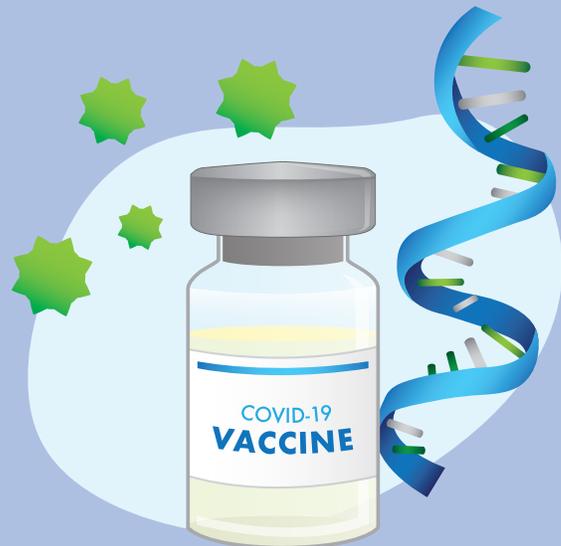


# What you need to know about getting the COVID-19 vaccine

## What is the COVID-19 vaccine?

- A COVID-19 vaccine can protect you from getting the virus that causes COVID-19.<sup>1</sup> This is critically important because COVID-19 can cause severe sickness or death.<sup>2</sup>
- Health Canada has approved two COVID-19 vaccines for use in Canada, the **Pfizer-BioNTech vaccine** and the **Moderna vaccine**.<sup>3,4</sup>



## How do the vaccines work?

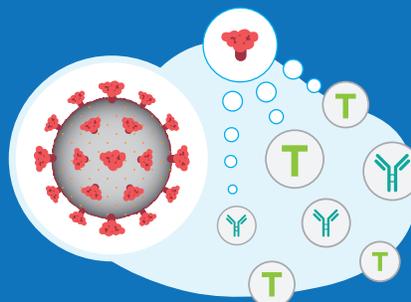
1

mRNA vaccine injected into the arm



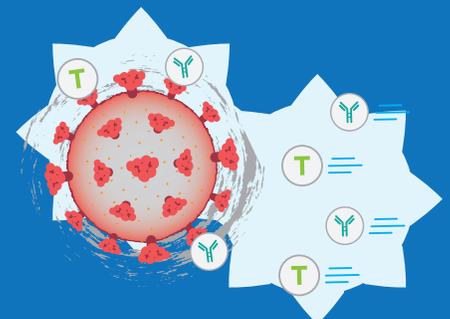
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Your body's cells read the mRNA like a recipe and produce a spike protein which mimics the COVID-19 virus. Your immune system recognizes that the protein doesn't belong there and builds T-cells and antibodies which are designed to fight the real virus.



3

If your body encounters the COVID-19 virus in the future, your T-cells and antibodies are now prepared to fight off the virus before you can get sick



## What are the differences between the two vaccines?

The two vaccines available in Canada are similar in many ways. See the table below for a side by side comparison:

Vaccine	Pfizer-BioNTech	Moderna
What type of vaccine is it?	mRNA vaccine	mRNA vaccine
When was it approved?	December 9, 2020	December 23, 2020
How it is given?	Injection into the shoulder muscle	Injection into the shoulder muscle
How much is given?	Two doses of 0.3mL	Two doses of 0.5mL
When is the second dose given?	21 days after first dose (However, the second dose may be safely delayed beyond 21 days if necessary!) <sup>2</sup>	28 days after first dose
How effective is it?	95% effective	94% effective
How long after my vaccine will it take to be protected against COVID-19?	7-days after the second dose <sup>4</sup>	14-days after the second dose <sup>5</sup>
How is it stored?	In freezers between -60 to -80 degrees Celsius (these temperatures make it hard to transport!)	In freezers of -20 degrees Celsius



**Both vaccines are highly effective in protecting against COVID-19**

## Which vaccine will I receive?

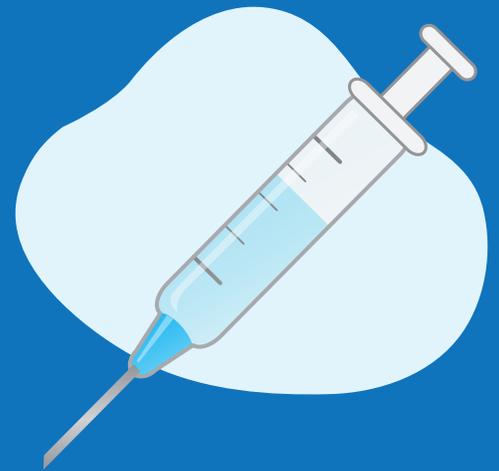
- Given that the Moderna vaccine is easier to transport, the vaccine you receive will largely depend on where you live.<sup>5</sup>

## How safe are the vaccines?

- Serious side effects in vaccines are very rare. Health Canada reviewed the data on both the Pfizer-BioNTech and Moderna COVID-19 vaccines and found **no major life-threatening safety concerns**.<sup>3,4</sup>

## How were the vaccines studied?

- Both vaccines were studied in large, international clinical trials of 30,000-44,000 adults using randomization. Randomization is similar to flipping a coin to see who gets to receive the vaccine or placebo (a placebo does not contain any active ingredients that could affect health).
  - These types of studies are considered the “gold standard” of health research, and produce the highest quality evidence.<sup>8</sup>
- Participants were assigned to receive two doses of either the vaccine or placebo by injection into the shoulder muscle. Participants were followed to see if they developed symptomatic COVID-19 or side effects.<sup>6,7</sup>
- The studies found the vaccines to be 94-95% effective. Protective effects were achieved within 1-2 weeks of receiving a vaccine.<sup>6,7</sup>



## What are the normal side effects to expect after receiving the vaccine?

- Side effects can occur with many vaccines including the flu vaccine and others. Common side effects experienced during the clinical trials for both the Pfizer-BioNTech and Moderna vaccines included:
  - Pain, redness, or swelling at the injection site
  - Fever
  - Headache
  - Muscle soreness.
- Most of these side effects were mild to moderate, with fewer than 0.1% (1 out of 1000 people) experiencing these side effects to a degree where it affected their ability to do daily activities.<sup>6,7</sup>
- If you are concerned about taking time off to deal with side effects related to the administration of the COVID-19 vaccine, discuss these with your employer.

Side effects within 7 days of second vaccine dose	Pfizer-BioNTech (%) <sup>9</sup>	Moderna (%) <sup>10</sup>
<b>Local side effects (at the vaccine injection site)</b>		
Pain	73%	88%
Redness	7%	9%
Swelling	7%	12%
Swelling or tenderness in the armpit (same side as vaccine administration)	Data on this side effect were not collected in the trial	14%
<b>Systemic side effects (whole body)</b>		
Fever	14%	16%
Headache	46%	59%
Fatigue	56%	65%
Muscle pain	34%	58%
Joint pain	21%	43%
Nausea/vomiting	1%	19%
Diarrhea	10%	Data on this side effect were not collected in the trial
Chills	30%	44%

- As more Canadians receive the vaccine, adverse events are continuously updated and reported here: <https://health-infobase.canada.ca/covid-19/vaccine-safety/#summary>

## Who should NOT get the vaccine?

- There are **only two reasons** why you should not receive a COVID-19 vaccine:
- **If you are below the age of 16 years old (for the Pfizer-BioNTech vaccine) or 18 years old (for the Moderna vaccine).**
  - The vaccines have only been tested and approved for people 16 years or older for the Pfizer-BioNTech vaccine, or 18 years or older for the Moderna vaccine.<sup>3</sup> Vaccines for people under the age of 16 years are currently being tested.
- **If you have previously had a severe or immediate allergic reaction to any ingredient in an mRNA COVID-19 vaccine, you should not get an mRNA COVID-19 vaccine.**
  - A severe allergic reaction means an anaphylactic reaction requiring a dose of epinephrine (or use of an EpiPen). An immediate allergic reaction means a reaction within 4 hours of getting vaccinated, including symptoms such as hives, swelling, or wheezing (respiratory distress). This includes allergic reactions to polyethylene glycol (PEG) and polysorbate. Polysorbate is not an ingredient in either mRNA COVID-19 vaccine but is closely related to polyethylene glycol, which is in the vaccines.

## Can I get the vaccine if I am pregnant or breastfeeding?

- If you are pregnant or breastfeeding, you may still receive the vaccine, but should engage in informed decision making with your healthcare provider.
- There is currently very little data on the effect of COVID-19 vaccines on people who are pregnant or breastfeeding. You may still choose to be vaccinated if you fall into one of these groups, but it is recommended that you discuss this choice with your healthcare provider if you have any concerns.<sup>11</sup>

## Can I get the vaccine if I am immunocompromised or have an underlying health condition?

- If you are immunocompromised or have underlying health conditions, you may still receive the vaccine, but should engage in informed decision making with your healthcare provider.
- While people who are immunocompromised were included in vaccine clinical trials, we do not have enough safety evidence on this group to make strong recommendations.<sup>6,7</sup>
- Taking the COVID-19 vaccine is a personal choice. If you are concerned about taking the vaccine due to any underlying health conditions or medications that you are currently taking, **talk with your doctor before receiving the COVID-19 vaccine.**

You may also reach out to the Toronto Public Health Hotline or Health Canada COVID-19 Information Line for additional information at:

**Toronto Public Health Hotline:**  
**Telephone:** 416-338-7600

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**TTY:** 416-392-0658  
**Email:** [PublicHealth@toronto.ca](mailto:PublicHealth@toronto.ca)

Translation is available in multiple languages.

**Health Canada COVID-19 Information Line:**  
**Telephone:** 1-833-784-4397  
**Email:** [phac.covid19.aspc@canada.ca](mailto:phac.covid19.aspc@canada.ca)

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## Will I still have to wear a mask and socially distance after I get the vaccine?

- Yes, wearing a mask and practicing physical distancing are still important even after receiving the vaccine. We do not yet have available data to know whether or not those who are vaccinated can still carry the virus and be contagious to others. It is possible that you can still transmit the virus even after receiving your vaccine. It will be important to continue implementing recommended public health measures such as universal masking, physical distancing, and self-isolation after travel. Additionally, a small percentage of individuals who receive the vaccine may still be at risk of getting the virus.<sup>12</sup>



## When and how do I get my vaccine?

- The vaccine will be free and available to all Canadians, through demonstration of a government-issued photo ID (provincial health card, status card, driver's license, etc.).<sup>13</sup>
- Because there will be limited quantities at first, populations at the greatest risk of experiencing serious complications as a result of the virus and/or of acquiring and transmitting the virus are being prioritized.
- Long-term care residents and staff will be among the first to have access to the vaccine, in addition to adults 70 years of age and older, healthcare workers with direct patient contact, and adults living in Indigenous communities.<sup>14</sup>

## Is the vaccine permitted and recommended for those practicing different religions?

- Many North American faith-based communities recommend or permit vaccination. Among these are The Canadian Muslim Covid-19 Task Force (CMTF), The Orthodox Union and Rabbinical Council of America, the United States Conference of Catholic Bishops, and the Hindu American Foundation.<sup>15-18</sup>
- Taking the COVID-19 vaccine is a personal choice. If you are concerned about your faith based or cultural group's guidance on vaccination, make sure to consult relevant leadership within your community or seek additional information before choosing to be vaccinated.

# Vaccine rumours... Are they true?

## **Q: Can the mRNA vaccine alter my DNA?**

**A:** No. There are three reasons why we can be confident that mRNA vaccines will not alter our DNA:

- 1) Location – mRNA is active in the cytoplasm of a cell, whereas DNA is in the cell's nucleus. The two nucleic acids (mRNA and DNA) are therefore never in the same place in the cell.
- 2) Process – mRNA is not DNA. So, if a person's DNA was going to be altered, the RNA would have to be made into DNA. This would require a special protein which the vaccine does not contain.
- 3) Stability – mRNA is not very stable and can only stay alive in human cells for hours.<sup>3,12</sup>



## **Q: I heard that messenger RNA (mRNA) vaccine technology “has never been tested or approved before.” How do we know this vaccine is not dangerous?**

**A:** These vaccines have been tested on tens of thousands of people around the world and underwent rigorous safety approval processes before they were recommended for widespread use. The Pfizer-BioNTech and Moderna COVID-19 vaccines are the first mRNA vaccines to be approved by Health Canada, but this technology has been studied in humans for the last several years.

## **Q: There are claims that the coronavirus pandemic is a cover for a plan to implant trackable microchips. Is this true?**

**A:** No. There is no vaccine “microchip.” The vaccine has no ability to track people or gather any personal information.<sup>19</sup>

## **Q: Can I get COVID-19 from receiving the vaccine?**

**A:** No. These vaccines do not contain any infectious materials (this means there is no live virus in them); you cannot get COVID-19 from the vaccine.<sup>1</sup>

**Q: Do I still have to wear a mask and physical distance after I am vaccinated?**

**A:** Yes. Wearing a mask and practicing physical distancing are still important even after receiving the vaccine. We don't know yet whether people who are vaccinated can still carry the virus and pass it to others. Therefore, it will be important to continue following recommended public health measures such as universal masking, physical distancing, and self-isolation after travel. On top of that, the vaccines are 94-95% effective.<sup>6,7</sup> This means that a small percentage of individuals who receive the vaccine may still be susceptible to the virus.<sup>12</sup>



**Q: Can the vaccine impact fertility, pregnancy and breastfeeding in women?**

**A:** No. There is no scientific basis for the claim that the COVID-19 vaccines impact fertility. Both the Pfizer-BioNTech and Moderna vaccines were not tested on pregnant or breastfeeding individuals. In Canada, pregnant and breastfeeding individuals can receive the vaccine if they choose, but should do so in consultation with their healthcare provider after weighing their personal risks of exposure. Due to uncertainty, public health officials suggest that anyone getting the vaccine should avoid getting pregnant within 28 days of the last dose.<sup>11</sup>

**Q: Can the vaccine cause erectile dysfunction in men?**

**A:** No. There is no evidence to support the claim that the COVID vaccines can cause erectile dysfunction in men. On the contrary, there has been evidence linking the COVID-19 disease itself to increased suffering from erectile dysfunction.<sup>20</sup>

**Q: Will the COVID-19 vaccine cause long-term autoimmune issues?**

**A:** There is no evidence to suggest that mRNA vaccines cause new autoimmune disease or worsen existing autoimmune diseases. People with autoimmune diseases are encouraged to consult with their healthcare providers about whether the vaccine is right for them after weighing their personal risks of exposure.<sup>21</sup>

**Q: Will the COVID-19 vaccine cause neurological issues, for example, facial weakness or paralysis (also known as Bell's Palsy)?**

**A:** In the Pfizer-BioNTech vaccine trial, four people out of 43,449 participants in the trial (less than 0.01%) developed a temporary weakness or paralysis of facial muscles. Although these four participants all received the vaccine, the frequency at which this occurred is similar to what we see in the general population.<sup>9</sup> Therefore, there is no evidence that it was linked to the vaccine.<sup>22</sup>

**Q: These vaccines underwent a "Fast Track" Process for approval in Canada - does this affect their safety?**

**A:** On September 16, 2020, Canada's Minister of Health signed an [Interim Order Respecting the Importation, Sale and Advertising of Drugs for Use in Relation to COVID-19](#), which establishes alternative pathways to the standard regulatory review process. This was done to help with the authorization of eligible products.<sup>23</sup> The interim order allowed for Health Canada

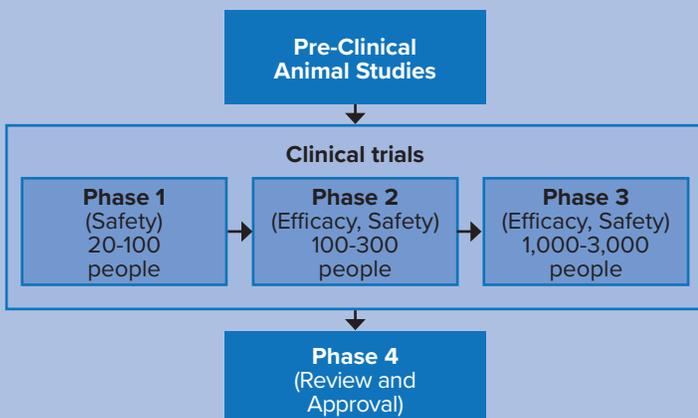
and other health regulators to analyze vaccine data on a rolling basis as it became available. Canada’s high standards for drug and vaccine review, approval, and monitoring have not been compromised in the expedited development and rollout of these vaccines. It does not mean that any steps were skipped in the approval process. Instead, Health Canada made this process more efficient.

- The interim order introduces temporary regulations to expedite the authorization for **importing, selling, and advertising** COVID-19-related drugs **without compromising patient safety**.<sup>23</sup>
- Health Canada and the Minister of Health authorized both the Pfizer-BioNTech and Moderna vaccines under the Interim Order.

This means that although authorization pathways for importation, sale, and advertising of these vaccines were expedited, **both products were reviewed by Health Canada to conform to the requirements of the Food and Drugs Act and its associated regulations were met**.<sup>23</sup>

- Due to the unprecedented, international demand for a COVID-19 vaccine, health organizations, governments, and pharmaceutical companies around the world have prioritized the creation of a safe and effective COVID vaccine. This has not led to “cutting corners” in the creation of these vaccines; on the contrary, it has led to extreme focus and added attention to detail in these processes. These vaccines went through all of the same safety checks as any other vaccine would, but in an expedited manner.<sup>23</sup>

Both vaccines successfully underwent **all phases** of clinical trials:



**Q: If I already had COVID-19 and recovered, should I still get the vaccine?**

**A:** Yes. Even if you previously had COVID-19, it is recommended that you get vaccinated. Recovering from COVID-19 is not a substitute for vaccination; there have been numerous reported cases of COVID-19 re-infection.<sup>24</sup> Although scientists are still trying to understand how long immunity from the vaccine will last, current evidence suggests that the vaccine will provide immunity for much longer than your body’s natural antibodies would.<sup>25</sup> The CDC recommends waiting 90 days after recovering from COVID-19 before getting your vaccination.<sup>26</sup>

**Q: Do COVID-19 vaccines contain fetal tissue?**

**A:** No. Neither the Pfizer-BioNTech nor Moderna COVID-19 vaccines contain fetal tissue. Early explorative research into mRNA vaccine technology were tested on donated fetal cell cultures, but fetal tissue was not used in the design, development or production of the COVID-19 vaccines.<sup>27</sup>



If you have any concerns about taking the COVID vaccine, discuss these with your doctor or healthcare practitioner. You may also reach out to the Toronto Public Health Hotline for additional information at:

**Telephone:** 416-338-7600

**TTY:** 416-392-0658

**Email:** [PublicHealth@toronto.ca](mailto:PublicHealth@toronto.ca)

Translation is available in multiple languages.



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