

What Ingredients are in the COVID-19 Vaccine?

Pfizer-BioNTech Vaccine (for ages 12+)

- **95% effective**
- Number of shots in primary series: **2 shots, 21 days apart**
- FDA authorized for use in people aged **12 years and older**
- FDA approved for use in people aged 16 years and older
- Booster dose: 1 shot, 6 months after completion of primary series (for ages 18+)
- **Ingredients:** messenger ribonucleic acid (mRNA), lipids (((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 2 [(polyethylene glycol)-2000]- N,N-ditetradecylacetamide, 1,2-distearoyl-sn-glycero-3- phosphocholine, and cholesterol), potassium chloride, monobasic potassium phosphate, sodium chloride, dibasic sodium phosphate dihydrate, and sucrose
- **Explanation of ingredients:** - mRNA: The Pfizer-BioNTech vaccine uses mRNA technology to build antibodies against COVID-19. - Lipids: Nanolipids, or tiny fat molecules, protect the mRNA and provide a "greasy" exterior that helps the mRNA slide inside cells. Nanolipid components in the Pfizer-BioNTech vaccine include: ((4-hydroxybutyl)azanediyl)bis(hexane-6,1- diyl)bis(2-hexyldecanoate), 2 [(polyethylene glycol)-2000]- N,N-ditetradecylacetamide, 1,2-distearoyl-sn-glycero-3- phosphocholine, and cholesterol - Salts: Helping to balance the acidity in your body, the following salts are included in the Pfizer-BioNTech vaccine: potassium chloride, monobasic potassium phosphate, sodium chloride, and dibasic sodium phosphate dihydrate - Sugar: Basic table sugar, also known as sucrose, can also be found in the Pfizer-BioNTech vaccine. This ingredient helps the molecules maintain their shape during freezing.
- **Does NOT contain: eggs, preservatives, latex, rubber or animal products (pork etc.)**
- **Learn more: read the FDA full [Pfizer-BioNTech Fact Sheet](#)**

Pfizer-BioNTech Vaccine (for ages 5-11)

- **90.7% effective**
- Number of shots in primary series: **2 shots, 21 days apart**
- FDA authorized for use in people ages **5 through 11 years old**
- Booster dose: Booster doses are not recommended for this age group at this time.
- **Ingredients:** messenger ribonucleic acid (mRNA), lipids ((4- hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 2 [(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 1,2-Distearoyl-sn-glycero-3-phosphocholine, and cholesterol), tromethamine, tromethamine hydrochloride, sucrose, and sodium chloride
- **Explanation of ingredients:** This slightly different formulation of Pfizer's pediatric COVID-19 vaccine contains a different buffer, tromethamine, which is also used in Moderna's COVID-19 vaccine. These small changes to inactive ingredients were made to improve shelf life and stability. The Pfizer-BioNTech vaccine for children ages 5 through 11 years has the same active ingredients as the vaccine given to adults and adolescents. - mRNA: The Pfizer-BioNTech vaccine uses mRNA technology to build antibodies against

COVID-19. - Lipids: Nanolipids, or tiny fat molecules, protect the mRNA and provide a “greasy” exterior that helps the mRNA slide inside cells. Nanolipid components in the Pfizer-BioNTech vaccine include: ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 2 [(polyethylene glycol)-2000]- N,N-ditetradecylacetamide, 1,2-distearoyl-sn-glycero-3-phosphocholine, and cholesterol. – Acid Stabilizers: work to maintain the stability of the vaccine. Acid stabilizer components in the Pfizer-BioNTech vaccine include: tromethamine and tromethamine hydrochloride. - Salts: Helping to balance the acidity in your body, the following salts are included in the Pfizer-BioNTech vaccine: sodium chloride - Sugar: Basic table sugar, also known as sucrose, can also be found in the Pfizer-BioNTech vaccine. This ingredient helps the molecules maintain their shape during freezing.

- **Does NOT contain: eggs, preservatives, latex, rubber or animal products (pork etc.)**
- **Learn more: read the FDA full [Pfizer-BioNTech Fact Sheet](#)**

Moderna Vaccine

- **94% effective**
- Number of shots in primary series: **2 shots, 28 days apart**
- FDA authorized for use in people aged **18 years and older**
- Booster dose: 1 shot (half dose), 6 months after completion of primary series (for ages 18+)
- **Ingredients:** messenger ribonucleic acid (mRNA), lipids (SM-102, polyethylene glycol [PEG] 2000 dimyristoyl glycerol [DMG], cholesterol, and 1,2-distearoyl-sn-glycero-3-phosphocholine [DSPC]), tromethamine, tromethamine hydrochloride, acetic acid, sodium acetate and sucrose
- **Explanation of ingredients:** - mRNA: Like the Pfizer-BioNTech vaccine, Moderna’s also uses mRNA technology to build antibodies against COVID-19. - Lipids: Nanolipids help deliver the mRNA to the vaccine recipient’s cells. Nanolipid components of the Moderna vaccine include: (SM-102, 1,2-dimyristoyl-rac-glycero3- methoxypolyethylene glycol-2000 [PEG2000-DMG], cholesterol, and 1,2-distearoyl-snglycero-3-phosphocholine [DSPC]) - The remaining ingredients, including acids (acetic acid), acid stabilizers (tromethamine and tromethamine hydro chloride), salt (sodium acetate) and sugar (sucrose) all work together to maintain the stability of the vaccine after it’s produced.
- **Does NOT contain: eggs, preservatives, latex, rubber or animal products (pork etc.)**
- **Learn more: read the FDA full [Moderna Fact Sheet](#)**

Johnson & Johnson (J&J) / Janssen Vaccine

- **66% effective**
- Number of shots: **1 shot**
- FDA authorized for use in people aged **18 years and older**
- Booster dose: 1 shot, 2 months after completion of primary series of J&J (for ages 18+)
- **Ingredients:** recombinant, replication-incompetent adenovirus type 26 expressing the SARS-CoV-2 spike protein, citric acid monohydrate, trisodium citrate dihydrate, ethanol, 2-hydroxypropyl- β -cyclodextrin (HBCD), polysorbate-80, sodium chloride

- **Explanation of Ingredients:** Recombinant, replication-incompetent adenovirus type 26 expressing the SARS-CoV-2 spike protein: a modified and harmless version of a different virus (Adenovirus 26) is used as a “vector” to deliver the DNA gene sequence to produce the coronavirus spike protein. Once the modified adenovirus vaccine enters into the cells, the body of the virus essentially disintegrates and the DNA material within it travels into the nucleus of the human cell where it is transcribed into mRNA. The coronavirus spike protein is then produced and displayed on the cell’s surface, prompting the immune system to begin producing antibodies and activating T-cells to fight off what it thinks is an infection. The Adenovirus 26 in the J&J vaccine does not replicate and does not change your genetic code. – Acids: citric acid monohydrate – Salts: trisodium citrate dihydrate – Sugars: 2-hydroxypropyl- β -cyclodextrin (HBCD), polysorbate-80, sodium chloride – Ethanol.
- **Does NOT contain: eggs, preservatives, latex, rubber or animal products (pork etc.)**
- **Learn more: read the FDA full [Janssen Fact Sheet](#)**

Sources

- <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/Pfizer-BioNTech.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/Moderna.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/janssen.html>
- <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/children-teens.html>
- <https://www.hackensackmeridianhealth.org/HealthU/2021/01/11/a-simple-breakdown-of-the-ingredients-in-the-covid-vaccines/>