

Tobacco and Tobacco-Like Products: Dependency and Cessation

LESSON OBJECTIVES

- students will be able to review the health effects of tobacco and tobacco-like product use
- students will be able to learn how nicotine causes physical dependence in the brain
- students will be able to understand that psychological dependence results from nicotine use
- students will be able to recognize the steps involved in tobacco cessation
- students will be able to appreciate that wanting to quit, setting clear goals, monitoring progress and receiving positive reinforcement are essential components of tobacco cessation
- students will be able to develop a plan to help a person quit tobacco use

CONTENT AND TIME (80-MINUTE LESSON)

- 4.1 Introduction (5 minutes)
- 4.2 Activity: The effects of nicotine (15 minutes)
- 4.3 Activity: Ready, set, QUIT! (40 minutes)
- 4.4 Closure: Key Messages (20 minutes)

REQUIRED MATERIALS

HANDOUT 4.1: Ready, Set, QUIT!

HANDOUT 4.2: Two copies of each case study Raquel, Rajiv, Mei Lee and David

Several pieces of coloured paper (for example, two white, four blue, four green, four yellow and four orange)

Journal books or loose-leaf paper

The tobacco in cigarettes, pipes, cigars and “spit” (chewing) tobacco contains nicotine. Some tobacco-like products including shisha (smoked in a waterpipe or hookah), and the liquids used in electronic smoking products (also called vaping), contain nicotine. Nicotine is an addictive drug that can change the way you think, feel and act. People who use tobacco and tobacco-like products become dependent on the “buzz” or “high” that it gives them. Over time, they develop tolerance to nicotine, which means that they need increasingly more of the drug to achieve the same effects. Tobacco and tobacco-like product use is also a learned behaviour. People become accustomed to smoking, chewing or vaping when they are with certain people, or in certain places or situations.

Quitting tobacco and tobacco-like product use is one of the best things a person can do for his or her health. It is difficult, but possible, with a plan and support from others. This lesson looks into the physical effects of nicotine, along with effective steps to take toward cessation. This lesson can be helpful for students who are trying to quit themselves or others who would like to support a friend or family member in quitting. It is important to emphasize that there is no one right way to quit. A person attempting to quit should look at the range of options available and choose the combination that best fits for him or her.

Albertans can access the toll-free Alberta Quits Helpline at 1-866-710-QUIT (7848). The Alberta Quits Helpline provides confidential and free information, referrals and telephone counselling support to people who want to quit using tobacco. More information and online quit services, including text and group support, are also available at <https://www.albertaquits.ca/>.

4.1 Introduction

(5 minutes)

Ask students to identify the short- and long-term health effects of tobacco and tobacco-like product use. Here are some examples.

Short-Term

People who use tobacco and tobacco-like products for the first time may experience coughing, dizziness and a dry irritated throat. Other effects may include nausea, weakness, abdominal cramps and headache.

Short-term effects of nicotine also include an increase in blood pressure and heart rate, lower skin temperature in hands and feet and decreased appetite (AADAC, 2002d).

You may also want to mention effects not related to health, such as getting nicotine stains on teeth and fingers from smoking, having bad breath and clothes smelling of smoke.

Long-Term

Cancer – Smoking is the major cause of lung cancer and cancers of the mouth, throat, voice box (larynx) and esophagus; and it is a contributing cause of cancers of the bladder, kidney and pancreas. Spit tobacco causes oral cancer and increases the risk of cancers of the throat, voice box and esophagus.

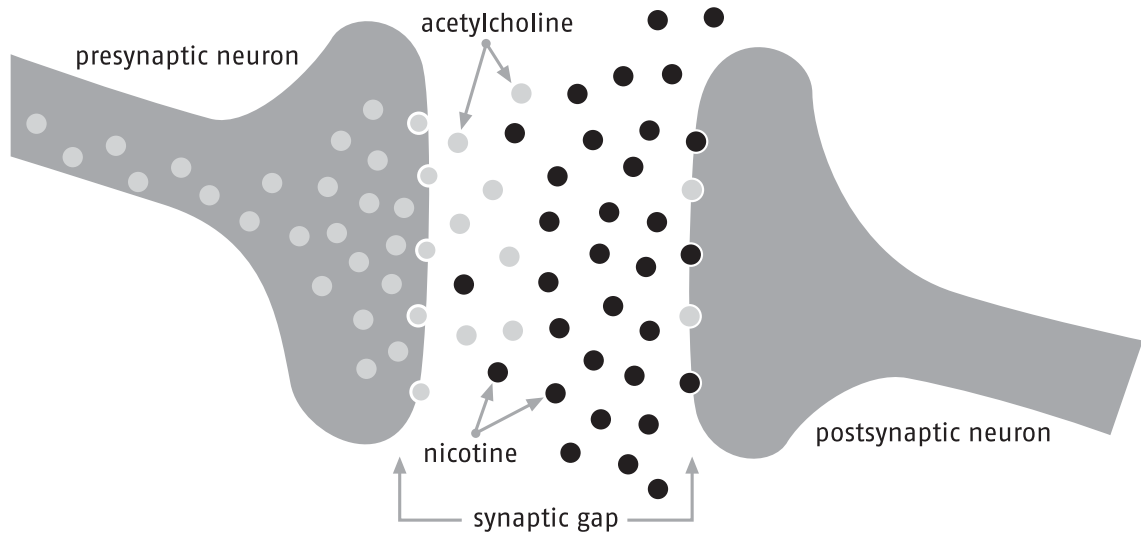
Lung disease – smoking causes emphysema, chronic bronchitis and Chronic Obstructive Pulmonary Disease (COPD). Many people do not know that they are affected until it is too late.

Cardiovascular diseases – Smoking causes heart disease, stroke, diseases of the blood vessels, heart attack and aortic aneurysm. Spit tobacco may increase the risk of heart disease, diseases of the arteries and veins, stroke and high blood pressure (AADAC, 2002d).

Note: There are health risks linked to some of the chemicals found in electronic smoking products (also called vaping). The long-term effects of electronic smoking products are unknown but there is enough evidence to justify efforts to prevent the use of these products by young people and people who do not use tobacco products (<https://www.canada.ca/en/health-canada/services/smoking-tobacco/vaping/risks.html#a3>).

4.2 Activity: The effects of nicotine

(15 minutes)



This activity simulates how nicotine causes physical dependence in the brain. In order to understand this concept, it is necessary for students to have a basic idea of how the brain works. To demonstrate, have two volunteers stand at the front of the room, facing one another, approximately four feet apart. You will also need pieces of three different kinds of coloured paper rolled into balls (for example, six white, four yellow and four blue).

Explain that the students represent neurons. Designate one student (Student A) to be the presynaptic neuron and the other (Student B) to be the postsynaptic neuron. Student B's hands represent the nerve cell receptors. The white balls represent the neurotransmitters, and the space between the students represents the synaptic gap.

Hand Student A six white balls and ask him or her to throw four of them, one by one, to Student B. Explain the following process:

Neurons communicate by releasing chemical "messengers." These chemicals are called neurotransmitters. When a neuron is excited, it releases a neurotransmitter into the gap between it and other neurons. The gap between two neurons is called the synaptic gap. Neurotransmitters released into this gap by one neuron can bind to special receptors on the cellular membrane

of a second neuron, called the postsynaptic neuron. When the postsynaptic neuron binds sufficient neurotransmitter molecules, it also becomes excited and releases other neurotransmitters, thus sending the signal on to yet other nerve cells. One such neurotransmitter is acetylcholine. In this demonstration, the white balls represent molecules of acetylcholine.

Next, stand in between the two students and explain that the yellow balls represent nicotine. Toss two of the yellow balls to Student B who is representing the postsynaptic nerve. Ask Student A to throw the remaining two white balls to Student B. Explain the following process:

Acetylcholine released by one nerve cell will bind to a receptor called the nicotinic acetylcholine receptor on the postsynaptic neuron. But this receptor will also bind nicotine. When you smoke or chew tobacco, nicotine enters the bloodstream. It enters the brain very quickly and gains access to the synaptic gaps, and gets bound by the nicotine cholinergic receptors. When it binds to a neuron, the nicotine acts just like a neurotransmitter, stimulating the neuron to release other neurotransmitters.

The brain regulates its production of acetylcholine, but it cannot regulate how much nicotine enters the synaptic gap. The brain tries to create balance by decreasing its response to nicotine, which means that it requires more and more of the drug to achieve the same effect.

Remind the class the yellow balls represent nicotine. Stand in between the two students and toss two more yellow balls to Student B. Have Student A throw four blue balls to Student B and explain the following process:

Several kinds of neurotransmitters are released as a result of the stimulation of the postsynaptic neuron, but the one whose role in addiction is most firmly established is dopamine. Dopamine is involved in stimulating the reward pathway in the brain. The reward pathway is a group of structures in the brain that perform a normal survival-oriented function, namely motivating us by giving us feelings of pleasure when we satisfy natural urges like thirst, hunger, and procreation. Nicotine is addictive because it causes the release of dopamine, which turns on this reward pathway.

The body is a self-regulating system. When an unnatural amount of stimulation takes place, as happens with smoking, chewing tobacco or vaping, the brain will try to normalize its reaction. Over time, some of the nicotinic receptors turn off and stop responding to the presence of nicotine.

When people quit using nicotine, it will take some time for the brain to return to normal. So, at first, the person operates at a lower level of pleasure than they had before they started smoking, chewing or vaping. This is why people can get anxious, depressed and irritable when they quit using nicotine. They begin to crave nicotine, because the brain and body have become used to it. They need to use nicotine just to feel normal.

Next, explain that the brain experiences withdrawal when a person stops using nicotine, which in turn affects the body. Neither the brain nor the body can immediately function the way it did before use was established. At this point, hand Student A two white balls to throw to Student B. The brain is now producing fewer neurotransmitter molecules and reducing the receptors for those neurotransmitters.

Withdrawal symptoms subside over the first month as the brain and body start to stabilize the production of neurotransmitters. Withdrawal symptoms include:

- anxiety
- irritability
- headaches
- dizziness
- increased appetite
- stomach upset
- depression
- cravings
- sleep disturbance
- sweating

In addition to physical dependence, people often experience psychological dependence. They use nicotine compulsively, regardless of negative effects on their health. They associate tobacco and tobacco-like product use with the following:

- social activities like smoking or vaping with friends
- rituals like opening a fresh pack of cigarettes, lighting a cigarette, putting it out or gesturing while smoking
- body memory, for example the act of bringing your hand to your lips and the stimulation of your lips
- coping strategies (dealing with feelings such as anger, boredom, and anxiety).

Ask the class how easy it would be to quit using tobacco and tobacco-like products, given this change in brain chemistry and psychological dependence. How can you be supportive of someone who wants to quit?

4.3 Activity: Ready, set, QUIT!

(40 minutes)

Distribute HANDOUT 4.1: Ready, set, QUIT! When students have read through the cessation program individually, divide the class into groups of four or five. Give each group one case study handout on Raquel, Rajiv, Mei Lee or David to read through together. Ask the groups to brainstorm how this person might make a plan to quit by considering the circumstances of the case study and drawing from the actions outlined on HANDOUT 4.1: Ready, set, QUIT! The groups may choose to make a short-term or long-term plan; it is up to them. They will not have time to use all of the actions listed, but they can highlight suggestions that they think will be helpful for their particular case study. It is important for the class to understand that different groups will emphasize different actions because the case studies are unique.

Encourage the groups to begin by choosing which actions are most important, given their particular case studies. Next, they can provide examples of each action, specific to their case study. For example:

One group may decide that Raquel should take the following actions outlined on HANDOUT 4.1: Ready, set, QUIT!:

- Write a list of reasons for quitting.
- Visualize herself as someone who does not use tobacco.
- Reduce smoking.
- Find substitutes for smoking.
- Think about what needs smoking meets for her and how she will meet these needs without it.
- Identify triggers.
- Cut one cigarette a day per week.
- Identify challenges after a day or two of not smoking.
- Change patterns connected to smoking.

Once group members have indicated the actions to take, they can add examples specific to Raquel. For example:

- Write a list of reasons for quitting.
 1. She can't afford it.
 2. Other people get tired of giving her cigarettes.
 3. She can go without smoking for a day or two.
 4. School is important to her and getting a job to buy cigarettes may affect her marks.
 5. Her worst cravings are when she is studying, bored or lonely—she could find other things to keep her busy, etc.
- Visualize herself as someone who does not use tobacco.
 1. Find other ways of looking sophisticated. For example, use her good grades and ambition to be a lawyer to have interesting conversations with others.
 2. Hang out with people who do not use tobacco.
 3. Try activities she used to like, such as softball and dance, etc.

Have each group designate a recorder to write down ideas, and a reporter to present the plan to the class upon completion.

4.4 Closure: Key Messages

(20 minutes)

Ask the groups to provide a brief description of their case study and present the key points of their plan of action. Enable the class to respond by stating strengths of each plan and what else the group might have considered.

Journal writing assignment

In your journal, describe one example of how the media has attempted to influence people either to quit using tobacco and tobacco-like products or to avoid starting in the first place. What attitudes or issues is the media addressing in these campaigns? How is the media trying to change the “image” of using tobacco and tobacco-like products? Do these advertisements have any affect on you, your friends, your parents or others in general? Overall, do you feel these media campaigns are effective? Why or why not?

Ready, Set, QUIT!

Stopping tobacco and tobacco-like product use involves many steps. The person quitting must believe that change is possible and will bring about positive outcomes. He or she must set clear and attainable goals and monitor progress. Positive reinforcement is an essential component as well. Read through the following steps of cessation:

1. Change your attitude.
 - Write a list of reasons for quitting.
 - View quitting as constructive and use positive self-talk.
(Canadian Cancer Society, 2000, p. 59)
 - Think in a solution-focused way about the barriers to quitting.
 - Visualize yourself as someone who does not use tobacco or tobacco-like products. (Canadian Cancer Society, 2000, p. 49)
2. Review past quit attempts.
 - Understand that quitting is a process.
 - View past attempts as a positive step towards quitting.
 - Think about why the attempt to quit did not work—learn from the past. (Canadian Cancer Society, 2000, pp. 24-25)
 - Make specific plans for the circumstances that led to past setbacks (how could you handle them differently this time, identify alternatives to tobacco and tobacco-like product use).
(Canadian Cancer Society, 2000, pp. 24-25)
3. Plan a quit day.
 - Map your use of tobacco or tobacco-like products.
 - Reduce your use.
 - Practise deep breathing and relaxation exercises.
 - Find substitutes for tobacco and tobacco-like product use—e.g., exercising, socializing, healthy snacking and brushing teeth.

4. Prepare.

- Change your rituals related to tobacco and tobacco-like product use (e.g., use a different hand, sit in a different chair than you usually do, switch brands of product).
- Do not allow yourself to use tobacco along with any other activity (watching T.V., reading or talking on the phone).
- Reduce use.
- Arrange supports.
- Create “zones” where you cannot use (places and times).
- Think about what needs tobacco meets for you and how you will meet these needs without it (relaxation, exercise and reward).
(Canadian Cancer Society, 2000, pp. 35-42)
- Think about triggers and how you will handle them (if your friends or family use tobacco or tobacco-like products, if your use is tied to leisure activities, or if you are offered tobacco and tobacco-like products). (Canadian Cancer Society, 2000, pp. 55-57)

5. Cut down.

- The less nicotine your body is used to, the less severe the withdrawal will be.
- Cut your least important cigarette, chew, or vape first (i.e., the one you feel the least craving for, perhaps a mid-morning break or just before bedtime).
- Cut out one cigarette, chew or vape day per week for three weeks before quitting.
- Try to delay before you have a cigarette, chew or start vaping (space out your use). (Canadian Cancer Society, 2000, p. 45)

6. Try 24 hours without using tobacco or tobacco-like products.

- This is a “trial run.”
- It gives accurate information about what withdrawal will be like for you.
- It may help identify the need for nicotine replacement therapies such as nicotine patches, gum, lozenges or an inhaler (talk to a pharmacist about available options).

7. Quit.

- Change patterns connected to your use.
- Throw away tobacco and tobacco-like products
- Put away ashtrays, lighters, vaporizers, etc.
- Use supports (your friends, a self-help group, a community agency, online support, etc.).
- Go places where tobacco and tobacco-like product use is not allowed.
- You may need to avoid friends who use tobacco and tobacco-like products for a while.

Other reminders

Minimize withdrawal.

- Drink lots of water to flush out your system.
- Eat small, healthy meals throughout the day.
- Do not overeat: wait 20 minutes after eating a small amount to feel better.
- Avoid caffeine, sugar, and alcohol.
- Increase physical activity.

Minimize withdrawal.

- counselling: Alberta Quits Helpline: 1-866-710-QUIT (7848)
www.albertaquits.ca
- self-help groups/peer support (Nicotine Anonymous)
- workbooks/cessation guides
- Nicotine replacement therapies such as patches, gums, lozenges or an inhaler

Use a quitting aid if needed (this might help if you are strongly dependent).

- nicotine replacement therapies prescribed by a doctor (patch or gum)

Remind yourself:

- Just think about today.
- Begin to notice how much better you feel. (Canadian Cancer Society, 2000, p. 49)
- Avoid situations where you used to use tobacco and tobacco-like products.
- Tell your friends and family that you have quit.
- Keep busy.
- Reward yourself- save money you would have spent and treat yourself.
- Eat veggies and fruit.
- Brush your teeth often.
- Deal with cravings one at a time—each one will pass.
- Drink lots of water.
- Chew on gum, toothpicks or coffee stir-sticks.
- Remember that every person is different: no one solution is right for everyone.
- Resist the temptation to have “just one”.
- Do not worry about all the days of your life ahead of you without tobacco or tobacco-like products.

Case Study 1 – Raquel

Raquel started smoking at age 14 because she thought it made her look older and more sophisticated. At age 15 she smokes four or five cigarettes a day. She usually gets them from her one or two smoking acquaintances, who sometimes get tired of supplying her with tobacco. She doesn't have a job and can't regularly buy her own. Sometimes she just can't get cigarettes and has to go without for a day or two, or over the weekend, because she just can't get any. When this happens she feels anxious and grumpy, and thinks a lot about how she will get her next cigarette.

Raquel lives with her grandma and grandpa. They are both proud of her because she is a good student and never gives them any trouble. They usually give her permission to do what she wants because they trust her and think she is responsible. Raquel's grandpa has smoked for 50 years and thinks all this "debate" about tobacco control and reduction is ridiculous. However, since Raquel came to live with them grandpa bowed to pressure from grandma and now only smokes outside. He doesn't know Raquel uses tobacco.

Raquel finds she craves a cigarette when she is studying or feeling stressed about school. She thinks about getting a part time job after school so she could buy her own cigarettes, but she is worried about how that might affect her marks. Raquel hopes to be a lawyer someday and places particular importance on doing her best at school. She also craves a cigarette when she is bored, lonely or thinks about how much she misses her mom and dad.

Raquel is not physically active, although she would like to be more so. She used to play softball and take dance when she was a little girl, but for some reason stopped all that as she got to her teen years. She doesn't have too many friends yet because she changed schools when she came to live with her grandparents, and her shy nature makes it harder for her to meet new people. When she has once again spent a weekend in withdrawal, Raquel thinks about what it would be like to quit smoking. However, she just doesn't know how she would handle all the stress and loneliness without it.

Case Study 2 – Rajiv

Rajiv started smoking shisha in a waterpipe or “hookah” 10 months ago at age 16. He experimented with smoking hookah off and on for three or four years in social situations when his friends and family would use it, but now he is using more often and sometimes by himself. He liked how it made him look and feel, and later began to notice that he was craving the nicotine, and would feel bad if he didn’t have it. Now he smokes hookah about 5–6 times a day.

Rajiv plays sports and has noticed recently that his smoking is making a difference to his performance. He is not able to catch his breath as quickly and feels like it is more work to run than it used to be. His coach has expressed concern about it and offered to help him if he wants to quit. A couple of other guys on the basketball team smoke cigarettes, and they’ve talked about the idea of quitting together.

Rajiv doesn’t think his parents are aware that he is smoking hookah regularly. His mom does not smoke and his dad only smokes a hookah occasionally, at social gatherings. Rajiv is afraid he will let them down if he reveals that he is smoking regularly. His younger sister does not support his smoking, and always tells him he should stop. She can’t believe her parents aren’t aware of her brother’s hookah use, which seems all too evident to her.

Rajiv squeezes hookah smoking into his day when he can. He usually has his first one before school, about an hour after waking up, and tries to have one or two more during the course of the day. He has one more when he gets home, and then must wait until he is out with friends to smoke again. Sometimes he “goes for a walk” just so he can smoke during the evening.

Most of Rajiv’s friends do not smoke and many are willing to help him quit. Rajiv has never tried to quit before, but is worried about withdrawal symptoms such as irritability, coughing and headaches, plus ongoing cravings. Rajiv really likes the effect of hookah smoking, and has only gone a day or two without it when he couldn’t afford it or while on a family holiday. He didn’t like the withdrawal symptoms he experienced, and he can’t imagine feeling like that for days and days.

Case Study 3 – Mei Lee

Mei Lee started using an electronic smoking product that contained nicotine (also called vaping) at age 15, when her friend suggested that she try using her vape pen. She really liked the effect and bought one of her own right after trying for the first time. She is now 17 and is vaping every day. Mei Lee has noticed it takes more puffs on her vape pen to feel good than it used to, but she is resisting increasing her use too much because she can't afford it. She has recently noticed how easily she gets out of breath. Her seven-year-old always asks her what she is doing when she vapes. He seems curious about vaping, and asks lots of questions about it.

Mei Lee's father smokes cigarettes. He feels he can't say much to her about her vaping, since he smokes himself. Although he doesn't like it, Mei Lee vapes in her bedroom, and uses her vape pen first thing in the morning before even getting out of bed to face the day.

Most of Mei Lee's friends smoke or vape. She has one friend who quit, and who keeps encouraging Mei Lee to quit too, but she doesn't see her much anymore. Mei Lee vapes at home, while walking to the bus stop, at the bus stop, before school, at lunch, after school, and while walking from the bus.

Mei Lee works in a restaurant as a server. Mei Lee vapes before work and on her 15-minute break outside by the grease bin. She thinks standing out there is disgusting. Mei Lee tried to quit vaping once when she was 16. She lasted three days before starting up again. Mei Lee found the physical withdrawal symptoms to be unbearable. But she believes she started again mostly because she broke up with her boyfriend at that time, and felt stressed out and lonely.

Case Study 4 – David

David chews spit tobacco pretty much constantly. He started at age 13 while helping on the farm, using occasionally. David liked the feeling he got from the nicotine and began using more consistently. He is now 17. He uses about eight to 10 times a day, and sometimes goes to bed with tobacco in his cheek at night.

David is in Grade 12 and is an average student. He is not involved in many sports or activities because his work on the farm occupies most of his spare time. David sees himself working on the farm with his older brother after high school, and becoming a heavy-duty mechanic. David finds it is easy to chew during the vast majority of his work on the farm, because it doesn't interfere with his hands or cause a fire hazard like smoking would.

David has become very dependent on the effects of tobacco. If he goes without for even a few hours he begins to feel sick and dizzy. The cost is becoming a bit of an issue because it is so expensive and David also doesn't like having to spit all the time. When he is out on the farm it is not a big issue, but in other situations it is often inconvenient for him to spit out his tobacco juice, like while in school or at a movie. Sometimes he swallows the juice, but this leaves him feeling a bit nauseated and disgusted. His girlfriend thinks it's disgusting too. She often complains and won't kiss him when he's been chewing, which is a lot of the time.

David has noticed some small white sores on his gum in the spot where he puts his chewing tobacco. He's not sure, but thinks it is probably not a good sign, and it scares him a little bit. His father and older brother both chew tobacco too. His mother doesn't like it, and is always encouraging them to quit, especially since his dad had a mild heart attack last spring. David has thought briefly about quitting, but his few, brief experiences with withdrawal symptoms were brutal. He feels quite certain that he would be unable to stay tobacco-free in the face of all that discomfort.