

VACCINE EDUCATION



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Developed with collaboration of SMAC and thanks to Drs Naidu and McCormack and CFL medical group

CFL VACCINE EDUCATION

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OUTLINE

1. COVID Vaccines explained
 - mRNA & Viral Vector Based
2. Why get vaccinated?
3. Side Effects
4. When should you get vaccinated?
5. What can you do when fully vaccinated?
6. Questions

VACCINE

- A substance used to stimulate a person's immune system
- Produced antibodies and provide immunity to a specific disease
- Protecting the person from that disease or minimizing the effect of the disease.
- Vaccines are usually administered through needles, however, some can be administered by mouth or sprayed into the nose



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M RNA VACCINES

- **Pfizer and Moderna**

- mRNA

- Molecule that provides cells with **instructions for making proteins**

- **SARS-CoV-2 spike protein is made** due to the vaccine

- this same protein is on the surface of the COVID-19 virus

- The cell displays the protein piece on its surface

- Our immune system recognizes the protein doesn't belong and begins building an **immune response (makes antibodies)**





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VIRAL VECTOR BASED VACCINES

- **AstraZeneca (Canada), Johnson & Johnson (Canada)**
- Viral vector
 - Uses the adenovirus (causes the common cold) which is a harmless virus
- This virus contained within the vaccine **produces the SARS-CoV-2 spike protein**. This protein doesn't make you sick, it just goes away
- Then, **your body mounts an immune response (antibodies) against the spike protein** without exposing you to the actual COVID-19 virus
- Similar technology than the ebola virus vaccine





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VACCINE INFORMATION

- Vaccines are given into the muscles of the arm– usually deltoid
- All start immunity developing within 2 weeks
- Pfizer – second dose \geq 21 days later
 - 95% effective in preventing COVID-19 beginning 1 week after the second dose
- Moderna – second dose \geq 28 days later
 - 94.1% effective in preventing COVID-19 2 weeks after the second dose





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VACCINE INFORMATION

- AstraZeneca – second dose at least 4-12 weeks later
- *62% effective in preventing COVID-19 two weeks after the second dose
- Janssen (Johnson & Johnson) – one dose
- 66% effective in preventing COVID-19 two weeks after the dose
 - 74% effective in the USA
 - 52% in South Africa likely due to the B.1.135 variant



* research was not done with the same outcomes. AstraZeneca had more severe illness outcomes therefore numbers were lower



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VACCINE INFORMATION

- Delta variant: numbers are growing in Canada and worldwide
 - Only 30 % protection with one dose
 - Protection increases to 60 % with 2 doses of AZ and 88% for 2 doses with Pfizer



HOW COVID-19 VACCINES COMPARE

ALL FOUR VACCINES PROTECT
AGAINST HOSPITALIZATION AND
DEATH FROM COVID-19



AstraZeneca



Johnson
& Johnson



Pfizer



Moderna

Eligible Age	18+*	18+*	12+	18+
Number of Doses	2	1	2	2
Those fully vaccinated who are still at risk of hospitalization and death from COVID-19	0 in 100	0 in 100	0 in 100	0 in 100
Those fully vaccinated who are still at risk of mild to moderate COVID-19	38 in 100	34 in 100	5 in 100	5 in 100
Offers some protection 4-6 weeks after first dose	Yes	Yes	Yes	Yes
Rare but serious side effects	1-2 in 100,000 risk of vaccine induced blood clot	1 in 500,000 risk of vaccine induced blood clot	None as of April 29, 2021	None as of April 29, 2021

*Health Canada has authorized use of AstraZeneca for those 18+, while some provinces have set the eligible age to 40+.
†As of April 14, 2021, Health Canada states that the benefits of the vaccine in protecting against COVID-19 outweigh its potential risks.



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WHY GET “THE SHOT”

“

“These vaccines have not been tested head to head, so it’s impossible to do a really accurate comparison. What matters most is ... they are all effective at preventing the most severe COVID outcomes, including hospitalization and death.”

Dr. Mira Irons
American Medical Association (4)



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WHY GET “THE SHOT”

“

“All seven COVID-19 vaccines that have completed large efficacy trials — Pfizer, Moderna, Johnson & Johnson, Novavax, AstraZeneca, Sputnik V and Sinovac — appear to be 100% effective for serious complications.”

———— Emanuel et al (2021) (5) ————



WHY GET “THE SHOT”

1. Personal Protection

- a) **Getting both doses will protect you fully (95%) against the serious outcomes of COVID**

2. Herd Immunity: for your teammates

- a) When a virus can't spread because it encounters people who are protected against the infection
- b) **60-70% is a better goal as the vaccines will likely be less effective against variants**

3. Not even Close

- a) It has not been confirmed but it is our expectation that a fully vaccinated individual will not be considered a close contact
- b) So your risk of being asked to self-isolate due to an exposure to a confirmed COVID case will be eliminated

4. Ethical

- a) There are concerns inside of Japan of the risk that those attending the Olympics will bring COVID to Japan
- b) Being fully immunized will help protect the people of Japan



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FINISH LINE FAR AWAY?

H

Hesitancy for vaccination (growing global concern)

E

Enthusiasm waning for secondary vaccine trials after first vaccines approved

R

Risk of a short duration of vaccine immunity

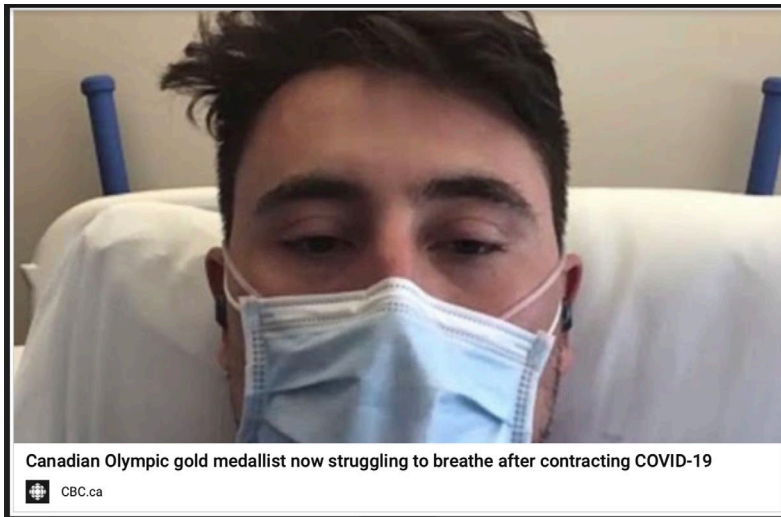
D

Delayed rollout of vaccines

VARIANTS: MORE DANGEROUS & SPREAD EASIER



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Canadian Olympic gold medallist now struggling to breathe after contracting COVID-19

CBC.ca

*Vaccines still give some
protection against the variants
as the COVID-19 molecule is
still similar to the wild type
virus*

Ont. doctor admits 3 COVID-19 patients to ICU after they turned down vaccines

Published April 15, 2021 9:25 p.m. ET



By Brooklyn Neustaeter
CTVNews.ca Writer

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TORONTO -- An Ontario doctor is urging people to get a COVID-19 vaccine once a jab becomes available to them after he admitted three patients who turned down shots to the ICU.

POSSIBLE SIDE EFFECTS



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Vaccine	Platform	Doses	Efficacy in the prevention of symptomatic illness (COVID-19 cases)	Possible Side Effects	Age groups
Pfizer-BioNTech	mRNA	2	95%	<ul style="list-style-type: none"> - Pain at injection site - Fatigue - Headache - Muscle pain - Joint pain - Chills - Nausea - Fever - Swollen lymph nodes - Feeling unwell 	16 years and older
Moderna	mRNA	2	94.1%	<ul style="list-style-type: none"> - Pain at injection site - Fatigue - Headache - Muscle pain - Joint pain - Chills - Nausea - Fever - Swollen lymph nodes in the arm that was injected - Vomiting 	18 years and older
Janssen/ Johnson & Johnson	Vector	1	66.3%	<ul style="list-style-type: none"> - Pain at injection site - Fatigue - Headache - Muscle pain - Nausea - Fever - Chills 	18 years and older
AstraZeneca	Vector	2	66.7%	<ul style="list-style-type: none"> - Pain at injection site - Fatigue - Chills - Fever 	18 years and older

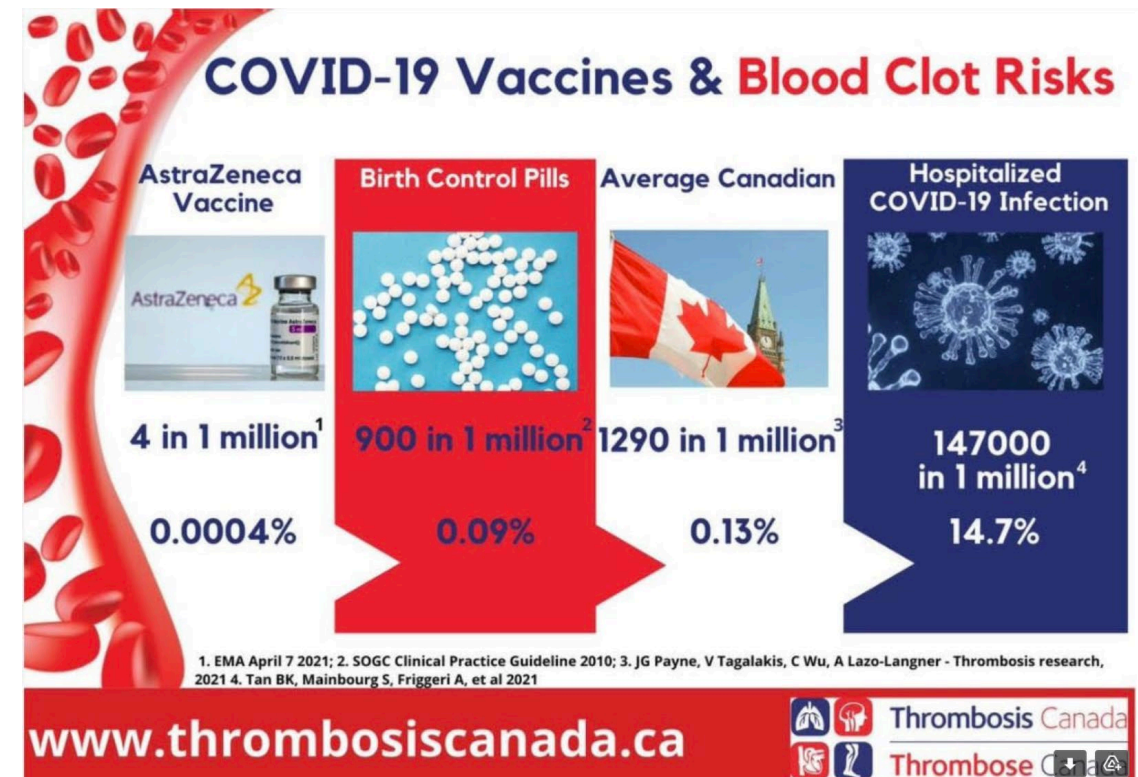
BLOOD CLOT RISK

Rare Blood Clots:

- Johnson & Johnson
 - under 1 per million doses
- AstraZeneca
 - 1 per 100,000 doses

General Blood Clots:

- If hospitalized with COVID
 - ~1/5 (~20%) people will develop a clot
- If in ICU with COVID
 - ~1/3 (~33%) will develop a clot





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WHAT ARE THE RECOMMENDATIONS

“

“Just about every medication that we take has some potential for side effects, and all those medications have great advantages to us. They help us keep alive.”

————— **Dr. Ben Chan** —————

Assistant Professor of Global Health, University of
Toronto (27)

WHEN ARE YOU CONSIDERED FULLY VACCINATED?



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Have You Been Fully Vaccinated?

In general, people are considered fully vaccinated: ±

- 2 weeks after their second dose in a 2-dose series, such as the Pfizer or Moderna vaccines, or
- 2 weeks after a single-dose vaccine, such as Johnson & Johnson's Janssen vaccine

WHAT CAN I DO AFTER I'M FULLY VACCINATED: OUTDOORS



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		Unvaccinated People	Examples of Activities Outdoor	Fully Vaccinated People
Safest			Walk, run, wheelchair roll, or bike outdoors with members of your household	
			Attend a small, outdoor gathering with fully vaccinated family and friends	
			Attend a small, outdoor gathering with fully vaccinated and unvaccinated people, particularly in areas of substantial to high transmission	
Less Safe			Dine at an outdoor restaurant with friends from multiple households	
Least Safe			Attend a crowded, outdoor event, like a live performance, parade, or sports event	

















Reference: CDC



WHAT CAN I DO AFTER I'M FULLY VACCINATED: OUTDOORS



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	Unvaccinated People	Indoor	Fully Vaccinated People
Less Safe		Visit a barber or hair salon	
		Go to an uncrowded, indoor shopping center or museum	
		Attend a small, indoor gathering of fully vaccinated and unvaccinated people from multiple households	
Least Safe		Go to an indoor movie theater	
		Attend a full-capacity worship service	
		Sing in an indoor chorus	
		Eat at an indoor restaurant or bar	
		Participate in an indoor, high intensity exercise class	

Reference: CDC



WHAT CAN I DO AFTER I'M FULLY VACCINATED: TRAVEL



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- Canada will no longer require international travelers that are **fully vaccinated** to quarantine for 14 days upon returning
 - Now only need to self-isolate (can be at home) until a negative COVID test has been reported



YOU WILL STILL NEED TO...

- Abide by the rules that Tokyo 2020 have in place at all times
- Protect yourself and others by:
 - Limiting indoor public settings or large indoor gatherings
 - Gathering indoors with unvaccinated people from different households
 - Wearing a mask if on planes, buses, trains, etc.
 - Still watching for COVID-19 symptoms especially due to variants of concern



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B.1.1.7 UK variant

- Between 40 and 70% more infectious than other variants
- Raises death risk by about 60%
- Vaccines seem to work against it

P1 Brazil variant

- More contagious than the initial coronavirus strain, can re-infect
- May be more virulent but further research needed
- E484K, 'escape mutation', helps the virus dodge antibodies

B.1.351 South Africa variant

- Found in at least 20 countries, including the UK
- Mutation called N501 appears to make it more contagious
- Another mutation, called E484K, could help virus dodge a person's immune system and may affect how vaccines work

B.1.617 Double Mutant

- E484Q mutation is similar to another variant, the E484K, found in fast-spreading Brazil and South Africa regions
- Includes L452R mutation, which helps the virus escape our body's natural immune response
- This variant has been detected in at least 10 other countries, including the US, the UK, Australia, and New Zealand



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OUR RECOMMENDATIONS

“

“Our advice to Canadians is to get whichever vaccine is available to you. The longer you wait to get vaccinated, the longer the time goes by that you are not protected.”

————— **Dr. Supriya Sharma** —————

Chief Medical Officer, Health Canada (3)

WHEN SHOULD YOU GET VACCINATED



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- **As soon as possible**
- COPSIN CMO's and games CMO's in collaboration with NSO physicians and many local and provincial health units are working on details and will expedite vaccination as soon as possible prior to departure for games
- Goal is to get fully vaccinated prior to departure for games

REFERENCES

- *OE INSIGHTS – Feb 27. 2021, Article No. 75*
- *OE Insights – May 1, 2021, Article No. 78*
- *Centers for Disease Control and Prevention: COVID-19*
- *Government of Canada - Canada.ca > Coronavirus disease (COVID-19)*



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QUESTIONS



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