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Knowing What the COVID-19 Vaccine Does to Your Body?

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There is a lot of excitement right now around the record speed vaccine against COVID-19. Some of these vaccines are already started distribution in parts of the world. But given these are mRNA vaccines, a relatively new technology that has not been widely used before. Here I am explaining how they work and what happens to your body from the moment that the needle touches your skin. Like the vaccines we used to see, these vaccines will be injected into the upper muscles of your arm. But unlike typical vaccine, which introduced inactive or weekend forms of a virus, this will release genetic material called messenger RNA. So what exactly does this mRNA do?

In a regular cell of our body, we have DNA inside of the nucleus. This DNA stores all the information and instructions important to the functioning of cells of our body and automatically makes you. Inside your cell, there is machinery that reaches through your DNA and transcribes into mRNA, which then leaves the nucleus and goes into your cytoplasm. The ribosomes in your cells read the RNA and, depending on the specific code, build a series of mineral acids which fought in on themselves to make proteins which keep you alive in functioning. This process is known as translation

In fact, it is this process that the virus is taking advantage of in the first place. They insert their own genetic information into you and your own machinery and evadingly starts taking that information and building proteins to help create more viruses. Back to the needle, the mRNA, that is being injected into you from the vaccine also creates genetic instructions. But in this case, it is only coding for one small part of the virus, instead of the whole thing. We have already seen SARS COVID-2 with such spikes on it, and it is this spike protein which on it's on harmers that the vaccines mRNA codes for. The mRNA makes its way into the cytoplasm of cells with the ribosomes read the information and started create the spike protein. Once the protein is made across the cell membrane and then your cell breaks down and destroys the injected mRNA instructions.

So what could do having a tiny fragment of virus spike in your body do? Would give your body and more importantly, your immune system approve you, what the virus looks like without causing disease? Suddenly your antibody will notice it and, well, this 'doesn't belong here, which triggers an immune response to recognize and prepare your body for the real thing without ever having to come in contact with the actual vaccine itself.

Your immune system is essentially getting a head start by creating powerful antibodies that can neutralize and kill the real virus. And this antibody memory is stored in your b cells so that if you are ever infected in the future with the SARS COVID-2 virus, your body now

has the upper hand. This is known as an adaptive immune response. Your body has already seen this spike protein before and therefore what you know what to do. Essentially these mRNA vaccines allow your body to protect itself from future infections without ever having to risk the consequences of getting the disease COVID-19.

So why haven't mRNA vaccine been used before? Will they all are relatively new, researchers are actually been experimenting with them for decades. But in the past they haven't been variant, stable. And Sam's in your body would break down the mRNA quickly so they needed to be packaged well. The ones being related now how the mRNA inhaled in lipid nanoparticles which essentially protect the mRNA from being degraded. This is the more unstable than other types of vaccines; they have to be capped code. For example the Pfizer has to be stored at -70°C or -94° F

Of course, a global pandemic has certainly increasing the funding and research is going towards these types of vaccines, which help accelerate the developments. well, makes these vaccines so appealing is unlike other vaccine which can be made in a lab with readily available materials and actually made much to quicker than other types of vaccine instead of fully developing non-infectious virus and injecting them, this morning vaccines concert of pass many hurdles by ingeniously using your own body. It is also cost-effective to create mRNA molecules rather than the proteins that are helpful when we are in a global pandemic wanting a vaccine.

So is it safe? And since it is relatively new technology, should you be concerned at all? Well, that is what these initial trial stages have been for not only to test whether they do not work in the community, but to make sure they have minimum side effects. But, it is important to remember that, just became it is safe doesn't mean that there won't be any soreness or pain. Some recipients did report aches and pains. According to shake cruelty, a professor at the center for infectious disease and vaccine research, "it is not unlike going to the gym and getting exercise and really sore muscles-a bit of pain can be a positive sign that good things are happening. Sometimes you have to earn your immunity, just like you how to earn those biceps you wanted so bad".

REFERENCE

1. Qamar Kazmi, What does The COVID Vaccine do To Your Body?, available at <http://saypakistan.com/what-the-covid-vaccine-does-to-your-body/>, accessed on Jan 12, 2020