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3. Including a **parent-based component** (as in the ATLAS program), where parents are involved in the intervention, such as through their own training or their review of educational materials, might ensure greater impact on youth participants (CCSA, 2011). Elliot and Goldberg (1996) found that the component of their substance use prevention program that emphasized parental disapproval of drug use was effective in instigating behaviour change by dispelling norms. Youth might have incorrectly assumed parents were not opposed to drug use, but became aware of their parents' views once they were involved in the program. Werch et al. (2003) also found that involving parents in an intervention caused increased communication about substance use between parents and youth, similarly resulting in attitudinal and behavioural changes in participants. Involving parents in sport-based substance use prevention programs could increase the effect the program will have on participants.
4. Programs should include components that are **applicable** and **relatable** to participants. For instance, the programs that involved personalized health screening (e.g., oral screening) and corresponding feedback, and offered tailored interventions were effective in instigating youth behaviour change. Programs that used famous athletes that had experienced negative health harms when using the substance in question, including images of the drug effects on their body, also made a mark on participants. Similarly, programs that taught youth about the reality of substance use on their campus led to a change in attitudes and beliefs about norms. This change is unsurprising as a large body of research indicates these tactics are effective in prevention programming for this age group (Carey, Scott-Sheldon, Carey, & DeMartini, 2007; Larimer & Cronce, 2002; Larimer & Cronce, 2007). Of note, youth did not respond well to random drug testing programs.
5. Another consideration in terms of ensuring a program is relatable to youth is delivering the program through **platforms with which youth are familiar**. For example, an online survey instead of an in-person survey or feedback via email instead of a letter in the mail might be considered more relevant to youth. Use of computer-based feedback has proven to be effective with this age group (Kypri, Saunders, & Gallagher, 2003; Saunders, Kypri, Walters, Laforge, & Larimer, 2004). Also, with respect to social norming campaigns, posters and advertisements should be designed with youth in mind.
6. Several of the programs in this scan provided youth with an **alternative behaviour** to substance use. Providing an alternative was shown to result in behaviour change, while education focused solely on the negative effects of substance use was not enough to instigate change. For instance, ATHENA and ATLAS each gave youth alternatives to unhealthy behaviour, such as proper nutritional information and fitness regimes. Having these skills at the ready, youth found it more realistic to use the alternatives in place of drugs. If alternatives are not provided, youth might not see an easy avenue to refraining from or ceasing drug use. As is supported by



Cognitive Social Learning Theory, behaviour change must appear attainable to program participants or they are unlikely to alter their habits. Giving youth suggestions for healthy behaviours results in increased youth health and diverts them from risky substance use.

7. Ensure program goals are **attainable** for the target audience. As was seen from the feedback collected by Darker et al. (2013) from participants in a sport club that underwent significant policy change, certain harm reduction practices might not be applicable to the audience in question. The level of competition in the club can also influence how players receive rules about substance use. For example, setting low-risk substance use guidelines might not be reasonable in a sport environment in which participants are there to socialize and of the legal drinking age. Similarly, changes to program implementation need to be based on the level of authority held by program administrators over program participants. In general, drug testing and limiting drug use are not well received in the casual sport environments, but are accepted in competitive or highly regulated sports. To ensure a program will be effective, it is important to understand the authority mechanisms in place for the program and the receptivity of athletes to controls on their behaviour.
8. Although they were not discussed in much detail in most of the resources collected for this scan, some articles brought up relevant program **implementation considerations** that should be included in program development. These considerations are summarized briefly below.
  - Programs that contain several different components are going to be adaptable to a higher number of contexts than programs that contain only one or two components. With several layers to adopt, campuses and other organizations can choose which components to incorporate based on their current structure (e.g., already existing policies, pre-established peer-to-peer groups). This flexibility allows an organization to adopt a program at its own pace and in a manner that is compatible to it (Grossman & Smiley, 1999; Kingsland et al., 2015).
  - When developing new programs, training staff in program implementation is important. It is best for staff to be trained by someone experienced in delivering the program, with follow-up training and open communication maintained. Staff turnover and staff who are unsupportive of program goals can be an issue that leads to reduced leadership for program delivery and it can affect the fidelity of a program (Collingwood, Sunderlin, & Kohl, 1994). When designating program staff, consider personnel committed to the cause who are likely to remain in their position for some time or are willing to train new program administrators. Use methods for training staff that do not drain already limited resources, such as online modules that can be completed over time (Kingsland et al., 2015).
  - When developing program materials ensure they are relevant and age appropriate to the target population. For example, level of reading skills vary by age and student; it would be detrimental to the program if the materials are at too high a reading level, and not understood by or useful to all participants (Kingsland et al., 2015).
  - Have a realistic outlook on the amount of funding, staff and time that are needed in both implementing and sustaining a program. Developing and launching a program that is based on resources that are only available for a limited time might not prove fruitful in the long term. Be mindful of these limitations during development to ensure the program will not place undue stress on a department or organization.



## Conclusion

The objectives of the environmental scan were:

- To review and summarize North American youth sport programs that contain substance use education;
- To examine whether these sport programs effectively reduce substance use among youth (ages 10 to 24); and
- To summarize lessons learned in this area based on peer-reviewed evaluations in order to facilitate the exchange of knowledge within the field and help program developers shape their own community programs.

This scan reviewed evaluations for several youth sport programs that contain substance use education, as well as other programs that have not yet been evaluated. Based on the conclusions from these evaluations, as well as findings established from the substance use prevention literature, this scan is able to provide some preliminary lessons learned for future consideration in the development of evidence-informed substance use prevention programs.

The results from this environmental scan illustrated that the most common program types to use the sport environment to influence youth are peer-to-peer programs and programs that incorporate screening, consultation and counselling. The next most common program type to use sport was social norming campaigns. These programs were most commonly based on the Theory of Planned Behaviour and, to less extent, Social Learning Theory, both of which state that youth make decisions based on their knowledge and attitudes, which are influenced by those around them. Most of the programs reviewed targeted the primary prevention level, which is the community (e.g., sport teams), with the screening, consultation and counselling programs targeting the secondary level. Many of the programs targeted youth who were in school (a “captive” audience), and began as early as grade school. This targeting has been shown to be beneficial, as it is easier to influence youth during key developmental timeframes. Programs ensured they were 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).

Some limitations associated with this scan have implications for the interpretation of results. It should be noted that the lessons learned, although promising, were based on a small number of evaluations. To develop more concrete best practices for sport programs it is necessary to continue to evaluate new or available programs. Many of the evaluations included in this scan had follow-up periods that ranged from four weeks to two years after the intervention, so behaviour change due to program participation can only be considered as short term. Until there is longitudinal data, we cannot be certain these programs result in permanent substance use cessation or prevention.

These evaluations were conducted in specific environments, with certain populations and varying contexts (e.g., sport type, local laws, implementation factors, etc.), which means findings might not be generalizable across all jurisdictions and programs. It cannot be guaranteed that all relevant programs were picked up during the environmental scan. Some program information might not be evaluated or available online. Also, it cannot be verified that all relevant programs were submitted by recipients of the request for information. Finally, some of the programs included in this scan are no longer active and the reasons they have lapsed were not available at the time of the scan.

Although the research results on the role sport plays in influencing substance use among youth are mixed, there is some encouraging evidence supporting the use of the sport environment as a



mechanism to deliver substance use prevention efforts, as long as they are based on evidence and tailored to the audience. As Elliot et al. concluded (2004), sport teams are found to be effective natural vehicles for gender-specific, peer-led curricula that promote healthy lifestyles and deter health harming behaviours such as substance use. The topic of drug use is arguably even more relevant for student athletes than for youth in general because of the importance of physical health in sport and competition. The values supported by sport, paired with a team environment where all athletes are accountable for their performance, make sport a promising area for substance use education, for identifying substance use issues and for changing behaviour related to the unhealthy use of substances.

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 is needed to validate the preliminary findings in the research literature. Substance use prevention specialists should collaborate with practitioners and sport professionals who deal with youth to ensure sport-based prevention programs are based on evidence and grounded in appropriate theoretical constructs. Ideally, these programs should provide appropriate non-judgmental avenues to deal with substance use issues, as well as provide supportive opportunities for youth to work on personal development in terms of education, health and other developmental areas (Crabbe, 2000). The findings from this scan can also help to ensure research efforts to develop sport programs that address substance use are not being duplicated across sectors. This scan is intended to contribute to conceptualizing sustainable sport programs that are based on evidence and grounded in sound evaluation, and that leverage the sport environment to encourage youth to develop healthy lifestyles free from the use of substances.



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## Appendix A

### Information Request

June 2015

Dear Colleagues,

One of the main research objectives for CCSA's Youth Sport and Substance Abuse priority is to conduct an environmental scan of youth sport programs that address the prevention of substance use or abuse. We need **your help to identify** programs that aim to decrease substance use or have a drug education component targeted at youth aged 10 to 24 through the use of sport. The program can be located anywhere in the world but information needs to be available in French or English. Preference will be given to programs generalizable to the Canadian setting. In an effort to build on existing work and refrain from duplicating research, please **also identify** any existing scans or summaries of this nature. All suggestions are greatly appreciated.

The environmental scan will be circulated widely, once complete.

Please send your information via email to Anna McKiernan at [amckiernan@ccsa.ca](mailto:amckiernan@ccsa.ca) and join the Canadian Sport and Youth Substance Abuse Prevention (CSYSAP) Network on LinkedIn to see what others are sharing.

New to the CSYSAP Network? Email [youth-jeunes@ccsa.ca](mailto:youth-jeunes@ccsa.ca) to be added to the distribution list.

Many thanks for your suggestions and we look forward to hearing from you,

Rhonda Boudreau  
CSYSAP Network Coordinator  
Knowledge Broker, Canadian Centre on Substance Abuse

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Juin 2015

Madame, Monsieur,

L'un des principaux objectifs de recherche visés par la priorité Sport et abus de substances chez les jeunes du CCLT est la réalisation d'une analyse contextuelle des programmes sportifs jeunesse qui abordent aussi la question de la consommation ou de l'abus de substances. Nous avons **besoin de votre aide** pour recenser les programmes visant à réduire la consommation des 10 à 24 ans ou à les sensibiliser à la drogue par l'entremise d'activités sportives. Les programmes peuvent être offerts partout dans le monde entier, mais l'information doit être disponible en français ou en anglais. Nous accordons aussi une préférence aux programmes applicables au contexte canadien. Ajoutons que nous aimerions tirer parti du travail déjà fait et éviter le dédoublement des efforts, alors nous vous



invitons à **nous informer** de toute analyse ou de tout résumé du genre que vous connaissez. Les suggestions sont les bienvenues.

Une fois prête, l'analyse contextuelle sera communiquée à de nombreux intervenants.

Veuillez faire parvenir l'information à Anna McKiernan à [amckiernan@ccsa.ca](mailto:amckiernan@ccsa.ca) et rejoindre le Réseau sur le sport et la prévention de la toxicomanie chez les jeunes au Canada sur LinkedIn pour voir les contributions d'autres membres.

Vous découvrez le Réseau? Veuillez écrire à [youth-jeunes@ccsa.ca](mailto:youth-jeunes@ccsa.ca) si vous désirez faire partie de la liste de distribution.

Un grand merci pour vos suggestions, et au plaisir d'avoir de vos nouvelles.

Rhonda Boudreau  
Coordonnatrice du Réseau  
Courtière du savoir, Centre canadien de lutte contre les toxicomanies

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The Canadian Centre on Substance Abuse changes lives by bringing people and knowledge together to reduce the harm of alcohol and other drugs on society. We partner with public, private and non-governmental organizations to improve the health and safety of Canadians.

Le Centre canadien de lutte contre les toxicomanies transforme des vies en mobilisant les gens et les connaissances afin de réduire les méfaits de l'alcool et des drogues sur la société. En partenariat avec des organismes publics et privés et des organisations non gouvernementales, il travaille à améliorer la santé et la sécurité des Canadiens.

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## LinkedIn Post

[Sport-related youth programs that address drug use / Programmes sportifs jeunesse qui abordent la consommation de drogue](#)

Request for your input! I am gathering information on youth sport programs that address drug use and would greatly appreciate your help. Please send along any information on sport programs for youth that:

- include information or education on alcohol, tobacco or other drugs (e.g., street drugs, the abuse of prescription drugs, or appearance and/or performance enhancing drugs)
- aim to prevent or delay drug use or reduce the harms associated with drug use
- focus on young people aged 10 to 24
- are located in Canada or elsewhere in the world.

This information will feed into a summary of sport-related youth programs that address drug use. When finished, the summary will be published and freely available.

We don't want to duplicate efforts or reinvent the wheel, so please let me know if similar summaries exist.

Thank you for your help!

---

Ceci est une demande d'aide! Je réunis actuellement de l'information sur les programmes sportifs jeunesse qui abordent la consommation de drogue et j'aurais besoin de votre aide. Si vous connaissez de tels programmes, je vous prierais de me faire parvenir tout renseignement pertinent sur ces points :

- Information ou éducation sur l'usage d'alcool, de tabac ou d'autres drogues (p. ex. drogues de la rue, abus de médicaments d'ordonnance, ou drogues visant à rehausser la performance ou l'apparence);
- Prévention ou retardement de la consommation de drogue ou réduction des méfaits qui y sont associés;
- Accent mis sur les jeunes âgés de 10 à 24 ans;
- Programmes situés au Canada ou à l'étranger.

Ces renseignements seront inclus dans un résumé sur les programmes sportifs jeunesse qui abordent la consommation de drogue. Quand il sera prêt, ce résumé sera rendu public et facilement accessible.

Cela dit, nous ne voulons pas travailler en double ou réinventer la roue, alors veuillez m'aviser si de tels résumés existent déjà.

Merci de votre aide!



## Appendix B

### Search Strategies

#### PubMed

(((((("Alcohol Drinking/prevention and control"[Mesh]) OR "Harm Reduction"[Mesh]) OR "Alcoholic Intoxication/prevention and control"[Mesh]) OR "Doping in Sports/prevention and control"[Mesh]) OR "Substance-Related Disorders/prevention and control"[Mesh])) AND "Sports"[Mesh])

((((alcohol[Title]) OR drug\*[Title]) OR steroid\*[Title])) AND sports[Title])

#### PsycNet

((((IndexTermsFilt:("Alcohol Abuse") OR IndexTermsFilt:("Alcohol Drinking Patterns") OR IndexTermsFilt:("Alcohol Intoxication") OR IndexTermsFilt:("Alcohol Rehabilitation") OR IndexTermsFilt:("Alcoholism") OR IndexTermsFilt:("Binge Drinking") OR IndexTermsFilt:("Driving Under the Influence") OR IndexTermsFilt:("Drug Abuse Prevention") OR IndexTermsFilt:("Drug Education") OR IndexTermsFilt:("Harm Reduction") OR IndexTermsFilt:("Performance Enhancing Drugs") OR IndexTermsFilt:("Social Drinking") OR IndexTermsFilt:("Steroids")))) AND ((IndexTermsFilt:("Athletes") OR IndexTermsFilt:("Baseball") OR IndexTermsFilt:("Basketball") OR IndexTermsFilt:("Clubs (Social Organizations)") OR IndexTermsFilt:("College Athletes") OR IndexTermsFilt:("Football") OR IndexTermsFilt:("Judo") OR IndexTermsFilt:("Martial Arts") OR IndexTermsFilt:("Physical Fitness") OR IndexTermsFilt:("Soccer") OR IndexTermsFilt:("Sports") OR IndexTermsFilt:("Swimming") OR IndexTermsFilt:("Tennis") OR IndexTermsFilt:("Weightlifting")))) OR ((Title:(sport\*) OR Title:(athlete\*)) AND (Title:(alcohol) OR Title:(drug\*) OR Title:(steroid\*)))) AND Peer-Reviewed Journals Only

#### Grey Literature

##### National Registry of Evidence-based Programs and Practices

Sports, sport, performance enhancing, athlete, athletes, steroids, physical activity

Promising Practices Network (scanned section on substance abuse)

##### CAMH's Google Custom

Sports, athletes

##### Google

sports "substance abuse" program

athletes "substance abuse" program





## Appendix C

### Program Theories

#### **Social Learning Theory and Cognitive Social Learning Theory**

Social Learning Theory (Bandura, 1977) is based on the notion that individual behaviour is influenced by one's social environment, including siblings, family and peers (Ary, Tildesley, Hops, & Andrews, 1993). In the case of an adolescent who is in a sport environment, he or she could learn substance abuse behaviours from the other members of his or her sport team, other athletes he or she spend time with or coaches. Observations of those in close proximity allow for the individual to develop an understanding of drugs and norms about drug use. This understanding might result in the adolescent initiating substance use, depending on his or her influencers (MacKinnon et al., 2001). The Cognitive Social Learning Theory maintains that it is also important that the individual knows how to behave, believes he or she is capable of performing a particular behaviour, and that if he or she performs this behaviour the desired outcome will be achieved (Bandura, 1986).

With the support of Social Learning Theory, programs can aim to change norms about drug use and increase the awareness of disapproval by engaging coaches and implementing peer educators to influence program recipients (MacKinnon et al., 2001).

#### **Theory of Planned Behaviour**

The Theory of Planned Behaviour states that behaviours are based on the intentions of an individual or their decisions to act. These decisions are made based on his or her attitude toward the behaviour, which is built from their perception of the norms surrounding the behaviour, their estimated consequences of this behaviour, mainly from important others, and the societal control over this particular behaviour (Ajzen 2012). In other words, youth make decisions about drug use based on what they consider to be the attitudes of those around them, such as their friends, and how they might be penalized for the behaviour, both by those important to them, such as coach or parents, and societal structures, such as police.

Using this theory, a program could aim to alter an adolescent's perceived norms about substance use and estimated consequence of using substances to influence the decisions made about using substances.

#### **Health Belief Model**

This theory posits that decisions to behave in a certain manner are based on one's perceived susceptibility to and severity of the effects related to the behaviour (Janz & Becker, 1984). Under this model, adolescents would refrain from behaving in an unhealthy manner if they judged their susceptibility to a negative consequence of this behaviour as high and viewed the effects of the behaviour as negative. In terms of youth drug use, young athletes might refrain from using substances if they believe there is a high likelihood their body will be damaged from use and that the severity of this damage will alter their health considerably. Ideally, an alternative health behaviour is offered that would provide a benefit.

Any prevention programs using this theory would aim to increase the information available about the health harms of drug use to ensure young athletes truly believe they are susceptible to these harms and that these harms could alter their physical performance significantly. The program would also include a key alternate behaviour to drug use that youth could partake in to replace drug use.



## **Social Norms Theory**

Social Norms Theory contends that behaviour is based on a person's perception of the attitudes and behaviours of peers. These perceptions are often biased and generally overestimate the proportion of peers who partake in a risky behaviour such as drug use or drinking. Because of overestimating, an individual might try to meet these misperceived peer norms by similarly partaking in such risky behaviour to fit in. This means that a teen's overestimation of the frequency in which peers drink or use drugs puts him or her at risk for substance use (Berkowitz, 1997; Thombs, Wolcott, & Farkash, 1997).

Using this theory as a base, Social Norming prevention programs aim to dispel misperceptions of peer substance use by educating youth using realistic statistics of use levels, which are often much lower than what youth would assume. These programs aim to reduce drug use by illustrating it is not as prevalent among youth as participants might think.

## **Diffusion of Innovations**

This theory places a high importance on "opinion leaders" within a population. It argues that opinion leaders are the root of a group's norms and behaviours, and once their behaviours change this change will spread throughout the group. For example, a captain of a sports team along with his assistant captains might be regarded as opinion leaders and team mates might model their behaviours after these influential individuals.

Prevention programs, especially sport-related, could attempt to leverage these powerful positions and use leaders within a sport environment as a vehicle to model appropriate behaviours within the group. For instance, a team leader could act as the prevention program's peer leader and openly support positive health behaviours such as refraining from using substances by both abstaining from use and speaking of the health benefits related to this abstinence (Rogers, 1983).

## **Integrative Behaviour-Image Model**

This model pairs the prevention of risky behaviours with the promotion of healthy habits. A strong importance is placed on positive personal and social influences as key motivators in health development. Werch, who developed the theory, states: "interventions limited to addressing risk behaviours like substance use may be perceived by adolescents as more negative and less interesting than those targeting health-promoting behaviours, and therefore may suffer from lack of interest and participation. Needed are models for developing brief interventions that integrate health promotion and prevention messages aimed at enhancing youth development and achieving salient goals of adolescents" (2007, p. 678). Thus, it is important to promote abstinence from a risky behaviour, but also provide a positive behaviour or perspective in tandem.

This theory is relevant to the use of sport as a means to prevent risky behaviour. Programs that promote healthy alternatives such as physical activity, healthy eating and other healthy behaviours can use sport performance as the key reason to abstain or limit substance use. For example, youth could be told that alcohol use will limit their athletic performance in a sports game and they should instead concentrate on eating nutritious meals.

## **Theory of Constructivism**

This theory is based on the concept that knowledge is understood by the individual through personal constructions that are based on the individual's personal experience. In other words, individuals understand concepts not necessarily due to their evidence base, but instead because of one's personal experiences. Constructivism supports individuals learning concepts via engagement with relevant problems, meaning understanding grows from meaningful, but accurate, experience.



A program based on the Theory of Constructivism would engage with participants' existing conceptions, as well as provide further appropriate experience and the tools for interpreting these experiences appropriately. Using teen athletes as an example, a program could provide scenarios where athletes are offered APEDs and require participants to decide the appropriate response to the offer. Through this exercise program administrators would provide guidance and feedback on the best way to approach such situations (Hanson, 2009).