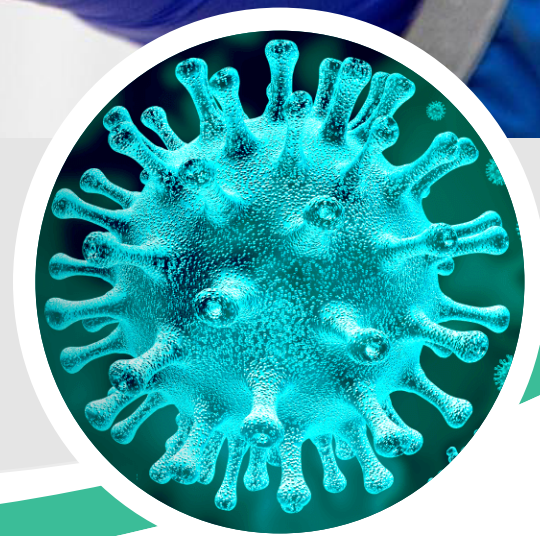


# WHICH COVID VACCINE IS THE BEST?



**BOTH COVISHIELD AND COVAXIN CAN BE STORED AT 2-8° CENTIGRADE, WHICH IS A HOUSEHOLD REFRIGERATOR TEMPERATURE. THIS MAKES BOTH THE VACCINES MOST SUITED FOR INDIAN CONDITIONS AS MOST OF THE VACCINES HERE ARE KEPT AT THE SAME TEMPERATURE RANGE.**



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**PRIOR TO THE COVID-19 PANDEMIC, AN ESTABLISHED BODY OF KNOWLEDGE EXISTED ABOUT THE STRUCTURE AND FUNCTION OF CORONAVIRUSES CAUSING DISEASES LIKE SEVERE ACUTE RESPIRATORY SYNDROME (SARS) AND MIDDLE EAST RESPIRATORY SYNDROME (MERS). THIS KNOWLEDGE ACCELERATED THE DEVELOPMENT OF VARIOUS VACCINE TECHNOLOGIES DURING EARLY 2020.**

**V**accination is the best way to prevent Covid-19 pandemic. Covid-19 vaccine is a vaccine intended to provide acquired immunity against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19). Vaccines are now widely accepted for their role in reducing the spread, severity, and death caused by COVID-19. The average time to develop vaccines previously has been 10-11 years. These conventional vaccines have been in use for decades now:

- Rabies
  - Polio
  - Pertussis, and
  - Japanese encephalitis
- Two diseases have been eradicated only by vaccines: smallpox and polio.

Prior to the COVID-19 pandemic, an established body of knowledge existed about the structure and function of coronaviruses causing diseases like severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). This knowledge accelerated the development of various vaccine technologies during early 2020.

Nine different technology platforms – with the technology of numerous candidates remaining undefined – are under research and development to create an effective vaccine against Covid-19. Most of the platforms of vaccine candidates in clinical trials are focused on the coronavirus spike protein and its variants as the primary antigen of COVID-19 infection. Platforms being developed in 2020 involved nucleic acid technologies (nucleoside-modified messenger RNA and DNA), non-replicating viral vectors, peptides, recombinant proteins, live attenuated viruses, and inactivated viruses.

As of now there are 3 vaccines available in India: COVAXIN, COVISHIELD and SPUTNIK. However, two vaccines which have been used extensively in India are COVISHIELD and COVAXIN. The efficacy of all of these vaccines are almost identical ranging between 60-80% in clinical trials.

There is a lot of information circulating on social media about the superiority of one vaccine over the other. So let me compare these two vaccines.

Covaxin has been developed by Hyderabad-based Bharat Biotech International Ltd in association with the Indian Council of Medical Research (ICMR) and the National Institute of Virology (NIV).

Covishield has been developed by the Oxford-AstraZen-

eca and is being manufactured by the Serum Institute of India (SII).

#### TYPE OF VACCINE

Covaxin is an inactivated viral vaccine. This vaccine is developed with Whole-Virion Inactivated Vero Cell-derived technology. They contain inactivated viruses, which cannot infect a person but still can teach the immune system to prepare a defence mechanism against the active virus.

Covishield has been prepared using the viral vector platform which is a totally different technology.

#### DOSES

There is no difference between the two vaccines in terms of dosage. Both of them are administered as 0.5ml in the upper arm region.

But, the dosing schedule for both vaccines however varies. The second dose of Covaxin is scheduled after 4-6 weeks after the first dose, while for Covishield vaccines it is 84 days or 12-16 weeks after the first dose.

#### STORAGE GUIDELINES

Both Covishield and Covaxin can be stored at 2-8° Centigrade, which is a household refrigerator temperature. This makes both the vaccines most suited for Indian conditions as most of the vaccines here are kept at the same temperature range. This also makes the transportation and storage of both vaccines easier unlike Pfizer and Moderna which require storage at -70 and hence not suitable for tropical countries like India.

#### SIDE EFFECTS

After getting vaccinated, you may experience pain at the site of injection. Some people may also experience side effects such as headache, joint pain, and may feel feverish. These side effects do not persist for long and generally go within a day or two.

#### SPUTNIK V

Sputnik V is the third vaccine to be granted emergency use in India. It has been made by the Gamaleya Research Institute of Epidemiology and Microbiology in Moscow. Sputnik V is a two-dose Covid-19 vaccine using a similar platform to Covishield – the most widely used vaccine in India since the government's immunization programme began in January.

However, unlike Covishield, which uses a weakened common cold "adenovirus" that affects chimpanzees, Sputnik V makes use of two different human adenoviruses.

The vaccine has an efficacy of over 91 per cent, according to a publication in scientific journal The Lancet. This means it has the ability to bring down symptomatic Covid-19 cases by over 91 per cent in those vaccinated compared with those who have not received a Covid vaccine. However, there is no vaccine breakthrough data available yet and a lot of researchers including the WHO have questioned the data and clarifications awaited about its claimed high efficacy.

#### WHICH VACCINES ARE THE BEST?

There have been several reports in the lay press regarding better efficacy of one vaccine based on higher antibody levels. However, these studies are based on small sample sizes and protection against Covid is not based on antibody levels alone but also involves cell-mediated immunity. Hence breakthrough infection rates following vaccination are probably a better way to evaluate vaccine efficacy. Also this could also vary depending upon the COVID variant that is predominant. Hence it would be naïve to assume that Pfizer, Moderna or Sputnik are better than the existing COVISHIELD and COVAXIN. Both these vaccines have shown more than satisfactory results ever since the inoculation started in India. The effectiveness of the Covishield vaccine is nearly 90% as per the global reports and Covaxin's 81% according to interim 3rd phase trial results. The risk of contracting COVID after 2 doses of Covaxin or Covishield is around 6-8% in real world data from leading private hospitals like Fortis and Max. What is reassuring is that the risk of severe infection is minimal. There is no similar data available with the Sputnik vaccine yet. Hence it would appear that at the moment all these vaccines offer similar protection. In addition, there is encouraging data to suggest that these vaccines have some degree of protection even against the delta plus variant, although further studies are in progress.

#### VACCINE UPDATE:

Lactating women can also take the vaccine. Trials in children have been initiated and these vaccines are likely to be approved soon.

For more information please subscribe to my YouTube Channel The Kidney Clinic.