

## Sedatives, Driving and Implications for Youth

This summary is one in a series of four that briefly review the current state of scientific evidence on the effects of various classes of drugs on driving behaviour, while highlighting implications for young drivers. This summary focuses on sedatives, specifically a group of drugs called benzodiazepines. While other types of drugs have sedative or depressant effects (e.g., sleep aids, some antihistamines and anti-convulsants), these substances often have very different mechanisms of action and are rarely used for non-medical purposes, so they are not considered in this summary. Other summaries in the series focus on cannabis, stimulants and opioids, and the implications for young driver. These categories of drugs were selected as they represent the most common licit and illicit drugs that are used by youth. This summary is intended for a broad audience, including drivers licensing bodies, health promotion and drug use prevention professionals, educators, health professionals and parents.

### Definitions

Prescription sedatives are central nervous system (CNS) depressants, meaning that they depress or slow down the body's functions. These medications are mainly used in the medical treatment of anxiety and insomnia.

### Use of Sedatives among Youth

In 2013, 3.6% of Canadian youth aged 15–19 reported having used sedatives in the previous 12 months; among those aged 20–24, 4.7% reported past-year use.

Prescription sedatives are commonly used for the management of anxiety, insomnia and seizure disorders. While these medications are prescribed for therapeutic purposes, they have the potential to be misused because of their psychoactive properties. In 2012–2013, 1.1% of Canadian students in grades 6 to 12 reported past-year use of sedatives to get high and not for medical purposes; 2.0% reported such use of sleeping medicine.

### Driving after Sedative Use among Youth

Overall, among drivers killed in motor vehicle crashes in Canada between 2000 and 2010, 11.2% tested positive for sedatives. Females were almost twice as likely as males to have used sedatives prior to the crash (21.8% vs 11.8%, respectively). Among fatally injured drivers aged 16–24, 4.1% tested positive for sedatives. Among youth, the difference between females and males was not as pronounced (5.1% vs 3.8%, respectively). It should be noted that a positive test for sedatives does not necessarily imply that the driver was impaired.

### Legal Status in Canada

In Canada, prescription sedatives are controlled substances. Their use is legal when they are prescribed by licensed practitioners (physicians) and used by the person for whom they are



prescribed. Conviction for illegal possession, distribution, selling or importation of sedatives results in a criminal record, affecting future options for education, employment and travel.

Driving while impaired by a sedative is an offence under the *Criminal Code of Canada* and those convicted face the same penalties as those impaired by alcohol. Specially trained police officers can demand that drivers suspected of being impaired by sedatives submit to a series of behavioural and clinical tests, including providing a sample of blood, breath or oral fluid to determine drug content. Refusing to comply is an offence that carries penalties equivalent to those for impaired driving.

## Active Ingredients

There are over a dozen different sedative drugs in the benzodiazepine class available for medical use in Canada. The various products differ in the speed of onset, the duration of effects and the extent of specific effects. Benzodiazepines have a direct impact on receptors in the brain that control arousal. The drugs reduce the overall level of arousal producing a relaxed state, sleepiness and dampened responses to external stimuli.

## Absorption, Distribution, Metabolism and Elimination

Sedatives are typically delivered in capsules or tablets and taken orally. Some are intended to be placed under the tongue to be absorbed quickly. In certain medical situations, a liquid form can be injected.

When taken orally, sedatives are rapidly absorbed and effects are evident within 15–30 minutes. Some sedatives are considered “long-acting” because they are broken down into products that have effects similar to the parent drug. Some of these drugs can remain active in the system for up to 40 hours. Long-acting products are suitable for use in the management of anxiety. Shorter-acting versions are more appropriate for the periodic treatment of insomnia.

Sedatives are extensively metabolized and eliminated in the urine.

## Patterns of Use

Sedative medication comes in various strengths and is typically administered orally as a pill, capsule or liquid. Sedatives are known to be taken by some people to enhance the effects of alcohol or opioids. These drug combinations can be extremely dangerous, producing severe depression of brain function, coma and even death.

With repeated use, tolerance to sedative medications begins to develop, which causes a reduction in the extent of effects and requires an increase in dose to maintain the desired effect. Abrupt withdrawal of use can result in insomnia, restlessness, irritability and unpleasant dreams that can persist for up to four weeks.

## Effects of Sedatives

At therapeutic doses, sedatives medications act as tranquilizers, producing feelings of relaxation and sleepiness. These medications can relieve insomnia and severe states of emotional distress, and result in drowsiness and impaired coordination. Other effects of sedatives are similar to those of alcohol, producing a state of intoxication that includes impaired motor coordination and judgment, slurred speech, and lowered inhibitions. The ability of sedatives to produce feelings of relaxation and intoxication is the reason for their non-medical use. The use of sedatives in higher doses, or in combination with other drugs or alcohol, can result in confusion, disorientation, amnesia and depression.



## Effects of Sedatives on Driving

Sedatives cause drowsiness and impair motor coordination, effects that can have a significant impact on the ability to operate a motor vehicle safely. Effects include slowed reaction time, sleepiness, poor psychomotor performance, impaired coordination, reduced ability to divide attention, inattentiveness, increased errors and difficulty following instructions. These effects can last for 4–24 hours following a single administration of the drug, depending on the specific product and dose ingested.

When used over long periods of time, tolerance to some of the impairing effects of sedatives can develop. This means that the impairing effects of sedatives might be less evident after a period of use. An increase in the dose of the drug would be expected to reinstate the impairment.

The driving behaviour of someone who has used sedatives can resemble that of a driver impaired by alcohol and can include weaving, poor vehicle control, delayed reactions and risky behaviours.

Studies of traffic crashes reveal that drivers who test positive for the use of sedatives are two to eight times more likely than alcohol- and drug-free drivers to be involved in a fatal traffic crash.

### Detecting Sedative Use in Drivers

Drivers who have been using sedatives often display one or more telltale signs of use. These include:

- Distinctive jerkiness in eye movements;
- Motor incoordination;
- Poor balance; and
- Appearance of being drowsy or sleepy.

The signs and symptoms of sedative use are similar to those of alcohol use without the odour of alcohol. These signs are often sufficient for police officers to form a reasonable suspicion of drug use, which allows them to proceed with a demand for the driver to submit to a Standardized Field Sobriety Test (SFST). Drivers who demonstrate impaired performance on these tests are required to accompany the officer to the station for drug influence evaluation by an officer trained in the Drug Evaluation and Classification (DEC) program. The evaluation includes a demand for a sample of blood, urine or oral fluid to be tested for drugs.

## Implications for Young Drivers

It is well known that young drivers are at particularly high risk of crash involvement, in part as a result of their relative inexperience with the complex demands of the driving task. Youth who have been prescribed sedative medications should check with their physician or pharmacist about the risks of driving while taking the medication. The impairing effects are most pronounced during the first two weeks of use. Youth who use sedatives for non-medical purposes would be expected to exhibit impairment of driving. The impairing effects of these drugs can be particularly profound on those who are still acquiring the skills and experience required to operate a vehicle safely in a complex driving environment.

Riding with a driver who has used sedatives can also be dangerous. Sedative impairment might not necessarily be obvious, leading passengers to believe that the person they expect to drive them home is safe to do so. Passengers should avoid riding with any driver who has used sedatives in the previous few hours, particularly if they have used sedatives in combination with alcohol or other substances.



## Additional Resources

- Impaired Driving in Canada (Topic Summary)
- Prescription Sedatives (Canadian Drug Summary)
- Cannabis, Driving and Implications for Youth (Topic Summary)
- Stimulants, Driving and Implications for Youth (Topic Summary)
- Opioids, Driving and Implications for Youth (Topic Summary)

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