



COVID-19

Moderna COVID-19 Vaccine Overview and Safety

Updated Nov. 19, 2021

CDC has expanded [recommendations](#) for booster shots to now include all adults ages 18 years and older who received a Pfizer-BioNTech or Moderna (mRNA) COVID-19 vaccine as part of their primary series. Get more information and read CDC's [media statement](#).

General Information

Name: mRNA-1273

How Given: Shot in the muscle of the upper arm

Manufacturer: ModernaTX, Inc.

Does NOT Contain: Eggs, preservatives, latex, metals
[See Full List of Ingredients Below](#)

Type of Vaccine: [mRNA](#)

Number of Shots: 2 shots, 28 days apart

[Some immunocompromised people](#) should get 3 shots.

Booster Shot: Some groups of people are recommended to get a [booster shot](#) at least 6 months after getting their second shot. You can get [any of the COVID-19 vaccines](#) authorized in the United States for your booster shot.

Who Should Get Vaccinated

- The Moderna vaccine is recommended for people aged 18 years and older.
- Learn more about [how CDC is making COVID-19 vaccine recommendations](#).

Who Should NOT Get Vaccinated

- **If you have had a severe allergic reaction (anaphylaxis) or an immediate allergic reaction**, even if it was not severe, to any ingredient in an mRNA COVID-19 vaccine (such as polyethylene glycol), you should not get an mRNA COVID-19 vaccine.
- If you had a severe or immediate allergic reaction **after getting the first dose of an mRNA COVID-19 vaccine**, you should not get a second dose of either of the mRNA COVID-19 vaccines (Moderna or Pfizer-BioNTech).
- A severe allergic reaction is one that needs to be treated with epinephrine or EpiPen or with medical care. Learn about [common side effects of COVID-19 vaccines](#) and when to call a doctor.
- An immediate allergic reaction means a reaction within 4 hours of getting the shot, including symptoms such as hives, swelling, or wheezing (respiratory distress).

If you aren't able to get an mRNA COVID-19 vaccine, you may still be able to get a different type of COVID-19 vaccine. Get more [information for people with allergies](#).

Moderna COVID-19 Vaccine Ingredients

All COVID-19 vaccine ingredients are safe. Nearly all of the ingredients in COVID-19 vaccines are ingredients found in many foods – fats, sugars, and salts. The Moderna COVID-19 vaccine also contains a harmless piece of messenger RNA (mRNA). The COVID-19 mRNA teaches cells in the body how to create an effective [immune response](#) to the virus that causes COVID-19. This response helps protect you from getting sick with COVID-19 in the future. After the body produces an immune response, it discards all of the vaccine ingredients, just as it would discard any information that cells no longer need. This process is a part of normal body functioning.

All COVID-19 vaccines are manufactured with as few ingredients as possible and with very small amounts of each ingredient. Each ingredient in the vaccine serves a specific purpose as seen in the table below.

Full list of ingredients

The Moderna COVID-19 Vaccine contains the following ingredients:

Type of Ingredient	Ingredient	Purpose
Messenger ribonucleic acid (mRNA)	<ul style="list-style-type: none">Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2	Provides instructions the body uses to build a harmless piece of a protein from the virus that causes COVID-19. This protein causes an immune response that helps protect the body from getting sick with COVID-19 in the future.
Lipids (fats)	<ul style="list-style-type: none">PEG2000-DMG: 1,2-dimyristoyl-rac-glycerol, methoxypolyethylene glycol1,2-distearoyl-sn-glycero-3-phosphocholineBotaniChol® (non-animal origin cholesterol)SM-102: heptadecane-9-yl 8-((2-hydroxyethyl) (6-oxo-6-(undecyloxy) hexyl) amino) octanoate	Work together to help the mRNA enter cells.
Salt, sugar, acid stabilizers, and acid	<ul style="list-style-type: none">Sodium acetateSucrose (basic table sugar)TromethamineTromethamine hydrochlorideAcetic acid (the main ingredient in white household vinegar)	Work together to help keep the vaccine molecules stable while the vaccine is manufactured, frozen, shipped, and stored until it is ready to be given to a vaccine recipient.

Ingredients that are NOT used in COVID-19 vaccines

The above table lists ALL ingredients in the Moderna COVID-19 Vaccine. There are NO ingredients in this vaccine beyond what is listed in the table. The Moderna COVID-19 Vaccine has

- No preservatives** like thimerosal or mercury or any other preservatives.

- **No antibiotics** like sulfonamide or any other antibiotics.
- **No medicines or therapeutics** like ivermectin or any other medications.
- **No tissues** like aborted fetal cells, gelatin, or any materials from any animal.
- **No food proteins** like eggs or egg products, gluten, peanuts, tree nuts, nut products, or any nut byproducts (COVID-19 vaccines are not manufactured in facilities that produce food products).
- **No metals** like iron, nickel, cobalt, titanium, rare earth alloys, or any manufactured products like microelectronics, electrodes, carbon nanotubes or other nanostructures, or nanowire semiconductors.
- **No latex.** The vial stoppers used to hold the vaccine also do not contain latex.

Possible Side Effects

In the arm where you got the shot:	Throughout the rest of your body:
<ul style="list-style-type: none"> • Pain • Redness • Swelling 	<ul style="list-style-type: none"> • Tiredness • Headache • Muscle pain • Chills • Fever • Nausea

These side effects happen within a day or two of getting the vaccine. They are normal signs that your body is building protection and should go away within a few days.

Learn more about [possible side effects after getting a COVID-19 vaccine](#).

Other Authorized and Recommended COVID-19 Vaccines in the United States.

- [Pfizer-BioNTech](#)
- [Johnson & Johnson’s Janssen](#)

You should get a COVID-19 vaccination as soon as possible. All currently authorized and recommended COVID-19 vaccines are [safe](#) and [effective](#), and CDC does not recommend one vaccine over another.

CDC does not recommend mixing products for an initial 2-dose vaccine series or additional doses. Mixing and matching COVID-19 vaccines is allowed for booster shots.

Safety Data Summary

- In clinical trials, [reactogenicity symptoms](#) (side effects that happen within 7 days of getting vaccinated) were common but were mostly mild to moderate. Few people had reactions that affected their ability to do daily activities.
- Side effects throughout the body (such as fever, chills, tiredness, and headache) were more common after the second dose of the vaccine.
- Cases of myocarditis and pericarditis in adolescents and young adults have been reported more often after getting the second dose than after the first dose of one of the two mRNA COVID-19 vaccines, Pfizer-BioNTech or Moderna. **These reports are rare and the known and potential benefits of COVID-19 vaccination outweigh the known and potential risks, including the [possible risk of myocarditis or pericarditis](#).**
- CDC will continue to provide updates as we learn more about the safety of the Moderna vaccine in [real-world conditions](#).

Learn more about [vaccine safety monitoring](#) after a vaccine is authorized or approved for use.

How Well the Vaccine Works

- Based on [evidence from clinical trials](#), in people aged 18 years and older, the Moderna vaccine was 94.1% effective at preventing laboratory-confirmed COVID-19 infection in people who received two doses and had no evidence of being previously infected.
- The vaccine was also highly effective in clinical trials at preventing COVID-19 among people of diverse age, sex, race, and ethnicity categories and among people with underlying medical conditions.
- CDC will continue to provide updates as we learn more about how well the Moderna vaccine works in [real-world conditions](#).

Clinical Trial Demographic Information

Clinical trials for the Moderna vaccine included people from the following racial, ethnic, age, and sex categories:

Race

- 79% White
- 10% African American
- 5% Asian
- <3% other races/ethnicities
- <1% American Indian or Alaska Native
- <1% Native Hawaiian or Other Pacific Islander

Ethnicity

- 79% not Hispanic or Latino
- 20% Hispanic or Latino
- 1% unknown

Sex

- 53% male
- 47% female

Age

- 75% 18 through 64 years
- 25% 65 years and older

Twenty-two (22%) of people who participated in the clinical trials had at least one condition that put them at risk of severe illness from COVID-19. The most frequent underlying medical conditions among participants were lung disease, heart disease, obesity, diabetes, liver disease, or HIV infection. Four percent (4%) of participants had two or more high-risk conditions. Most people who participated in the trials (82%) were considered to have an occupational risk of exposure, with 25% of them being healthcare workers.

Learn more about [demographic information for people who participated in the trials \[PDF – 54 pages\]](#) [↗](#).

Related Pages

- › [Possible Side Effects](#)
- › [Safety of COVID-19 Vaccines](#)

- › [Benefits of Getting Vaccinated](#)
- › [How Vaccines Work](#)
- › [mRNA Vaccines](#)



For Healthcare Workers

[Moderna COVID-19 Vaccine](#): General information, schedule and administration overview.

More Information

[Moderna’s COVID-19 Vaccine Fact Sheet for Recipients and Caregivers \[PDF – 6 pages\]](#)

[MMWR: Allergic Reactions Including Anaphylaxis After Receipt of the First Dose of Moderna COVID-19 Vaccine — United States, December 21, 2020–January 10, 2021](#)

[Safety and Reactogenicity Data](#)