sport, which can vary based on the individual. Some youth respond well to team activities and thrive in such an environment, whereas other youth shy away from pressures to perform well and be in the spotlight. This reaction will affect how youth make decisions to use substances: if they enjoy being part of a team, they might want to abstain from substance use and focus solely on athletics. In other scenarios, they might decide they want to



use alcohol along with their team mates. Similarly, those who have a negative sport experience might turn to substances as stress relievers or quit playing sports and subsequently remove themselves from an environment where peers are using substances.

The “Star” Athlete

In general, student athletes are in a much different position than non-athletes. Dumas, Haustveit, and Coll (2010) explores this issue further by explaining the different stresses a college athlete can face when compared to regular students, which puts them at risk for increased alcohol consumption (Martens et al., 2006; Turrisi, Mallett, Mastroleo, & Larimer, 2006). Student athletes can feel pressures to perform athletically, as well as excel socially and academically, and might hope that substances can help them compete in terms of energy, strength, endurance and help with relaxation (Grossman, Gieck, Freedman, & Fang, 1993).

Martin and Thrasher (1989) argue there are other contributors such as self-image issues, fear of failure, fear of aggression and peer pressure. Peer pressure reflects the role teammates play in influencing drinking behaviour and the idea of “team unity” in a shared experience, as well as social events related to the team that involve alcohol. It has been shown that perceived peer alcohol use is a predictor of use among athletes (Hummer, LaBrie, & Lac, 2009; Dams-O’Connor, Martin, & Martens, 2007). This relationship is most pronounced in athletes who feel connected to their team (Grossbard, Hummer, LaBrie, Pederson, & Neighbors, 2009).

Also of concern, student athletes experience more adverse effects due to alcohol, such as hangovers, drinking and driving, missing class and injury, than non-athletes. The rate of binge drinking among athletes is almost double when compared to non-athletes (Leichliter, Meilman, Presley, & Cashin, 1998; Wechsler, Fulop, Padilla, Lee, & Patrick, 1997). In terms of female athletes, sport pressures might have an effect on body image and in turn lead to disordered eating behaviours (e.g., bulimia) and body shaping drug use (e.g., diet pills) (Becker, Burwell, Gilman, Herzog, Hamburg, 2002; Byrne & McLean, 2001).

Finally, because of their elevated social status among their peers and their influence on younger athletes and adolescents, “star” athletes are an important target in terms of preventing drug use (Coakley, 1993; Thirer & Wright, 1984; Barnett et al., 2014; Woolf, Rimal, & Sripad, 2014).

Research Gaps and Implications

Future research efforts should take into consideration the various socio-contextual factors that could possibly influence the associations between sport and substance use. Further, given that Canadian culture might differ in terms of its impact on sport and substance use from those of other countries, more local research is needed. Currently, several Canadian health surveys (e.g., Physical Activity Monitor, the General Social Survey, the Canadian Community Health Survey and the National Longitudinal Survey of Children and Youth) measure sport among youth. However, definitions of sport or physical activity vary across surveys, making data comparisons difficult. For instance, the General Social Survey defines sport using frequency of participation with regular participation in sport defined as “more than once a week.” Alternatively, the Physical Activity Monitor defines sport as physical activities that usually involve competition, rules and development of specific skills (Canadian Fitness and Lifestyle Research Institute, 2010).

Such inconsistencies result in some sport definitions being limited to team sports and individual competition such as soccer, hockey and tennis, while others are as broad as possible to include other activities such as dance, cheerleading and surfing, making it difficult to compare data. To close



the knowledge gap on the impact of sport on substance use among Canadian youth there is a need to use consistent definitions, including the definition of sport, across Canadian surveys. The development and dissemination of a Canadian survey specific to the youth sport experience and substance use would aid in addressing this knowledge gap. This survey should include questions that measure the details of participation in sport for youth, such as the positive or negative effects, familial and peer influences, the meaning of sport to the participant and the level of enjoyment. These items will more deeply probe into the experience, culture and quality of sport for youth and would help determine why the variation in associations related to substance use exist.

Implications for Practice and Programs

It is clear that there is a need for more research – specifically more Canadian research – on the relationship between sport and youth substance use. Increasing our understanding of the potential benefits and risks associated with sport participation as it relates to substance use can help inform community programs and policies. In response to this need, in 2015 CCSA conducted an environmental scan (McKiernan, 2016) of sport programs addressing substance use and found that there could be an opportunity to leverage sport as a means for delivering substance use prevention if certain criteria for programming are included. Program developers should consider including those program components that:

- Have peers deliver the intervention (i.e., leverage team mates or those who have influence over other athletes);
- Involve a coach or parent in reinforcing prevention messaging;
- Provide youth with an achievable alternative to risky behaviour;
- Include campaigns, posters and advertisements designed with youth in mind, to correct youth perceptions of social norms;
- Target unhealthy behaviour at the community level;
- Offer personalized health screening, feedback and counselling to guide youth in behaviour change related to substance use; and
- Targeted interventions to a specific subgroup of youth (e.g., participants on sports teams).

It is imperative to evaluate the effectiveness of such programs to ensure they are providing effective substance use education and alternatives at a time when young people are beginning to formulate their attitudes and beliefs (and eventually behaviours) about alcohol and drugs (Griffin & Botvin, 2010). Future research aimed at better understanding the relationship between sport participation and youth substance use will be beneficial in further refining how sport programs can be used to prevent unhealthy behaviours such as substance use among youth. More research and program evaluation are needed to validate the preliminary findings in the research literature.

To Learn More

- Check out CCSA's reports related to youth substance use and sport participation on our [Sport and Youth Substance Abuse Prevention](#) page.
- Join the conversation and [our group](#) on LinkedIn and Twitter to help create a healthier society, free of the harms of substance use, by following @CCSACanada.



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