

Coronavirus Singapore

Big immune response boost for vaccinated people who get Covid-19

Immune memory kicks in within a few days of being infected, local study of 150 people shows

Cheryl Tan

Individuals vaccinated against Covid-19 but who still caught the virus showed an “excellent boost” in their immune response, a study by local researchers has found.

The findings are based on researchers checking the antibody levels of 150 people from Singapore who had breakthrough infections.

Dr Barnaby Young of the National Centre for Infectious Diseases (NCID) told The Straits Times the individuals’ immune memory had kicked in within a few days of being infected.

This meant they showed a strong immune response to the virus, said Dr Young, head of the Singapore Infectious Disease Clinical Research Network at NCID.

All 150, who were recruited in May this year, had mild Covid-19 disease.

The study, which is ongoing, is being conducted by NCID, the Agency for Science, Technology

and Research’s Infectious Diseases Labs and Duke-NUS Medical School.

Further studies will be conducted to look at their T-cell response as well, he added.

The immune response is shaped by both the level of neutralising antibodies, which bind with the virus and prevent it from infecting one’s cells, and T-cells, which help to clear infected cells.

Dr Young explained that having immune memory means the immune system is able to recall the antigens, which are molecules on the surfaces of virus, that it was previously exposed to.

With immune memory, the body might rapidly produce antibodies to stimulate a stronger immune response when the same virus or pathogen is encountered again.

“While the neutralising antibodies may bind to the wild-type virus, the immune boost can help to neutralise the Delta variant, as the two are not drastically different,” said Dr Young, who led the study.

Some of the findings have been



People waiting at the Covid-19 vaccination centre at Tanjong Pagar Community Club on Oct 12. A local study has shown that those vaccinated against Covid-19 showed a strong immune response to the virus. All 150 people in the study, who were recruited in May, had mild Covid-19 disease. ST PHOTO: JASON QUAH

published in a pre-print report, which has yet to be peer-reviewed.

“We expect the antibodies to help protect against infection for current circulating variants and probably future unknown ones, too, though this would depend on how dramatically they change from Delta,” he added.

Further studies will be needed to determine how quickly these antibodies wane later on, and whether the level of antibodies will be strong enough to protect against future infections, said Dr Young.

The immune boost does not necessarily mean breakthrough infections will not occur again.

Professor Paul Tambyah, president of the Asia Pacific Society of Clinical Microbiology and Infection, said having high antibody levels may not always correlate with greater protection against infection. “Many individuals who were

doubly vaccinated had high titres of antibodies, yet developed symptomatic Covid-19 infection.

“The immune response is actually a lot more than just antibody levels,” he added. A titre is a measure of concentration.

Aside from the T-cell response, the immune response also comprises the innate immune response, which is the body’s first line of defence against all antigens.

Antibodies can protect against most infections, such as hepatitis B and measles. But “not so good” antibodies, which may be produced following vaccinations against the respiratory syncytial virus and possibly dengue, could lead to severe infections, he noted.

As for Covid-19, it is unclear whether those who had breakthrough infections would be protected against reinfection, given that current vaccines do not pro-

tect against infection very well, said Prof Tambyah.

In the best-case scenario, with a high vaccination rate and as more of the population are infected with Covid-19, the risk of severe disease will be low, he said.

A previous Duke-NUS study done with NCID on survivors of the severe acute respiratory syndrome showed that they had a powerful antibody boost against a range of beta-coronaviruses when they were given a single dose of Covid-19 vaccine.

Natural infection and vaccination may provide long-lasting immunity, noted Prof Tambyah.

He added that some scientists believe Covid-19 booster jabs will be needed to protect against reinfection, like with hepatitis B which requires three jabs.

Associate Professor Hsu Li Yang said certain vaccines require two

or more doses to repeatedly trigger immunological memory through rapid production of antibodies – for instance, tetanus shots and the hepatitis B vaccine, and the Covid-19 vaccines.

Even for single-dose inactivated vaccines, such as those for influenza, a second dose or infection will also boost antibody levels, noted Prof Hsu, who is vice-dean of global health and infectious diseases programme leader at the National University of Singapore’s Saw Swee Hock School of Public Health.

“Infection following shortly after vaccination, or vice versa, serves as an antigen challenge to the immune system, triggering a stronger response than if there were no prior exposure to the vaccine or infection,” he said.

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President Halimah Yacob and Senior Minister of State for Defence and Manpower Zaqy Mohamad (second from left) speaking to an SAF Home Recovery Task Group member yesterday. With them are Chief of Defence Force Melvyn Ong (far right) and task group commander Tong Yi Chuen. ST PHOTO: GAVIN FOO



Good system in place for those on home recovery: President

Timothy Goh

The worries and anxieties of those recovering from Covid-19 at home are understandable, but people should remember that there is a good system in place to care for them, President Halimah Yacob said yesterday.

Speaking to reporters during her visit to the headquarters of the Home Recovery Task Group at HarbourFront Centre, Madam Halimah said she “fully understands” how such people feel.

“Once you have Covid-19, you’re worried not just for yourselves, but also for your family members,” she said.

But she added: “While their worries are justified, so long as they follow the protocols, the advice given, they should be all right...”

“In my view, we have a very good system in place for home recovery.”

The home recovery programme was first piloted on Aug 30 and eventually expanded to become the default care arrangement for most patients here.

It faced teething issues and complaints from the public when it began, including those who said they were unable to reach the Ministry of Health (MOH) for advice on

their situation and were at a loss.

The Home Recovery Task Group was set up by the Singapore Armed Forces (SAF) on Sept 29 to help scale up the Covid-19 home recovery programme here.

As at the end of last month, about 450 SAF soldiers were involved in the programme.

Several other agencies – including the Government Technology Agency, Defence Science and Technology Agency, People’s Association, Agency for Integrated Care and Public Service Division – were later brought in to bolster the programme.

During her visit, Madam Halimah had a closed-door briefing on the group’s operations.

She also spoke with full-time national servicemen (NSFs) running its call centre, and a doctor providing telemedicine services.

The NSFs serve as home recovery buddies, who are the first line of contact for those on the home recovery programme.

They call those who test positive to confirm their eligibility for the programme and answer questions.

All patients can also request a consultation with a telemedicine provider should they feel unwell, and those who have been identified to require more medical care will receive scheduled check-ins

from a telemedicine provider.

After her visit, Madam Halimah praised the SAF for doing a “wonderful job” in helping MOH to scale up the programme.

“The ability to ramp it up so fast is really very good,” she said, adding: “That’s what’s unique about the SAF – they’re very well organised, very well trained, so they can move very fast. They have the competencies and the skills to mobilise resources at very short notice.”

Calling the task group’s role “very crucial” in Singapore’s Covid-19 journey, the President thanked the SAF servicemen for their efforts.

She also encouraged Singapore residents to comply with safe management measures and test themselves regularly.

“If we take all those measures, we have to have confidence that the Government is doing its best.”

Madam Halimah added that it would take some time for things to improve, but emphasised that, in the meantime, it was important for everyone to get vaccinated and get their booster jabs.

“Individually, and collectively, with the Government’s support, I’m quite confident we will be able to overcome this pandemic.”

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3,496 new infections as weekly growth rate rises

Isabelle Liew

The overall utilisation rate of the intensive care unit (ICU) went up yesterday, to 72.7 per cent – up from 67.1 per cent on Monday, said the Ministry of Health (MOH).

The weekly infection growth rate also increased, from 1.05 on Monday to 1.09 yesterday.

This refers to the ratio of community cases in the past week over the week before. A weekly infection growth rate that is more than one shows the number of new weekly Covid-19 cases is still increasing.

There were 3,496 new Covid-19 infections reported yesterday, up by more than 1,000 cases from Monday, when there were 2,470

new cases.

They comprised 3,352 new cases in the community, 141 in migrant worker dormitories and three imported cases.

The local cases included 538 people above 60 years old.

The total number of cases in Singapore now stands at 204,340.

Nine people aged between 53 and 93 also died of complications linked to Covid-19. All except two unvaccinated cases had various underlying medical conditions, said MOH in its daily update, without giving further details.

Singapore’s death toll is now 430.

There are 1,710 patients in hospital and 308 patients require oxygen supplementation in general hospital wards, with 74 who are unstable and being closely monitored

in the ICU. There are also 64 who are critically ill and intubated in the ICU, meaning they need ventilators to help them breathe.

Of the 396 ICU beds, 138 are currently occupied by Covid-19 patients. Another 150 are occupied by those with non-Covid-19 conditions and 108 beds are empty.

The Institute of Mental Health saw nine new cases reported yesterday, meaning its cluster now totals 287 cases. Of these, 271 are patients and 16 are staff members.

Other clusters under close monitoring are NTUC Health Nursing Home in Geylang East, which has four new cases, and Banyan Home @ Pelangi Village in Buangkok, which has three new cases.

Acacia Home in Admiralty, AWWA Community Home for Senior Citizens in Ang Mo Kio, and St Luke’s Hospital in Bukit Batok added one new case each, while Jamiyah Home for the Aged in Tampines added two new cases.

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