

POINT PAPER
ON
COVID-19 VACCINES: PFIZER AND MODERNA

- COVID-19 mRNA vaccines provide instructions for our cells to make a harmless piece of what is called the “spike protein”. The spike protein is found on the surface of the virus that causes COVID-19. This point paper will compare PFIZER and MODERNA.
- MRNA Technology
 - mRNA technology was discovered over 30 years ago and has been studied for vaccine purposes for nearly two decades. Scientists have been working on a coronavirus vaccine since the SARS and MERS outbreaks but funding dried up.
 - Early-stage clinical trials using mRNA vaccines have been carried out for influenza, Zika, rabies, and cytomegalovirus. Recent technology advancements in RNA biology and chemistry, as well as delivery systems, have mitigated these challenges and improved their stability, safety, and effectiveness.
 - COVID-19 mRNA vaccines are given in the upper arm muscle.
 - Once the instructions are inside the muscle cells, the cells follow the instructions and make the protein piece. After the protein piece is made, the cell breaks down the instructions and gets rid of them.
 - Next, the cell displays the protein piece on its surface. Our immune system recognizes that the protein doesn’t belong there and begins making antibodies.
 - After developing antibodies, our immune system has learned how to protect against future infection.
 - The benefit of mRNA vaccines, like all vaccines, is those vaccinated gain this protection without ever having to risk the serious consequences of getting sick with COVID-19.
 - These vaccines cannot give someone COVID-19.
 - These vaccines do not affect or interact with or DNA
- Ingredients in the Vaccines
 - There has been complete transparency around ingredients. There is no aluminum, mercury, or food allergens.
- Side Effects/Immune Response
 - Injection site reaction, fatigue, headache, muscle pain, chills, joint pain, fever.

- All which are called an “immune response”. This is a response without infection; a good thing.
- These are short term, easily managed side effects are significantly less risky than taking your chances with COVID-19 infection.
- Survival Rate
 - Survival rate of COVID-19 infection is 99%. However, surviving and thriving are incredibly different.
 - COVID-19 symptoms can persist for months. The virus can damage the lungs, heart, and brain, which increases the risk of long term health problems. Young and healthy people can feel unwell for weeks to months after infection.
- PFIZER
 - FACTS: 95% effective, 30mcg doses given 21 days apart, 5 does vials, must be diluted with 0.9% sodium chloride, stored at -112 to -76 degrees Fahrenheit, 36,621 trial participants, approved for use in people over the age of 16.
- MODERNA
 - FACTS: 94.5% effective, 100mcg does given 28 days apart, 10 dose vials, no dilution required, stored at -13 to -5 degrees Fahrenheit, 30,350 trial participants, approved for use in people over the age of 18.
- SUMMARY: The vaccine benefits outweigh the known risk of contracting COVID-19. The sooner we vaccinate and establish herd immunity the sooner we can remove our masks.