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Introduction

Although the legal drinking age in Alberta is 18 and it is against the law to sell alcohol to minors, we know that adolescent Albertans drink alcohol. While it is the minority of adolescents who drink, the majority of those who drink do so to excess. We also know that current research shows that there are good reasons to deny adolescents access to alcohol: both acute and long-term harm is associated with early alcohol use.

This resource provides an overview of the period of adolescence, adolescent brain development, adolescent alcohol drinking patterns, why adolescents choose to drink, alcohol-related harm and the role for parents and care providers.

Adolescence

Adolescence is the period of transition from childhood through puberty to adulthood. Adolescence is defined by physical and biological changes, but there is more to it than that. Significant social changes also occur as people pass from childhood (e.g., requiring supervision) to adulthood (e.g., responsible for own behaviour). Increasingly, researchers agree that individual characteristics and social demands, as opposed to simply age, are what define adolescence.

The World Health Organization identifies key developmental changes that occur during this time. They are

- maturing physically and sexually
- moving from childhood concrete thinking to more abstract reasoning
- developing skills required for adult relationships and roles
- forming a personal identity
- taking steps towards social and economic independence

The growth opportunities for adolescents during this time are numerous, but adolescence is also a period of increased risk. One of the risks that many adolescents face is the pressure to drink alcohol and use other drugs. We know that behaviour established during adolescence (including the choice to drink alcohol or not) can have lasting effects on future health, whether positive or negative. We also know that adolescents are building their capacity for understanding complex concepts and the relationships between behaviour and consequences. This means that they may not always make the best choices on their own. It is important for parents or other caregivers to use the influence that they have to help guide adolescents during this critical time.
How the Adolescent Brain Develops

Contrary to what neurologists and psychiatrists believed for many years, the brain of an adolescent is not yet fully developed. In fact, just like the body, it goes through a major transformation during adolescence, and continues to mature well into a person’s twenties.

During puberty, the brain begins to change drastically. The brain begins to “prune back” some of the numerous connections that were grown in childhood: redundant brain cells and connections are removed, allowing those that remain to function more efficiently and allowing new connections to be made.

Two striking changes in the brain have attracted great interest from scientists seeking to explain adolescent behaviour on the basis of brain development: first, increased activity in the reward and pleasure system and, second, development of the prefrontal cortex, a part of the brain that is responsible for high-level reasoning, decision-making and impulse control. While these changes are both features of adolescence, they do not happen at the same time to the same degree. The changes in the reward system happen first; the prefrontal cortex develops gradually.

These observations, some scientists say, give us a possible explanation for adolescent thrill-seeking (i.e., reward-seeking) behaviour. Adolescents may be attracted to risky behaviour, like drinking alcohol, at a time when the brain’s reward and pleasure system is maximized and their ability to anticipate consequences is still underdeveloped.
Adolescent Drinking

Although marijuana and other illicit drug use among Alberta adolescents is concerning, the number of adolescents using alcohol is much higher. Further, the average age that adolescents in Alberta have their first drink is 14. According to the Canadian Student Tobacco, Alcohol and Drugs Survey, the proportion of Alberta students in grades 7 through 12 who reported having a drink of alcohol that was more than a sip in the 12 months before the survey was 50% in 2008 and 39% in 2012/2013. This is an encouraging trend, but 39% is still a high proportion, given the dangers that alcohol poses for teenagers. In addition as adolescents get older, the number of adolescents reporting drinking increases.

Adolescent drinking is occasional but heavy. Of Alberta students in grades 7 through 12 who drink, most drink either less than once a month (42%) or one to three times a month (44%). Among Alberta students in grades 7 through 12 who said they had drunk alcohol during the previous 12 months, 76% had five or more drinks on a single occasion. This type of drinking, also known as “binge drinking,” is of particular concern.

76% of Alberta teens in grades 7 through 12 who indicated drinking, had five or more drinks on a single occasion.
Binge Drinking

Alberta's Office of the Chief Medical Officer of Health accepts the definition of binge drinking offered by The Centre for Addiction and Mental Health: for males, binge drinking is five or more standard alcoholic drinks consumed on one occasion; for females, the number is four drinks.

Binge drinking also refers to a pattern of drinking that is heavy (exceeding the four of five drink limit) and occasional (e.g., monthly or weekly rather than daily) and frequently serves the sole purpose of getting drunk.

Binge drinking has harmful social and health consequences, such as increased risk for injuries and chronic health problems. Early binge drinking increases the chances that youth will become dependent on alcohol, be victims of violence and injury or cause injury to others.

Low-Risk Drinking and Adolescents

While delaying drinking at least until the late teens and obeying local liquor laws is advised, we know that adolescents might choose to drink earlier. Canada's Low-Risk Alcohol Drinking Guidelines (LRDG) recommend that those who are below legal drinking age

- postpone drinking for as long as possible to reduce resulting harm
- talk to their parents about alcohol and drinking
- stick to one or two drinks on a single occasion
- never drink more than twice in a week
- understand that these guidelines decrease but do not eliminate risk of harm
Since our brains continue to develop rapidly into our twenties, the LRDG also recommend that from legal drinking age (18 in Alberta) to age 24, women never drink more than two drinks on a single occasion and men never more than three. Both are encouraged to stay well within the levels recommended for the general population (10 drinks a week for women, with no more than two a day most days; 15 drinks a week for men, with no more than three a day most days).

For more information on the LRDG, please refer to the publication in this series titled Low-Risk Drinking or visit www.ccsa.ca.

Why Adolescents Drink

There are many reasons why adolescents might choose to drink alcohol. These include copying role models, intrinsic reasons and drinking to cope.

Role Models

One of the main reasons that adolescents choose to drink is simply that they are copying their role models, copying adults. As the Canadian handbook Kids and Drugs: A Parent’s Guide to Prevention notes, children are most strongly influenced by their parents. Generally, we eventually come to behave much like our parents do and live according to many of the same values. As children, we observe and imitate our parents in the way they express emotions, solve problems, and celebrate special occasions. Our parents’ example can become a pattern for the way we live. Parents and families are usually the most important risk and protective factors, influencing adolescents’ choices, including the decision to use alcohol or other drugs, and the way in which adolescents use those substances.
Intrinsic Reasons

Adolescents might also have intrinsic reasons to drink:

- They are curious about the effects.
- They want to relieve boredom.
- They think it will be fun or make them appear “cool.”
- They seek acceptance by peers.
- They believe it will make them appear older.
- They are rebelling against adult authority.

We also know that adolescents drink alcohol in order to get drunk. With the majority of adolescents in Alberta indicating that when they drink they binge drink, this point cannot be ignored.

What are risk and protective factors?

The Alberta Alcohol and Drug Abuse Commission report, *An Overview of Risk and Protective Factors for Adolescent Substance Use and Gambling Activity: A Review of the Literature for The Alberta Youth Experience Survey 2008*, offers the following description of risk and protective factors: “Risk factors are defined as life events or experiences that are associated with increases in problematic behaviour (e.g., substance use or problem gambling). As the number and severity of risk factors increase, the likelihood of participating in problematic behaviour increases. Protective factors are the life events or experiences that mitigate the effects of risk factors and reduce the likelihood of problematic behaviour. Protective factors increase resiliency, which is the ability to overcome adversity.”
Drinking to Cope

Some adolescents may drink because of feelings of sadness or depression or because of stress stemming from, but not limited to, relationship problems with friends or family, or pressure at school.

When adolescents drink for such reasons, it is cause for concern. In one literature review, young people (aged 10 to 25 years) who drink to resolve an issue were found to be at greater risk for problem drinking. A study of more than 30,000 American high school students revealed that adolescents who drink when they are depressed are significantly more at risk of attempting suicide than those who drink for other reasons.

If parents, teachers or other influential adults note such behaviour, it is important to take action. If youth notice friends or classmates who are drinking to cope, they should be encouraged to reach out to supportive adults for help. Adults can reassure adolescents that this is not “telling” on a friend but, instead, helping a friend to get the support he or she needs.

Problems Associated With Excessive Drinking

Health Problems

We know that most adolescents are not regular moderate drinkers, but instead alternate between periods of abstinence and binge drinking, which is particularly harmful to adolescents.

**Effects on the developing brain**

Given the ethical issues related to administering alcohol to underage subjects for research purposes, there are few studies on adolescents’ biological sensitivity to alcohol. However, a number of animal studies reveal that the adolescent brain—particularly the hippocampus, which is the area of the brain responsible for memory—is more sensitive to the effects of alcohol than the adult brain. The tremendous plasticity of the adolescent brain and the fact that it undergoes so many changes during puberty increase the risk that young people will damage their brains more than adults who drink the same amount of alcohol.

While research cautions against drawing definite conclusions about the long-term effects of alcohol use on adolescent memory and learning ability, there are a number of animal studies and limited human studies that indicate that excessive drinking may affect memory and decision-making in adolescents more than in adults.
Alcohol and Adolescents

Why adolescents might drink excessively

While the adolescent brain is more vulnerable to the neurotoxic effects of alcohol than the adult brain, it is actually less sensitive to the sedative and motor effects of alcohol. Consequently, adolescents—whose brains are more likely to suffer short and long-term damage from excessive drinking—are more likely than adults to drink greater quantities, because it takes longer for them to feel the immediate effects.
Violence
Young drinkers are more often involved in violent altercations, as both assailants and victims, than non-drinkers. As with adults, alcohol use makes some young people more inclined to aggression.

However, this connection is probably not due solely to alcohol’s pharmacological properties, but rather to the interaction of biological, psychosocial, situational and cultural factors. Several studies show that the link between alcohol and violence varies greatly, depending on the drinking circumstances and social values regarding the use of violence.

Road accidents
Alcohol is one of the main causes of death on Alberta roads. In 2012, 19.6% of Alberta drivers involved in fatal collisions had consumed alcohol prior to the incident compared to 4.1% of drivers in injury collisions.

Despite the zero tolerance rule for new drivers, drinking and driving is still a disastrous combination among young people, far too many of whom are unfortunately involved in serious collisions where alcohol is a factor. According to Mothers Against Drunk Driving Canada, motor vehicle collisions are the leading cause of death in 16- to 25-year-olds and alcohol is involved in 55% of these collisions.
The Role for Parents and Caregivers

In Alberta, the data show that excessive drinking among adolescents is significant and warrants a serious response. Parents generally have more influence on adolescents than they realize. For those who find it challenging to talk to their adolescent about alcohol, here are a few tips:

- Keep the lines of communication open.
- Encourage questions.
- Help youth to delay their first drink as long as possible.
- Watch to see if and how your teens and pre-teens are drinking, and take action to monitor them more carefully if they are engaging in risky behaviour.
- Don’t be afraid to ask for help if your adolescent child is in trouble, if you are unable to communicate, or if you feel like you are losing control of the situation.
- Think about how you drink, if you drink alcohol, and what you want to model for your child.

For more information about what parents can do, please refer to the publication in this series titled *Talk to Your Children About Alcohol.*
Conclusion

Alcohol use is part of Alberta culture. It is not surprising that adolescents are curious about alcohol and that many of them are interested in experimenting to see for themselves what it is all about. However, adolescence is a time of major change, and choosing to drink at this time can have long-term effects on the brain and increase the risk of chronic drinking problems. The tendency of adolescents is to drink to excess when they drink, and binge drinking presents added risks. On the other hand, the proportion of youth who use alcohol appears to be decreasing, and recent knowledge can be used to encourage this trend. Informed adults can act as role models and help to guide adolescents to make good choices about drinking and other risky behaviour.

Alberta Health Services offers a wide range of services for individuals looking for help for someone they care about, or for themselves. For more information, and to find an addictions services office near you, call the Addiction Helpline at 1-866-332-2322. It’s free, confidential and available 24 hours a day.
More information means informed decisions

Well-informed people will be more conscious of the harmful effects of excessive drinking, and will be aware that if they choose to drink alcohol, drinking in moderation is a healthier choice.

For copies:
AHS staff and allied health professionals can download digital copies from under the “Resources” tab at: www.albertahealthservices.ca/amhresources. Allied health professionals should contact their local Addiction and Mental Health office to access hard copies.

Thank you
AHS would like to thank our allied health professionals at Éduc’alcool for their contribution to this series.
Alberta Health Services offers a wide range of addiction and mental health services.

For individuals looking for information for someone they care about, or for themselves the Addiction Helpline and the Mental Health Helpline are available.

Addiction Helpline
1-866-332-2322

Mental Health Helpline
1-877-303-2642

Both helplines are free, confidential and available 24 hours a day.