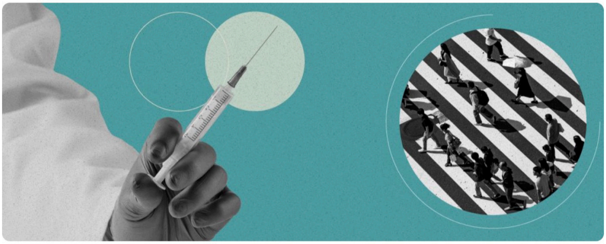
ARTICLES

Coronavirus vaccine side effects: what to know

What are the side effects of the coronavirus vaccine? In this article we'll explain why the coronavirus vaccines have side effects and how severe you can expect them to be.

Practio
23 April



Why do vaccines cause side effects?

Vaccines work by simulating an immune response to an infectious disease. This is like a practice run for the body on how to fight the disease, and it also means that various bodily responses are triggered, much like they would if you caught the actual disease.

Although vaccines are created through a number of different methods, ultimately the goal is the same, to harmlessly introduce the body to an element of the disease.

Common side effects, such as a fever, or chills, show that the vaccine has been effective in stimulating an adaptive immune response. Most people experience soreness and redness around the site of injection.

These side effects do not mean that you have coronavirus, nor are they infectious. Vaccines only contain part of the organism causing the disease, or in some cases a weakened form, so you cannot be infected with a disease by taking the vaccine.

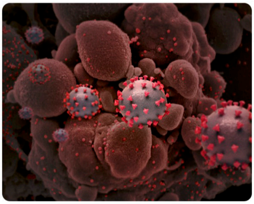
Side effects of coronavirus vaccines vs catching coronavirus

Side effects of the approved coronavirus vaccines are incomparable to the long term effects of catching coronavirus.

While some people may experience mild effects from the COVID-19 vaccine, they should pass after a few days. Of the people who got the Pfizer vaccine the most common side effects were headache or fatigue.

By contrast, an initial study from China suggested that around 1 in 5 people over the age of 80 require hospitalisation after contracting coronavirus.

It is difficult to know the exact mortality rate, but research from Imperial College London suggests that in high income countries around 1 in 100 people who catch COVID-19 die.



Creative visualisation of SARS-CoV-2 virus particles. The Pfizer vaccine does not contain the live virus. Photo: National Institute of Allergy and Infectious Diseases (NIAID)

Coronavirus complications and serious long term risks

Data is still being collected in order to determine the severity of the long term risks associated with coronavirus, however, some complications include:

- inflammation of the heart muscles
- respiratory problems and damage to lung tissue
- kidney damage
- skin problems such as a rash or hair loss
- neurological issues such as long term loss of taste, difficulties sleeping, concentration problems
- psychiatric problems including depression, anxiety and mood changes

The long term risks associated with coronavirus are far more dangerous than any side effects associated with the vaccine.

Long-term neurological problems

There is growing concern that COVID-19 can cause long term neurological problems. The effect the virus has on the neurological system could mean that those who catch could have a higher chance of having strokes or developing Alzheimer’s in later life.

A study published in the Lancet Psychiatry Journal also found that up to 1 in 3 people who catch coronavirus are subsequently diagnosed with psychiatric problems such as depression and anxiety.

What are the side effects of the Pfizer/BioNTech vaccine?

According to the UK government, these are the most common side effects (affecting more than 1 in 10 people) of the Pfizer vaccine:

- pain at the site of injection
- fatigue
- headache

- muscle pain
- chills
- joint pain
- fever

Less common side effects (affecting fewer than 1 in 10 people) include:

- swelling and redness at site of injection
- nausea

Uncommon side effects (affecting around 1 in 100 people) include:

- enlarged lymph nodes
- feeling unwell

Very rare side effects (affecting around 1 in 1,000 people) include:

- temporary one sided facial drooping

A vial of the COVID-19 BioNTech/Pfizer vaccine. The Pfizer vaccine is made using mRNA technology. Photo: U.S. Secretary of Defence

What are the side effects of the Oxford/AstraZeneca vaccine?

These are the possible side effects of the Oxford/AstraZeneca vaccine according to the UK government.

Very common side effects (affecting more than 1 in 10 people) include:

- tenderness, swelling, pain, redness, swelling, warmth or bruising around the site of injection
- feeling unwell
- fatigue
- chills
- headache
- nausea
- joint or muscle ache

Common side effects (affecting fewer than 1 in 10 people) include:

- a lump at the site of injection
- fever
- vomiting
- flu-like symptoms such as a runny nose, cough or sore throat

Uncommon side effects (affecting around 1 in 100 people)

- dizziness

- decreased appetite
- abdominal pain
- enlarged lymph nodes
- excessive sweating
- itchy skin or rash

Blood clots and COVID-19 vaccines

The European Medicines Agency (EMA) has found a possible link between the AstraZeneca vaccine and a very rare side effect of unusual blood clots combined with low levels of blood platelets.

The Johnson & Johnson/Janssen vaccine, which like the AstraZeneca vaccine is adenovirus-based, has also been found to have a possible link to a very rare side effect of unusual blood clots combined with low levels of blood platelets, according to the EMA.

As a result, the MRHA has issued the advice to seek medical attention if you develop the following symptoms after receiving the AstraZeneca vaccine:

- new onset of severe or persistent headache, blurred vision, confusion or seizures
- develop shortness of breath, chest pain, leg swelling or persistent abdominal pain
- unusual skin bruising or pinpoint round spots beyond the injection site

The UK government Joint Committee on Vaccination and Immunisation (JCVI) has released a statement clarifying that the “benefits of prompt vaccination with the AstraZeneca COVID-19 vaccine far outweigh the risk of adverse events for individuals 30 years of age and over and those who have underlying health conditions which put them at higher risk of severe COVID-19 disease”. People under 30 will be offered alternatives to the AstraZeneca vaccine.

Studies have shown that there is a far higher risk of blood clots from catching COVID-19 than there is from any of the COVID-19 vaccines.

Will there be any long-term side effects of the COVID-19 vaccines?

According to Jonas Nilsen, MD and co-founder of Practio, "adverse reactions to vaccines are far more likely to occur shortly after the vaccine has been given. The vaccine itself does not remain in the body for long, and the side effects which are felt in the days following it being administered are from your body’s immune response to the vaccine."

It is, however, important to bear in mind that "we can’t rule out the possibility that a very small number of people there might experience adverse effects that we don’t yet know about. However, the vaccination rollout is being continuously monitored, and there is a robust reporting system in place which will ensure that any side effects to the vaccine will be identified as quickly as possible."

Adverse drug reactions are also being continuously monitored by the MRHA, and members of the public are encouraged to report any suspected side effects through the Yellow Card scheme.

It is also important to understand that many people may experience illnesses or medical problems around the same time that they are vaccinated and that this does not necessarily mean it was caused by the vaccine. According to the Oxford Vaccine Knowledge Project, “when a vaccine is given to a very large number of people in a population, it is likely just by chance that a few of them will develop some kind of medical problem around the time of vaccination, but this does not prove 'cause and effect'".

Dr Anthony Fauci receives the Moderna COVID-19 vaccine. The vaccination rollout will be continiouosly monitored for any suspected side effects to the vaccine. Photo: National Institute of Allergy and Infectious Diseases

Bell's palsy

In the clinical trials of the BioNtech/Pfizer vaccine, there were 4 cases of Bell's palsy, which is a sudden partial paralysis of the face which resolves over time.

So far there is nothing to suggest that the cases of Bell's palsy were linked to the Pfizer vaccine, however, the condition is being monitored.

Allergic reactions

There have been at least two cases of severe allergic reaction to the BioNTech/Pfizer vaccine in the UK.

The medical staff who administer the vaccine are trained to deal with allergic reactions and will be able to treat them immediately. NHS guidelines say that you should inform staff of any prior allergic reactions before you are vaccinated. People who are allergic to any of the ingredients in the vaccine should not receive it.

The MRHA also states that "any person with a history of anaphylaxis to a vaccine, medicine or food should not receive the Pfizer/BioNTech vaccine".

Experts estimate that 60 - 70 % must be vaccinated in order for herd immunity to be achieved.

How high does herd immunity have to be to end the pandemic?

According to some experts, between 60 - 70% of people must have immunity to coronavirus in order for society as a whole to gain herd immunity.

Herd immunity is essential as it will protect the most vulnerable in society from catching the disease. If the uptake of the COVID-19 vaccine is too low, this could prolong the pandemic for an unforeseen period of time.

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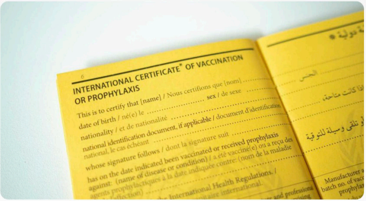

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