

Vaccine Educational Videos References & Sources

Opening Message: Vaccines:

Based on internal and external medical experts

How Does The Body Fight Diseases?

Based on internal and external medical experts

What Are Vaccines And How Do They Work?

Based on internal and external medical experts

How Do Vaccines Work to Eliminate Diseases?

- 00:24 – Disease Prevalence Cases and Dates at Peak - <https://www.cdc.gov/mmwr/pdf/rr/rr4512.pdf>
- 00:35 – Disease Prevalence Reported Cases 1995 - <https://www.cdc.gov/mmwr/pdf/rr/rr4512.pdf>
- Percent Decrease - <https://www.cdc.gov/mmwr/pdf/rr/rr4512.pdf>
- 01:09 – Disease Re-emergence Whooping Cough: 15,662 - <https://www.cdc.gov/pertussis/downloads/pertuss-surv-report-2019-508.pdf>
- Measles: 1,282 - <https://www.cdc.gov/measles/cases-outbreaks.html>

What Are The Risks With Vaccines?

- 01:04 – Disease - <https://www.cdc.gov/vaccinesafety/vaccines/index.html>
- 01:25 – Likelihood of Vaccine-Related Severe Adverse Reactions: DTap/Tdap
 - <https://cdn.who.int/media/docs/default-source/global-vaccine-safety/dtp-vaccine-rates-information-sheet.pdf>
 - Febrile Seizure – “Table 2: Summary of serious adverse events after DTP vaccine; seizures: 6 per 100,000”
 - Anaphylaxis – “Table 2: Summary of serious adverse events after DTP vaccine; anaphylaxis: 1.3 per 1,000,000”

- Neurological Disease/Damage – “Table 2: Summary of serious adverse events after DTP vaccine; Encephalopathy: 0.3-5.3 per 1,000,000”
- 01:25 – Likelihood of Vaccine-Related Severe Adverse Reactions: MMR
 - <https://cdn.who.int/media/docs/default-source/global-vaccine-safety/mmr-vaccine-rates-information-sheet.pdf>
 - Febrile Seizure – “Table 2: Summary of mild and serious adverse events after Measles, Mumps and Rubella vaccines; Measles, Febrile Seizures, 1 in 2,000 to 3,000”
 - Anaphylaxis – “Table 2: Summary of mild and serious adverse events after Measles, Mumps and Rubella vaccines; Measles, anaphylaxis, 1-3.5 per 10”
 - Neurological Disease/Damage – “Table 2: Summary of mild and serious adverse events after Measles, Mumps and Rubella vaccines; Measles, Encephalomyelitis, 1 per 10”
- 01:25 – Likelihood of Vaccine-Related Severe Adverse Reactions: Polio
 - <https://cdn.who.int/media/docs/default-source/global-vaccine-safety/polio-vaccine-rates-information-sheet.pdf>
 - Febrile Seizure – not listed as a possible serious adverse reaction on WHO data sheet
 - Anaphylaxis – not listed as a possible serious adverse reaction on WHO data sheet
 - Neurological Disease/Damage – “aseptic meningitis/encephalitis” are listed as “case reports only” with no statistics on frequency, so these were listed as 0% since percentages would be so small that it would be essentially zero
 - <https://cdn.who.int/media/docs/default-source/global-vaccine-safety/influenza-vaccine-rates-information-sheet.pdf>
 - Febrile Seizure – not listed as a possible serious adverse reaction on WHO data sheet
 - Anaphylaxis – “Summary of mild and severe adverse events – Inactivated influenza vaccine; Anaphylaxis, 0.7 per 10”
 - Neurological Disease/Damage – “Summary of mild and severe adverse events – Inactivated influenza vaccine; Guillain-Barre, 1-2 per 10”
- 01:27 – “A person is more than 5x more likely to die from being hit by lightning than to have a severe adverse reaction...”
 - <https://www.cdc.gov/disasters/lightning/victimdata.html>
 - <https://www.weather.gov/safety/lightning-odds>
- 1:40 – Likelihood of Death from the Disease
 - Tetanus - <https://www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html>
 - Pertussis - <https://www.cdc.gov/pertussis/surv-reporting.html>
 - Polio - <https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html>
 - Influenza - <https://www.cdc.gov/flu/about/burden/past-seasons.html>
 - Diphtheria - <https://www.cdc.gov/diphtheria/clinicians.html>
 - Measles - <https://www.cdc.gov/measles/symptoms/complications.html>
 - Mumps - Am Fam Physician. 2002 Dec 1;66(11):2113-2121 - <https://www.aafp.org/afp/2002/1201/p2113.html>
 - Rubella - Am Fam Physician. 2002 Dec 1;66(11):2113-2121 - <https://www.aafp.org/afp/2002/1201/p2113.html>
- 01:49 – “Someone is 1,000x more likely to die from one of these diseases than to have a vaccine-related severe adverse reaction.”

- Sum of likelihood of vaccine-related severe adverse reaction for each vaccine
- Sum of likelihood of death from each disease covered by each vaccine
- Divide the sum of the likelihood of death by the sum of the likelihood of vaccine-related severe adverse reaction for each vaccine
- Average the likelihood of death compared to likelihood of vaccine-related severe adverse reaction for the four vaccines

How Does The COVID-19 Vaccine Work?

Based on internal and external medical experts

How Well Do mRNA Vaccines Work?

Vaccine Efficacy: mRNA – Pfizer/BioNTech

<https://www.fda.gov/media/144246/download>

- 00:30 – 95% efficacy 28 days after first dose – FDA report pg. 9
- 00:37 – 170 confirmed cases (162 in placebo, 8 in vaccine) – FDA report pg. 9
- 00:37 – 10 severe cases (9 in placebo, 1 in vaccine) – FDA report pg. 9
- 01:05 – 88.9% efficacy against severe disease – FDA report pg. 67, Table 17

Vaccine Efficacy: mRNA – Moderna

<https://www.fda.gov/media/144434/download>

- 01:21 – 94.1% efficacy 42 days after the first dose – FDA report pg. 29
- 01:30 – 196 confirmed cases (185 in placebo, 11 in vaccine) – FDA report pg. 29
- 01:30 – 30 severe cases (30 in placebo, 0 in vaccine) – FDA report pg. 30
- 01:53 – 100% effective against severe disease – FDA report pg. 30, Table 18
- 02:00 – “Produced 2-4x more antibodies than your body would create if you actually contracted COVID-19 itself.”
- <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-share-positive-early-data-lead-mrna>

Vaccine Efficacy: mRNA – Demographics

- 02:29 – Pfizer/BioNTech – <https://www.fda.gov/media/144246/download>
 - Race, Ethnicity, Age Group – FDA report pg. 59, Table 12
 - Obesity, Comorbidity Risk – FDA report pg. 61, Table 13
- 02:29 – Moderna – <https://www.fda.gov/media/144434/download>
 - Race, Ethnicity – FDA report pg. 24-25, Table 10
 - Age Group – FDA report pg. 29, Table 17
 - Obesity, Comorbidity Risk – FDA report pg. 26, Table 13

How Safe Are The mRNA Vaccines? What Are The Side Effects?

- 00:10 – FDA Classifications – <https://www.fda.gov/media/73679/download>
- 00:30 – Pfizer/BioNTech: “majority of participants had Grade 1 or 2 side effects”
 - <https://www.cdc.gov/vaccines/covid-19/info-by-product/pfizer/reactogenicity.html>
- 00:47 – Pfizer/BioNTech: “Fatigue in 3.8% and headache in 2%”
 - <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-conclude-phase-3-study-covid-19-vaccine>
- 00:56 – Moderna: “majority of participants had Grade 1 or 2 side effects”
 - <https://www.cdc.gov/vaccines/covid-19/info-by-product/moderna/reactogenicity.html>
- 01:13 – “Grade 4 side effects were rare in the clinical trials and were observed in those who received the placebo as well as the vaccine.”

- Pfizer/BioNTech – <https://www.cdc.gov/vaccines/covid-19/info-by-product/pfizer/reactogenicity.html>
- Moderna – <https://www.cdc.gov/vaccines/covid-19/info-by-product/moderna/reactogenicity.html>

How Do Viral Vector Vaccines Work?

Based on internal and external medical experts

What Is The Efficacy and Safety Of Viral Vector Vaccines?

- 01:20 – 14 Days Post Vaccination
 - <https://www.fda.gov/media/146217/download>
 - 66.3% Efficacy, FDA report pg. 30, Table 14
 - 76.7% Efficacy Severe COVID-19, FDA report pg. 32, Table 16
 - 93.1% Efficacy Hospitalization, FDA report pg. 34, Table 18
 - 100% Efficacy Death, FDA report pg. 34
- 01:33 – 28 Days Post Vaccination
 - <https://www.fda.gov/media/146217/download>
 - 85.4% Efficacy Severe COVID-19, FDA report pg. 32, Table 16
 - 100% Efficacy Hospitalization, FDA report pg. 34
- 01:37 – Analysis – Confirmed Cases
 - <https://www.fda.gov/media/146217/download>
 - 259 confirmed cases (193 placebo, 66 vaccine), FDA report pg. 25, Table 10
 - 39 severe cases (34 placebo, 5 vaccine), FDA report pg. 32, Table 16
 - 85.4% Efficacy against Severe COVID-19 for 28 days, FDA report pg. 32, Table 16
- 02:56 – Vaccine Efficacy Demographics
 - <https://www.fda.gov/media/146217/download>
 - Race, Ethnicity, Age Group – FDA report pg. 27-28, Table 12
 - Obesity, Comorbidity Risk – FDA report pg. 29, Table 13
- 03:11 – FDA Classifications - <https://www.fda.gov/media/73679/download>
- 03:16 – “Only around 50% of the participants had Grade 1 or 2 side effects”
 - <https://www.cdc.gov/vaccines/covid-19/info-by-product/janssen/reactogenicity.html>
- 03:31 – “Frequency of grade 3 side effects was quite low at 2.5%” Fatigue and muscle ache
 - <https://reference.medscape.com/drug/ad26cov2s-johnson-johnson-covid-19-vaccine-viral-vector-janssen-4000143#4>
 - <https://www.cdc.gov/vaccines/covid-19/info-by-product/janssen/reactogenicity.html>
- 03:34 – “There were no grade 4 side effects”
 - FDA report pg. 41-42 - <https://www.fda.gov/media/146217/download>
- 03:38 – “There was one case involving blood clotting, but it had no severe outcomes, and no causality was identified”
 - <https://www.healthcarefinancenews.com/news/scientists-see-little-evidence-link-between-johnson-johnson-vaccine-and-blood-clots>

- 03:45 – “The Johnson & Johnson vaccine was temporarily paused in the US in April 2021 out of an abundance of caution after 6 cases of blood clots with low platelets were reported out of more than 6 million doses administered”
 - <https://www.cdc.gov/media/releases/2021/s0413-JJ-vaccine.html>
- 04:00 – “After a thorough assessment, it was determined that while there is likely an association between the Johnson & Johnson vaccine and this serious, but rare event, the risk is extremely low and is outweighed by the significant benefits of the vaccine”
 - <https://www.cdc.gov/media/releases/2021/fda-cdc-lift-vaccine-use.html>
- 04:18 – “On average, the risk is 1.9 cases of blood clots per million people. The group at highest of these clots is women aged 18-49, where the risk is 7 cases per million. With women over 50, the rate goes down to 0.9 cases per million. There have been no cases among men”
 - <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/jjupdate.html>
- 04:53 – “120 per million Americans die in a car crash”
 - <https://www.asirt.org/safe-travel/road-safety-facts/>
- 05:20 – “For every 1 million doses of the Johnson & Johnson vaccine, over 650 hospitalizations and 12 deaths amongst women aged 18 to 49, and over 4,700 hospitalizations and nearly 600 deaths amongst women over 50, could be prevented”
 - <https://www.cdc.gov/mmwr/volumes/70/wr/mm7017e4.htm>
 - <https://www.healthline.com/health-news/johnson-johnson-covid-19-vaccine-is-back-what-experts-want-you-to-know>

What About Unknown Long-Term Risks?

- 01:30 – Adverse Events Reported to VAERS in 2019 per Million Vaccine Doses (day of vaccination to 2 years post-vaccination)
 - Graphed from data pull using VAERS data reported from 2019 - <https://vaers.hhs.gov/data/datasets.html>
- 01:37 – FDA Classifications - <https://www.fda.gov/media/73679/download>
- 03:00 – “People who have an allergic reactions to vaccines, talk to their doctor before getting the COVID-19 vaccine”
 - <https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html>

Will Vaccines Control Spread of COVID 19?

- 01:37 – 5 in 1,000,000 have a reaction from the vaccine (anaphylaxis) –
 - <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/adverse-events.html>

How Were The Vaccines Developed So Quickly?

- Vaccine development timeline:

- <https://www.nytimes.com/interactive/2020/04/30/opinion/coronavirus-covid-vaccine.html>
- <https://www.healthline.com/health-news/heres-how-it-was-possible-to-develop-covid-19-vaccines-so-quickly#Does-emergency-use-mean-corners-were-cut?>
- <https://www.medicalnewstoday.com/articles/how-did-we-develop-a-covid-19-vaccine-so-quickly#MNT-takeaways>
- <https://www.houstonmethodist.org/blog/articles/2020/dec/how-was-the-covid-19-vaccine-developed-so-fast/>
- <https://www.henryford.com/blog/2020/12/how-were-the-covid-vaccines-made-so-quickly>
- <https://www.statnews.com/2020/07/30/a-huge-experiment-how-the-world-made-so-much-progress-on-a-covid-19-vaccine-so-fast/>
- <https://www.bbc.com/news/health-55041371>

What To Expect When You Get Vaccinated?

- 00:26 – “Vaccines are 2-4x more effective in producing antibodies”
 - <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-share-positive-early-data-lead-mrna>