

COVID-19 Vaccine Educational Information Package

(taken from Government of Canada websites)

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About COVID-19 mRNA vaccines

- Two of the vaccines approved for use in Canada are messenger RNA vaccines (called mRNA vaccines):
 - Pfizer
 - Moderna
- mRNA vaccines are a new type of vaccine. They are based on about 20 years worth of research and are a new way to deliver instructions to our bodies to protect ourselves against COVID-19. They don't use live virus to trigger an immune response. Instead, they teach your cells how to make a protein that will trigger an immune response. Once triggered, your body makes antibodies. These antibodies help you fight the infection if the real virus does enter your body in the future.
- Researchers have been studying and working with mRNA vaccines for quite some time. For example, they've been studied for use in flu, Zika, rabies and cytomegalovirus (CMV). Researchers have also used mRNA to trigger the immune system to target certain cancer cells.
- mRNA vaccines can be developed faster than traditional methods because they're made in a lab using materials that are easily available. Once developed, large-scale clinical trials are carried out to show that the vaccine is safe and effective.
- As with all vaccines, you gain protection from an mRNA vaccine without having to risk the serious consequences of getting sick from the virus.
- You can't get COVID-19 from the vaccine itself because none of the authorized vaccines in Canada have the virus that causes COVID-19 in them.

How COVID-19 mRNA vaccines work

- Messenger ribonucleic acid (mRNA) is a molecule that provides cells with instructions for making proteins. mRNA vaccines contain the instructions for making the SARS-CoV-2 spike protein. This protein is found on the surface of the virus that causes COVID-19.
- The mRNA molecule is essentially a recipe, telling the cells of the body how to make the spike protein.
- COVID-19 mRNA vaccines are given by injection, usually into the muscle of the upper arm.
- After the protein piece is made, the cell breaks down the instructions and gets rid of them. The mRNA never enters the central part (nucleus) of the cell, which is where our DNA (genetic material) is found. Your DNA can't be altered by mRNA vaccines.
- After the mRNA has done its job, in a few days the mRNA naturally is degraded by the body and completely disappears.
- The cell then displays the protein piece on its surface. Our immune system recognizes that the protein doesn't belong there and begins building an immune response and making antibodies.

mRNA vaccine safety

- Vaccines are carefully studied in controlled clinical trials with tens of thousands of people. But, even before a single person receives a vaccine in a clinical trial there's an incredible amount of research that goes into the development of the vaccines from lab studies, animal studies and everything that we know about vaccines in general.
- COVID-19 mRNA vaccines are held to the same high standards for safety, effectiveness and quality as all vaccines authorized for use in Canada. Only vaccines that meet those standards can be approved.
- Once approved, we continue to monitor all vaccines for safety and effectiveness in people.
- We have a strong monitoring system for drug safety in Canada. Anyone who witnesses or experiences a side effect to a vaccine is strongly encouraged to report it to their health care provider.
- Health care providers must report adverse events following immunization to their local public health authority. The public health authority then reports them to the Public Health Agency of Canada.

About COVID-19 viral vector-based vaccines

- Two of the vaccines approved for use in Canada are viral vector-based vaccines:
 - AstraZeneca
 - Janssen
- These types of vaccines use a harmless virus (in this case, the adenovirus) as a delivery system. This vector virus is **not** the virus that causes COVID-19. You can't get COVID-19 from the vaccine itself.
- Adenoviruses are viruses that cause the common cold. There are many different types, including those that cause colds in humans and those that infect other species. Scientists have been using these viruses for decades to deliver the instructions for proteins.

How viral vector-based vaccines work

- Once injected into your body, the adenovirus in the vaccine produces the SARS-CoV-2 spike protein. This protein doesn't make you sick. It does its job and then goes away.
- Through this process, your body can mount a strong immune response against the spike protein without exposing you to the virus that causes COVID-19.

Viral vector-based vaccine safety

- Viral vector-based technology has been used to develop:
 - COVID-19 vaccines
 - an Ebola vaccine
 - many vaccines for animals
- Like all vaccines authorized for use in Canada, COVID-19 viral vector-based vaccines are held to high safety, effectiveness and quality standards. Only vaccines that meet those standards can be approved.
- After we approve a vaccine, we continue to monitor it for safety and effectiveness.
- We have a strong monitoring system for drug safety in Canada. Anyone who witnesses or experiences a side effect to a vaccine is strongly encouraged to report it to their health care provider.
- Health care providers must report adverse events following immunization to their local public health authority. The public health authority then reports them to the Public Health Agency of Canada.
- For more information on drug safety, see safety after authorization for vaccines and treatments for COVID-19.

Health benefits of vaccination

- Vaccination is one of the most effective ways to protect our families, communities and ourselves against COVID-19.
- Evidence indicates that vaccines are very effective at preventing severe illness, hospitalization and death from COVID-19, including against alpha and delta variants of concern. Recent reports in Canada indicate that less than 1% of those who were fully vaccinated have become sick with COVID-19.
- A growing body of evidence indicates that people fully vaccinated with an mRNA vaccine (Pfizer-BioNTech and Moderna) are less likely to have symptomatic or asymptomatic infection or to transmit SARS-CoV-2 to others. People who have been fully vaccinated with a viral vector vaccine (AstraZeneca) are less likely to have symptomatic infection or to transmit SARS-CoV-2 to others.

Health benefits of vaccination (cont'd)

- Viruses change over time. While most changes aren't significant, some can create new variants of concern.
- Having as many people vaccinated as possible may also reduce the risk of:
 - ongoing circulation of the virus
 - the appearance of future variants
- Current evidence suggests that COVID-19 vaccines in Canada are effective at providing protection against the known variants of concern at this time.
- Ongoing surveillance in Canada and around the world will help determine whether changes to the virus affect:
 - transmission
 - disease severity
 - effectiveness of vaccines
 - drug treatments
 - testing

Risks of Not Getting Vaccinated

- Much more likely to have symptomatic or asymptomatic infection or to transmit COVID-19 to others
- Much more likely to have a severe illness, hospitalization and death from COVID-19, with the risk increasing with age
- People who have existing medical conditions also may have a higher risk of serious illness.
- Most common COVID-19 symptoms:
 - fever
 - dry cough
 - tiredness
- Less common COVID-19 symptoms:
 - aches and pains
 - sore throat
 - diarrhoea
 - conjunctivitis
 - headache
 - loss of taste or smell
 - a rash on skin, or discolouration of fingers or toes
- Serious COVID-19 symptoms:
 - difficulty breathing or shortness of breath
 - chest pain or pressure
 - loss of speech or movement
- Seek immediate medical attention if you have serious symptoms. Always call before visiting your doctor or health facility.
- People with mild symptoms who are otherwise healthy should manage their symptoms at home.
- On average it takes 5–6 days from when someone is infected with the virus for symptoms to show, however it can take up to 14 days.

Vaccine side effects

- Like any medication or supplement (including vitamins), vaccines can cause side effects and reactions.
- After being vaccinated, it's common and normal to have temporary side effects. These usually last from a few hours to a few days after vaccination.
- This is the body's natural response, as it's working hard to build immunity against the disease. This is called an inflammatory response or reaction.
- Most side effects don't disrupt daily activities. You can take medicine to help with any pain or to lower a fever. Ask your health care provider what they recommend to manage symptoms.
- Common vaccine side effects may include:
- symptoms at the injection site, such as:
 - pain
 - redness
 - swelling
- flu-like symptoms, such as:
 - chills
 - fatigue
 - joint pain
 - headache
 - mild fever
 - muscle aches

Vaccine Side Effects - Allergic reactions

- There's a small chance of a serious allergic reaction to a vaccine, called anaphylaxis. It usually happens shortly after a person receives the vaccine and **is treatable**.
- Your health care provider will ask you to stay at the clinic for at least 15 minutes after vaccination. This is so they can watch for abnormal or very rare reactions (like anaphylaxis) and treat them quickly. Vaccination sites should have a supply of epinephrine to use in case you have an allergic reaction.
- Signs and symptoms of anaphylaxis may include:
 - itchy rash
 - swelling of the:
 - lips
 - face
 - airway
 - tongue
 - increased heart rate
 - loss of consciousness
 - sudden low blood pressure
 - abdominal pain, vomiting and diarrhea
 - sneezing, coughing and difficulty breathing
- If you experience any of these symptoms after you've left a vaccination site, report it to your health care provider.
- **Call emergency services right away if you develop any serious symptoms that could be an allergic reaction after vaccination.**