

**Sebastian Rushworth M.D.**

# **Covid: How long does vaccine based immunity last?**



It's unfortunate that the drug companies decided to end their trials early, by giving active covid vaccine to the members of the placebo group after just a few months. It means that there is no long term follow-up of the covid vaccines from randomized trials, and there never will be. This means that we are instead forced to rely entirely on observational data as we try to understand how safe and effective the vaccines are over the longer term.

That is why a recent study out of Sweden is so very interesting. [It is currently available as a pre-print and can be found here.](#) The purpose of the study was to determine how effective the vaccines are at protecting against covid over the

longer term (i.e. after more than a few months). This was a registry based study, so it's not surprising that it is coming out of Sweden. Sweden is generally acknowledged as being better than any other country at collecting and sorting large quantities of population data and using it to produce these types of studies.

The authors of the study began by identifying all people residing in Sweden who had been fully vaccinated against covid-19 by late May 2021. At that time, three different vaccines were being used in Sweden: Moderna, Pfizer, and AstraZeneca. The vaccinated people were then matched individually against people of the same age and gender, and living in the same municipality, who hadn't been vaccinated. In total, 1,684,958 individuals were included in the study. They were followed until October to see if they developed covid-19.

So, what did the study show?

As would be expected, the vaccines were very effective at preventing symptomatic covid around two months out from vaccination. This is what the randomized trials showed, and it's the reason the vaccines were approved for use. Overall, the reduction in relative risk at 31-60 days out from vaccination was 89%.

However, after those first two months, there was a rapid decline in efficacy. At four to six months, the vaccines were only reducing the relative risk of infection by 48%!

This is pretty interesting when we consider that governments had initially set the bar for approving the vaccines at a 50% relative risk reduction. So, if the trials had been required to run for six months before presenting results instead of only running for two months, then the vaccines would have been considered too ineffective to be worth bothering with, and would never have been approved.

Well, that's not quite true. One vaccine did still provide a better than 50% relative risk reduction at six months – the Moderna vaccine. At four to six months, the relative risk reduction with the Moderna vaccine was 71%. Pfizer was at the same time point only offering a 47% reduction in risk, and

AstraZeneca was at that point not doing anything whatsoever to lower risk.

It makes sense that the Moderna vaccine would offer better protection than the Pfizer vaccine. Although the vaccines are virtually identical, the dose in the Moderna vaccine is three times higher. This is likely the reason why Moderna has been associated with much higher rates of myocarditis, which is why it is no longer approved for use in people under the age of 30 here in Sweden.

So, if governments hadn't been so hasty to get the vaccines out, and had demanded six months of follow-up rather than two, only the Moderna vaccine would ever have been approved in the first place.

When we go further out than six months, things get even more depressing. By the nine month mark, the Pfizer vaccine is no longer offering any protection whatsoever against symptomatic covid-19. Unfortunately, nine month out data isn't offered for the Moderna vaccine due to the small number of people for whom that information is currently available, but at six months out, the Moderna vaccine's ability to prevent symptomatic covid-19 had dropped to only 59%. So there is a continuous decline in effectiveness at each time point measured even for the Moderna vaccine, without any sign of levelling off.

What about if we look at sub-groups, such as the elderly, who are by far the most at risk from covid-19, and therefore potentially have most to gain from vaccination?

People over the age of 80 initially show a good response to the vaccine, with a 73% reduction in relative risk of disease at one to two months out from vaccination. However this drops to only 50% at two to four months, and by six months there is no benefit whatsoever. Even for the middle aged (50-64 years), who have better functioning immune systems and who should therefore respond more strongly to the vaccines, the vaccines are completely ineffective at preventing symptomatic disease by the four to six months mark. The only group for whom the vaccines are more than 50% effective by the four month mark is people under the age of 50 (for whom effectiveness at four to six months is 51%).

Of course, how good the vaccines are at preventing symptomatic disease isn't really what matters, if by symptomatic disease we usually mean something more akin to the common cold than to the Spanish flu. What really matters is how good the vaccines are at preventing serious disease. So, let's look at that.

At one to two months out from vaccination, the vaccines provided a 91% reduction in risk of hospitalization or death. By four to six months, that had dropped to 74%. And from six months out, the reduction was down to 42%, although the difference between the vaccinated and unvaccinated group was no longer statistically significant. In other words, at the six month time point it was no longer possible to detect a statistically significant effect of vaccination on risk of hospitalization or death.

As I see it, there are two possible explanations for the rapidly declining effectiveness of the vaccines. The first is that it's due to the limited immunity produced by the vaccines themselves, and the second is that it's due to the continued evolution of the virus and in particular the rise of the delta variant. If the second reason is true, then there is no reason whatsoever to give people boosters, because the boosters won't do anything to improve immunity.

If the first reason is true, then there is a case to be made for boosters, although it feels pretty absurd to give everyone a booster every four months to protect against a virus that for most people is little more than a cold, [that 99,8% of infected people will survive](#), and for which there is now massive natural population immunity, thanks to all the people who have already had covid. Unlike the short-term protection offered by the vaccines, the protection generated by infection has been shown to be both durable and broad, [in spite of junk science claims to the contrary](#) produced by the CDC. There is however a pretty good case to be made for regular boosting of the multi-morbid elderly every four months, preferentially with the Moderna vaccine.

So, what can we conclude?

The vaccines are much less effective than was initially believed, and effectiveness declines rapidly. With that being the case, the idea that it's going to be possible for countries to vaccinate themselves out of the pandemic is

clearly nonsense. The only way the pandemic ends is by enough people getting infected and developing natural immunity, which is the same way every prior respiratory virus pandemic has ended.

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## 57 thoughts on “Covid: How long does vaccine based immunity last?”

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Matt

5 November, 2021 at 13:42

What is the absolute risk reduction for any of them?

100% RRR could be the difference of 2 – >1 out of 1,000,000

ARR would be absolutely negligible..

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**Anthony Oliver**

5 November, 2021 at 15:09

I agree. The only % risk reduction that ought to be of interest to someone considering the possible benefits of being injected is the absolute risk reduction. Relative risk reduction is useful to a researcher because it suggests there is some effect in the snake oil being researched. As for the delta variant, I suspect that the “vaccines” may well be an evolutionary driver and will continue to be.

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**Mark**

5 November, 2021 at 13:43

More relative risk reduction.... very disappointing.

How about doing a relative risk assessment in terms of adverse effects? You don't because adverse effects are given as absolute risks.

So you continue to mix apples and oranges.

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**Sebastian Rushworth, M.D.** 

5 November, 2021 at 13:48

Considering how infectious the delta variant is, virtually everyone is going to be infected at some point over the next few years if they haven't already been so. So relative risk reduction gives a much better picture of benefit in this situation than absolute risk does. The only situation where absolute risk would be better would be a study that ran from day one of the pandemic to at least five years out.

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**SteveH**

5 November, 2021 at 13:43

So maybe I should have my booster and then go out and make every effort to become infected?

But then do we know that post-infection immunity lasts any longer?

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**Sebastian Rushworth, M.D.** 

5 November, 2021 at 13:50

Yes, lots of observational data shows strong post-infection immunity over a year out from infection.

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**Julia**

5 November, 2021 at 15:39

And at the end of the article, they recommend dos 3= booster, precisely because immunity after vaccination is no longer available.

So? Can anyone call themselves fully vaccinated?

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**JW**

5 November, 2021 at 19:53

Though: it MIGHT be that natural immunity AFTER being vaccinated is not as effective as natural immunity without vaccination due to antigenic sin:

<https://boriquagato.substack.com/p/original-antigenic-sin>

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**Stephen Rhodes**

5 November, 2021 at 13:56

Yes we do.

In the case of SARS COV (2002) 17 years and counting has been recorded. But then they hadn't had the 'benefit' of a gene treatment that apparently causes a long term suppression of innate immunity.

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**Nick Papageorge**

5 November, 2021 at 13:55

interesting!

What about the absolute risk differences?

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**Mark Marksson**

5 November, 2021 at 13:56

"In total, 1,684,958 individuals were included in the study. They were followed until October to see if they developed covid-19."

Seems like an excellent opportunity to look long term at the other aspect of "vaccination" (we should not pretend that a treatment that modifies the body's cells at the genetic level is just a vaccine in the familiar sense, of something



that just directly exposes the body's immune system to the pathogen or something like it – these are novel therapies and should be identified as such), namely what the relative risks of eg myocarditis, and indeed all cause mortality, are between the “vaccinated” and un-“vaccinated” groups.

Did they look at other outcomes, do you know?

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**Megan C**

5 November, 2021 at 13:56

wow. I mean, it's what seems to be true to anyone paying attention, but to see actual data backing it up is just amazing.

Not that I think anything will change. The powers that be can not admit they were wrong, can not admit liability (which they removed from the drug companies to begin with) and will likely push on with mandates and have full support of the sheeple.

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**Eelco**

5 November, 2021 at 14:01

I'm trying to find a solid psychological method to get people to snap out of their blind hysteria. I've found a lot of incongruent beliefs in both extreme deniers and mostly, in the extremely afraid people around us. Any ideas or experiences?

It's not logic, it's emotion. We need a way to guide people to an emotionally sane equilibrium again.

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**Laura Creighton**

5 November, 2021 at 15:40

There is a technique, used in business, when you have to make a decision where the group is polarised and has stopped listening to each other. You ask each of the participants to imagine that we are in the future, one year later (or

whatever amount of time is appropriate). They've won the argument (today), and we've spent the year doing things their way. Unfortunately, things have not worked out well for the business — we now wish that we had the decision to take back and make it the other way. Write a letter to the group, apologising and taking responsibility for the mistake that was made. Explain how it was that you made this mistake, without trying to justify it.

Everybody has to write their own letter. We're trying to get rid of group-think here. Writing is important. Unless you have to deal with people who have some sort of learning disability that makes it impossible for them to write letters, don't let them get away with making a speech or a video. There is something about finding the words and ordering them on paper that focuses the mind, in most people at any rate.

If you can get people to imagine 'hey, I might be wrong about this' you have made tremendous progress. And it turns out that there are always a lot of people who really don't know how to backtrack from a position they have taken. They need permission to say they have made a mistake, and need to imagine a future where they are forgiven. (Which won't work if one side has so much contempt for the other that they will never be willing to forgive them for any reason whatsoever, so if that is the situation, do not try this.)

I don't know whether this technique will work for discussions around covid. 'We just lost a bunch of money and our #1 customer is quite peeved with us' is a rather different terrible outcome than one where people die. But I have seen it used (and used it myself) to reach a needed consensus on a plan of action among people we thought could never agree on anything, so possibly worth a shot. Of course, it requires people who actually want to work together and get along with each other. If you don't have that, then I am not sure anything can work.

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David

5 November, 2021 at 14:03

If this data is correct we should be seeing increases in hospitalisations and

deaths as people lose protection. This isn't the case is it?

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**Sebastian Rushworth, M.D.** 

5 November, 2021 at 14:08

Um, go look at the US or Israel for some examples. They both saw big recent spikes which they should not have seen if the vaccines were truly effective over the long term. Those spikes have now started to come down, likely due to enough people having developed natural immunity from infection.

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**Johannes Gmeiner**

5 November, 2021 at 14:31

In Israel rather because of the boosters, am I wrong?

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**Gavin**

5 November, 2021 at 14:22

Please compare the UK stats for July, August, September 2020 vs 2021. The Monthly Mortality Analysis from the ONS is a good place to start.

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**Hans**

5 November, 2021 at 14:59

Same for Germany. Higher hospitalisation (4 times higher) and higher symptomatic (3 times higher) in the last four weeks than since beginning of vaccination.

[https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/Situationsberichte/Wochenbericht/Wochenbericht\\_2021-11-04.pdf?\\_\\_blob=publicationFile](https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Situationsberichte/Wochenbericht/Wochenbericht_2021-11-04.pdf?__blob=publicationFile)

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## Shar310

5 November, 2021 at 14:03

Wonderful, clear, rational, data based piece. Thank you.

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## Frodo

5 November, 2021 at 14:19

Great article. Thanks.

You say “And from six months out, the reduction was down to 42%, although the difference between the vaccinated and unvaccinated group was no longer statistically significant.” So what is the 42% reduction relative to, if not relative to the unvaccinated?

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## Sebastian Rushworth, M.D.

5 November, 2021 at 14:26

The risk reduction is 42%, but the difference between the groups doesn't reach a p-value of 0.05, so it isn't considered to be statistically significant.

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## Frodo

5 November, 2021 at 14:46

Thanks Sebastian. Depressing stuff. I'm just over 50 and won't be taking the vaccine myself (recovered from confirmed case Xmas 2020) but I'm happy to see both sets of parents (in their early 80s) have taken their boosters. I was really hoping the current vaccines would be the key out of this. Do you know if any of the big pharma companies are developing vaccines which may confer longer lasting immunity? Or do you think we'll be stuck with this 6 monthly cycle of boosters and the (almost certain) never-ending NPIs?

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**Sebastian Rushworth, M.D.** 

5 November, 2021 at 14:49

There are vaccines being developed that are based on whole inactivated virus. The effect of those vaccines should in theory be much more like the effect of real infection.

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**Jane Watson**

5 November, 2021 at 14:32

Makes one rather glad to have had the damn thing (last September). Though I've had two AZ jabs since and having booster (think Pfizer) this eve. Shouldn't have bothered with any of them?

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**Jane Watson**

5 November, 2021 at 14:33

Sept 2020 I should have said.

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**Jane Watson**

5 November, 2021 at 14:36

I'm in the ONS Covid survey, so at least my immunity and Covid status will be logged and useful.

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**Greg**

5 November, 2021 at 14:38

Excellent piece. As is often the case, I'll be forwarding it to friends and family.

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## Nancy Sigurdsdotter

5 November, 2021 at 14:43

Från Hjärtat & Hjärnan Tack Sebastian \*\*

Du är Professionellt Kunnig – Saklig – Modig & En Skatt för Alla Oss Ovaxxade som Känner Häxjakten i Ryggen!

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## Robert Evans

5 November, 2021 at 14:50

It would be nice to have the absolute %s instead of the relative!

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## Bahmi

5 November, 2021 at 15:11

There's just one little question I have. The Covid brouhaha was not something that just popped up out of the bowels of the Earth. Bad boys and girls in the good ol' United States were behind this devastation called SARS Cov-2, according to Unz, ace columnist. When we consider what I consider a definite route to depopulation, how does that fit in with this article? After all, if Fauci and his crew want to create widespread murder and mayhem, do they care what vaccine has the best residual immunity? Listen, the little Rodent wants to kill you, your family, and just about everybody else. WE should be talking about abject murder, not the niceties of immunity. Dead people have no immunity even though they are immune to further infections. But, they are stone dead. I'm hoping we still have a semblance of a judicial system in this country. Despite my hopes, I have great doubts the non-vaxxers will ever be treated fairly.

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## Andre

5 November, 2021 at 15:11

Is there a study on how good the vaxxes are at creating other medical issues? If they do then its a major win for pharma and medical related industries especially if its a sustained and long term / recurring illnesses.

Perhaps this is the major goal of pushing through improperly tested vaccines which are now proven to be useless against covid19?

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**formed**

5 November, 2021 at 19:53

Steve Kirsch looked at this from 3 data sets, including Pfizer's own data – something like 2 to 6 excess deaths were incurred amongst vaccinate for every covid death prevented.

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**John Clarke**

5 November, 2021 at 15:17

Can you explain this relative risk more clearly. As I understand it, you are relatively more at risk of getting ill with Covid than if you have already had Covid. Well, that's obvious isn't it? What I want to know is whether having the vaccine reduces my risk of getting Covid compared to someone who has not been vaccinated.

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**Megan C**

5 November, 2021 at 15:59

It does for a limited amount of time. The further out you go, the less protection you have.

The jabs never gave you immunity. They mitigated some risk/symptoms /hospitalization. Who knows WHAT they do for future health. COVID isn't the only virus around.

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**Joanne McKay**

5 November, 2021 at 15:37

I so appreciate your absolute commitment to research and science. You are a calming and rational voice in the midst of Covid and vaccine chaos.

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**Hans**

5 November, 2021 at 15:41

Sebastian, just looking at the data and the study. On page 29. What does the “-” (minus) mean in front of the effectiveness? Does it mean that it is less effective than having no vaccination?

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**Sebastian Rushworth, M.D.** 

5 November, 2021 at 15:56

It means that there were more cases of covid in the vaccinated group. However the confidence interval shows that the difference isn't statistically significant.

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**dearieme**

5 November, 2021 at 15:52

“It’s unfortunate that the drug companies decided to end their trials early”: or, rather, was it cunning?

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**Kalle**

5 November, 2021 at 16:01

I am a happy receiver of the J&J vaccine.  
I recently saw a similar study saying it's more or less without efficacy two



months after the shot. Additionally, you have to wait four weeks after the shot to be immune. So, in total about one month of immunity... Anyway, I got the QR code and noone is bothering me so I'm happy 😊

Dansen met Janssen!

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## Kalle

5 November, 2021 at 16:22

While my comment wasn't meant to be taken seriously, I better give a reference and correct what I wrote.

This is the study:

<https://www.medrxiv.org/content/10.1101/2021.10.13.21264966v1.full.pdf>

The J&J vaccine declined to almost 0% from March to August in the study (figure 1), so about 4 months of protection rather than 1 month as I wrote. And to be fair, survival function is bit better (figure 2) than without any vaccination.

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## dearieme

5 November, 2021 at 16:03

Could there be any point in my awaiting the development of, say, a Pfizer booster aimed at the delta variant? Or will the variant-du-jour have changed by then?

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## JohnO

5 November, 2021 at 17:44

Don't wait for anything. It's quite obvious by now the vaccines do not do what is stated on the tin. They don't stop you catching the virus, passing it on, or the one thing the Government did say was they would help keep you out of

hospital. Well they are not even doing that. More vaxxed than unvaxxed are now dying even proportionately.

Our Government are nothing more than VaccineSales people.

I saw an article in mainstream news saying Pfizer's profits on the vaccine this year are now up to \$36 billion.

Lastly remember the SARS 1 vaccine 10 or so years ago. It took a year after vaccines were rolled out before the side effects of Narcolepsy began to show in children, particularly Denmark which had been more keen to rollout that vaccine.

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**Laura Creighton**

5 November, 2021 at 20:45

Not Sars-1 but Swine Flu.

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**Jessica R Fraley**

5 November, 2021 at 16:21

Excellent information. Thank you for keeping us updated with the latest data.

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**Brian Forsythe**

5 November, 2021 at 16:24

Excellent article, thank you – Natural immunity to the rescue

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**Kevin Quinn**

5 November, 2021 at 17:07

Seeing as the current vaxxes are still formulated to produce an immune response to Alpha variants and not Delta variants, one would have expected the

‘protection’ to wane as Delta began to predominate. And it is indeed a plausible hypothesis that it was the vaccines themselves that created the selective pressure on the virus, leading to immune escape and the emergence of Delta. A hypothesis strengthened by looking at the geographical correlation between the original large trials and the location of the subsequent emergence of the Delta variants. Given the chronological lag in effectiveness studies, it may now today be the case that a current 99% incidence of Delta may correspond to a vax percentage effectiveness that is now actually way lower than even the reduced effectiveness figure that Sebastian cites.

The trouble is, the conclusion that Sebastian reaches (that you cannot vaccinate your way out of the pandemic), is not one that the global Public Health establishment is likely to reach! One suspects that that establishment will simply move to pursuing a policy of indefinite boosters, perhaps with in silico updated formulations. Mass use of reformulated boosters would simply create further selective mutational pressure on the virus, and give rise to new strains, and potentially, to a perpetual rinse and repeat. Nothing will reduce ‘case’ numbers, as long as countries persist in high-cycle PCR mass-testing. Many countries are testing in the region of 1% of population per day!

All of this was eminently predictable many months ago. And time has proven that the policy direction advocated by the GB declaration was an entirely rational and sensible one. But regrettably, rationality is not the order of the day...

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**formed**

5 November, 2021 at 17:11

I understand they were less effective for Delta. I wonder if this study distinguishes for Delta?

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**Sebastian Rushworth, M.D.** 

5 November, 2021 at 17:37

Delta was the dominant variant in Sweden during much of the study period.

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## formed

5 November, 2021 at 17:12

Lancet study published Thursday 28th October 2021:

People who have been vaccinated against COVID can be equally as infectious as the unvaccinated. The study used infection data from actual examples of household transmission, and it showed that the viral loads of both vaccinated and unvaccinated patients infected with COVID are “broadly similar”. The data showed that vaccination status doesn’t make a whole lot of difference in the ability to pass COVID on to others.

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## Piltson

5 November, 2021 at 17:23

This was your most significant contribution so far. Couldn’t you to team up with Hanna Åsberg and help to bring some sense into the politics of this? It pains me to see how her well-informed and serious stand seems to inspire only invective and abuse.

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## JohnO

5 November, 2021 at 17:33

If people are really interested in a vaccination control group to compare as the years pass against the vaccinated, then there is just such a study started up which is growing by the day. This study can only be joined by unvaccinated individuals.

Check out [vaxcontrolgroup.com](https://vaxcontrolgroup.com)

Anyone worldwide can join provided they are unvaccinated. You receive a membership card with photo-Id and bold lettering stating ‘This Person MUST NOT be vaccinated,’ and that you are a member of an official vaccine Control

group for medical follow up purposes.

There is a QR code on the membership card which links back to the website with full details of the study, in cases anyone questions it's validity.

This in itself should gain you entry into anywhere wishing to verify your vaccination status.

Once a member you are reminded to log your health status monthly via a series of drop down box type responses.

There is a small joining fee of £4 , and then £6 per quarter going forward for the administration of the health records and the statistical analysis and collation of all the stats.

This control group is gathering momentum and has gone from a standing start to over 100,000 members in a matter of a few weeks.

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### **Mikael Tuominen**

5 November, 2021 at 18:02

Good read. Unfortunately no mentioning of negative effect. Care to comment on that? UK has 132% more infected per 100000 in 40-49yearolds week 39-42. This effect is also mentioned in this study i believe.

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### **Dave W**

5 November, 2021 at 18:06

### **Planned Obsolescence**

In economics and industrial design, planned obsolescence (also called built-in obsolescence or premature obsolescence) is a policy of planning or designing a product with an artificially limited useful life or a purposely frail design, so that it becomes obsolete after a certain pre-determined period of time upon which it decrementally functions or suddenly ceases to function, or might be perceived

as unfashionable. The rationale behind this strategy is to generate long-term sales volume by reducing the time between repeat purchases (referred to as “shortening the replacement cycle”). It is the deliberate shortening of a lifespan of a product to force people to purchase functional replacements

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**Yuri**

5 November, 2021 at 18:40

Great! Thanks!

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**Helen Cederqvist**

5 November, 2021 at 19:08

Thank you so much for bringing some clear and concise points in to this debate, again!

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**Dennis**

5 November, 2021 at 20:29

On various internet sites there is massive info on the remarkable stopping of Covid 19 of 90% + in Uttar Pradesh, Zimbabwe and Mexico with ivermectin.

I have heard or read nothing in MSM so is that all fake or what? Anyone know?

Pfizer now speaks of a ‘pill’, no mention of what that is, being very effective – it will be marvellous if it turns out to be ivermectin!

Sebastian Rushworth M.D. /