



# Pfizer-BioNTech COVID-19 Vaccine (also known as COMIRNATY): Overview and Safety

Updated July 29, 2022

## Recommended for People 6 Months and Older

Learn about the recommended timing between Pfizer-BioNTech COVID-19 primary series vaccines and boosters for:

Ages 18 and Older

Ages 12–17

Ages 11 and Under

Immunocompromised

Use [CDC's COVID-19 booster tool](#) to learn if and when you can get boosters to stay up to date with your COVID-19 vaccines.

## General Information

**Manufacturer:** Pfizer, Inc., and BioNTech

**Name:** BNT162b2

**Type of Vaccine:** [mRNA](#)

**Brand name:** COMIRNATY

**How Given:** Shot in the muscle of the upper arm

**Does NOT Contain:** Eggs, preservatives, latex, metals

[View full list of ingredients](#)

## Pfizer–BioNTech (COMIRNATY) Name Change

After FDA approval, the FDA-authorized Pfizer-BioNTech COVID-19 vaccine for individuals ages 12 years and older was marketed as COMIRNATY. **No change was made to the vaccine's formula** with the name change.

The Pfizer-BioNTech vaccine label remains for individuals ages 6 months –11 years since the vaccine is authorized but not yet approved for these age groups.

## Safety Data Summary

- COVID-19 vaccines have undergone—and will continue to undergo—the most intensive safety monitoring in U.S. history. Evidence from the hundreds of millions of COVID-19 vaccines already administered in the United States, and the billions of vaccines administered globally, demonstrates that they are [safe](#) and [effective](#).
- [Side effects](#) that happen within 7 days of getting vaccinated are common but are mostly mild. Some people have side effects that affect their ability to do daily activities.

- Side effects throughout the body (such as fever, chills, tiredness, and headache) are more common after the second dose of the vaccine.
- [Severe allergic reactions](#) to vaccines are rare but can happen.
- There is a rare risk of [myocarditis and pericarditis](#) associated with mRNA COVID-19 vaccination, mostly among males ages 12 through 39 years. The rare risk may be further reduced with a longer interval between the first and second dose. Learn more about [the timing for your second dose](#).

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

## How Well the Vaccine Works

- Vaccines reduce the risk of COVID-19, including the risk of severe illness and death among people who are fully vaccinated.
- COVID-19 vaccines are effective, but studies have shown vaccine protection declines over time—especially with the Omicron variant. Learn more about getting a [booster shot](#) to enhance or restore protection against COVID-19.
- All FDA-approved or authorized [COVID-19 vaccines](#) provide substantial protection against COVID-19 hospitalization and death.
- CDC will continue to provide updates as we learn more.

Learn about demographic information for people ages [16 years and older](#) [↗](#) who participated in the trials.

## Pfizer–BioNTech 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 Pfizer-BioNTech 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 [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 substance 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.

To learn about Pfizer-BioNTech COVID-19 vaccine dosing for different age groups, please visit the [Pfizer-BioNTech clinical information page](#).

## Ingredients in children’s Pfizer–BioNTech COVID–19 vaccine

The Pfizer-BioNTech COVID-19 vaccines for people ages 6 months through 11 years old and the updated formulation of the Pfizer-BioNTech COVID-19 vaccine for people ages 12 years and older contain the following ingredients. While the ingredients are the same for all ages, people ages 12 years and older receive a higher dosage than children ages 6 months through 11 years old.

| Type of Ingredient         | Ingredient                                                                                                                         | Purpose                                                                                        |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Messenger ribonucleic acid | <ul style="list-style-type: none"><li>• Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2</li></ul> | Provides instructions the body uses to build a harmless piece of a protein from the virus that |

|                 |                                                                                                                                                                                                                                                                                           |                                                                                                                                                                              |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (mRNA)          |                                                                                                                                                                                                                                                                                           | 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"><li>• 2[(polyethylene glycol (PEG))-2000]-N,N-ditetradecylacetamide</li><li>• 1,2-distearoyl-sn-glycero-3-phosphocholine</li><li>• Cholesterol (plant derived)</li><li>• ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate)</li></ul> | Work together to help the mRNA enter cells.                                                                                                                                  |
| Salts and sugar | <ul style="list-style-type: none"><li>• Dibasic sodium phosphate dihydrate</li><li>• Monobasic potassium phosphate</li><li>• Potassium chloride (common food salt)</li><li>• Sodium chloride (basic table salt)</li><li>• Sucrose (basic table sugar)</li></ul>                           | 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 in children’s Pfizer–BioNTech COVID–19 vaccine and the updated formulation for people ages 12 years and older

The Pfizer-BioNTech COVID-19 vaccine for people ages 5 through 11 years old and the updated formulation of the Pfizer-BioNTech COVID-19 vaccine for people ages 12 years and older contain the following ingredients. While the ingredients are the same for all ages, people ages 12 years and older receive a higher dosage than children ages 5 through 11 years old.

| Type of Ingredient                | Ingredient                                                                                                                                                                                                                                                                                | Purpose                                                                                                                                                                                                                           |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Messenger ribonucleic acid (mRNA) | <ul style="list-style-type: none"><li>• Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2</li></ul>                                                                                                                                                        | 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"><li>• 2[(polyethylene glycol (PEG))-2000]-N,N-ditetradecylacetamide</li><li>• 1,2-distearoyl-sn-glycero-3-phosphocholine</li><li>• Cholesterol (plant derived)</li><li>• ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate)</li></ul> | Work together to help the mRNA enter cells.                                                                                                                                                                                       |
| Sugar and acid stabilizers        | <ul style="list-style-type: none"><li>• Sucrose (table sugar)</li><li>• Tromethamine</li><li>• Tromethamine hydrochloride</li></ul>                                                                                                                                                       | 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 Pfizer-BioNTech COVID-19 vaccine. There are NO ingredients in this vaccine beyond what is listed in the table. The Pfizer-BioNTech COVID-19 vaccine has:

- **No preservatives** such as thimerosal or mercury or any other preservatives.
- **No antibiotics** such as sulfonamide or any other antibiotics.
- **No medicines or therapeutics** such as ivermectin or any other medications.
- **No tissues** such as aborted fetal cells, gelatin, or any materials from any animal.
- **No food proteins** such as 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** such as 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.

### Related Pages

- › [Possible Side Effects](#)
- › [Safety of COVID-19 Vaccines](#)
- › [Benefits of Getting Vaccinated](#)
- › [How Vaccines Work](#)
- › [mRNA Vaccines](#)



### For Healthcare Workers

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

### Resources

[Pfizer-BioNTech COVID-19 Vaccine for People 12 Years of Age and Older Fact Sheet for Recipients and Caregivers \[PDF – 6 pages\]](#)

[Pfizer-BioNTech COVID-19 Vaccine for People 5 through 11 Years of Age Fact Sheet for Recipients and Caregivers \[PDF – 6 pages\]](#)