

**March 2021**

# NEWS



## Understanding How COVID-19 Vaccines Work

### **The Immune System—The Body's Defense Against Infection**

To understand how COVID-19 vaccines work, it helps to first look at how our bodies fight illness. When germs, such as the virus that causes COVID-19, invade our bodies, they attack and multiply. This invasion, called an infection, is what causes illness.

Our immune system uses several tools to fight infection. Blood contains red cells, which carry oxygen to tissues and organs, and white or immune cells, which fight infection. Different types of white blood cells fight infection in different ways:

- Macrophages are white blood cells that swallow up and digest germs and dead or dying cells. The macrophages leave behind parts of the invading germs called antigens. The body identifies antigens as dangerous and stimulates antibodies to attack them.
- B-lymphocytes are defensive white blood cells. They produce antibodies that attack the pieces of the virus left behind by the macrophages.
- T-lymphocytes are another type of defensive white blood cell. They attack cells in the body that have already been infected.

The first time a person is infected with the virus that causes COVID-19, it can take several days or weeks for their body to make and use all the germ-fighting tools needed to get over the infection. After the infection, the person's immune system remembers what it learned about how to protect the body against that disease.

The body keeps a few T-lymphocytes, called memory cells, that go into action quickly if the body encounters the same virus again. When the familiar antigens are detected, B-lymphocytes produce antibodies to attack them.



Experts are still learning how long these memory cells protect a person against the virus that causes COVID-19.

### **How COVID-19 Vaccines Work**

COVID-19 vaccines help our bodies develop immunity to the virus that causes COVID-19 without us having to get the illness. Different types of vaccines work in different ways to offer protection, but with all types of vaccines, the body is left with a supply of “memory” T-lymphocytes as well as B-lymphocytes that will remember how to fight that virus in the future.

It typically takes a few weeks for the body to produce T-lymphocytes and B-lymphocytes after vaccination. Therefore, it is possible that a person could be infected with the virus that causes COVID-19 just before or just after vaccination and then get sick because the vaccine did not have enough time to provide protection.

Sometimes after vaccination, the process of building immunity can cause symptoms, such as fever. These symptoms are normal and are a sign that the body is building immunity.

### **Types of Vaccines**

Currently, there are three main types of COVID-19 vaccines that are or soon will be undergoing large-scale (Phase 3) clinical trials in the United States. Below is a description of how each type of vaccine prompts our bodies to recognize and protect us from the virus that causes COVID-19. None of these vaccines can give you COVID-19.

- [mRNA vaccines](#) contain material from the virus that causes COVID-19 that gives our cells instructions for how to make a harmless protein that is unique to the virus. After our cells make copies of the protein, they destroy the genetic material from the vaccine. Our bodies recognize that the protein should not be there and build T-lymphocytes and B-lymphocytes that will remember how to fight the virus that causes COVID-19 if we are infected in the future.
- **Protein subunit vaccines** include harmless pieces (proteins) of the virus that cause COVID-19 instead of the entire germ. Once vaccinated, our immune system recognizes that the proteins don't belong in the body and begins making T-lymphocytes and antibodies. If we are ever infected in the future, memory cells will recognize and fight the virus.
- [Vector vaccines](#) contain a weakened version of a live virus—a different virus than the one that causes COVID-19—that has genetic material from the virus that causes COVID-19 inserted in it (this is called a viral vector). Once the viral vector is inside our cells, the genetic material gives cells instructions to make a protein that is unique to the virus that causes COVID-19. Using these instructions, our cells make copies of the protein. This prompts our bodies to build T-lymphocytes and B-lymphocytes that will remember how to fight that virus if we are infected in the future.

### **Most COVID-19 Vaccines Require More Than One Shot**

All but one of the COVID-19 vaccines that are currently in Phase 3 clinical

trials in the United States use two shots. The first shot starts building protection. A second shot a few weeks later is needed to get the most protection the vaccine has to offer. One vaccine in Phase 3 clinical trials only needs one shot.

### **The Bottom Line**

Getting vaccinated is one of many steps you can take to protect yourself and others from COVID-19. Protection from COVID-19 is critically important because for some people, it can cause severe illness or death.

Stopping a pandemic requires using all the tools available. Vaccines work with your immune system so your body will be ready to fight the virus if you are exposed. Other steps, like masks and social distancing, help reduce your chance of being exposed to the virus or spreading it to others. Together, COVID-19 vaccination and following CDC's recommendations [to protect yourself and others](#) will offer the best protection from COVID-19.

Last Updated Jan. 13, 2021

Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

## **Vaccine Pre-Registration**

Please click the link below to pre-register for the COVID-19 vaccination in Prince George's County, if you have not already done so. The County is currently in Phase 1C of its COVID-19 vaccination distribution plan. The following individuals are eligible to receive a COVID-19 vaccine in Phase 1C:



- Adults ages 65-74 years of age
- Health and human services not covered in Phase 1A
- Public safety workers not covered in Phase 1A
- Essential workers at high risk of exposure (in alphabetical order)
  - Food and agriculture workers (farms and processing centers)
  - Grocery store workers
  - Public transit workers (including transport for seniors and persons with disabilities)
  - Postal service workers

<https://covid19vaccination.princegeorgescountymd.gov/>

## **Angela Alsobrooks' County Vaccine Update**

Prince George's County Executive Angela Alsobrooks says she knows people are frustrated and growing impatient with the rollout of the coronavirus vaccine.



She said the complaints aren't falling on deaf ears and that the process is going to improve.

Alsbrooks held an hour-long telephone town hall to update county residents on the vaccination process, touching on a lot of topics, and, above all else, explaining how county residents are going to start seeing progress soon, beginning with the signup process itself.

"The state registration site is very, very difficult to navigate and has created tremendous problems for all of us," said Alsobrooks, who called the whole thing "a disaster."

"Right now, our office of information technology is working with our health department to build a more functional and user-friendly site for appointments," she added. "It'll take us a little while to build that site" but in between, the county is going to utilize the county health department's electronic records system to do more.

With around 125,000 people pre-registered for the vaccine, Alsbrooks said it's going to take time to get everyone scheduled.

Even with more doses expected in the coming weeks — about 4,200 per week — it's going to take time. But the switch to the county-run systems will allow for appointments to be scheduled further into the future.

"By the end of this next week, those on our pre-registration list who have been waiting will begin to receive their appointments," Alsobrooks said. "We'll be able to schedule everyone in 1A and 1B and begin scheduling individuals in 1C within a couple of weeks."

She said the county is also going to begin booking appointments for both the first and second doses at the same time, rather than seeing people get scheduled for that second dose only after they get the first.

No signup links will be used – a process that has led to some abuse as people share the link with others who aren't eligible yet.

Another common complaint among seniors, as well as those whose parents are eligible for the vaccine, is the fact that you even have to go online to begin the process. Not all seniors are computer savvy, and the complications referenced by Alsobrooks can make it an even more overwhelming process

But there is another way.

**"Any senior who needs assistance may dial 311, press pound, and you will be directly taken to the COVID-19 response unit for assistance," said Euniesha Davis, who heads the county's office of community relations.**

February 13, 2021

Content source: WTOP News

New Horizons offers both options Monday through Saturday using the Zoom platform. For additional information please contact Kim Turner at [kturner@nhssi.org](mailto:kturner@nhssi.org) or 301.249.0206.

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