

# Immunity Debt – Do COVID Policies Weaken Immune Systems?

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✓ Fact Checked

## STORY AT-A-GLANCE

- › Whether COVID policies weakened your immune system depends on how you define "weakened." Adult immune responses may not have diminished during lockdowns, but the strength of the system that prevents illness has likely been affected
- › Infants and children may have had the most significant response, as the number hospitalized with respiratory syncytial virus (RSV) rises. The illness is mild in adults but may be fatal in infants, especially premature infants
- › The 2020/2021 influenza season may go down in history as the year with one of the lowest numbers of infections; Robert Koch Institute reports there was a 64% drop in whooping cough, 86% drop in measles and 83% drop in rotavirus (gastrointestinal) infections
- › Masking children may increase levels of CO2 they are breathing, that may also be associated with complaints reported in a database of 25,930 children, which include shortness of breath, dizziness, impaired learning, headache and difficulty concentrating
- › Strategies you can use to strengthen your immune health are to optimize your level of vitamin D, compress your eating window to six to eight hours each day, avoid linoleic acid, exercise consistently and use a sauna

Your immune system is a complex network of organs, tissues and cells that help your body fight infections and other diseases. During the past 18 months as most of the

world has been masked up, locked down and otherwise distanced from one another, children and adults have not been exposed to viruses and bacteria as they normally would.

On the one hand, there has been a significant reduction in the number of people reporting colds, flu and other infectious diseases. On the other hand, some health experts are questioning if this lack of exposure may have increased the risk for some to experience more illnesses as children are re-entering school and adults are re-entering the workforce.<sup>1</sup>

When pathogens like viruses or bacteria attack and multiply, it can cause an illness or disease that makes you sick. There are several parts to your immune system, but the two main parts are your innate immune system, which you were born with, and your adaptive immune system, which is developed as you're exposed to pathogens.<sup>2</sup> These two systems work together to help protect your health.

Like a well-programmed computer, a healthy immune system keeps a record of every pathogen to which it has been exposed so that it can quickly recognize it if exposed again. The immune system is activated when the body is exposed to a protein it doesn't recognize, called an antigen.

Since the system is so complex, there are several potential ways in which things can go wrong. When a person has an immune response when there is no real threat it can result in allergies, asthma and autoimmune diseases. If the system doesn't work correctly it can result in immunodeficiency diseases, which results in more sickness that can last longer.

Your immune system can also become hypersensitive to an antigen, triggering an overreaction that can be fatal, such as anaphylactic shock. Some health experts are concerned that children may have experienced greater harm to their immune system than adults since they have spent the better part of the last 18 months isolated from nearly every exposure.<sup>3</sup>

## **Did Masks and Social Distancing Weaken Your Immune System?**

Ultimately, the answer to this question depends on how you define weakened. Many experts believe that a short period of time without pathogen contact does not weaken an adult immune response to exposure in the future.<sup>4</sup> However, masking, social distancing and lockdowns have created an environment where you are shielded from environmental strategies that support and boost your immune system, which reduces your risk of getting infected.<sup>5</sup>

From what researchers are now finding, it is infants and children who may have the most significant response to social distancing.<sup>6</sup> Since the beginning of 2020, doctors and hospitals have noticed there is a significant reduction in the number of bacterial and viral infections children have been contracting.

This includes bronchiolitis, measles, varicella, respiratory syncytial virus (RSV) and pertussis. A paper published in August 2021, from the Pediatric Infectious Disease Group<sup>7</sup> postulated there were a variety of non-pharmaceutical interventions imposed during 2020 that may lead to larger epidemics of other infectious diseases when these interventions are no longer being used.

For example, as you may have read in the news, the influenza season during 2020/2021 will likely go down in history as a year with one of the lowest numbers of infections.<sup>8</sup> Social distancing, staying out of large gatherings and washing hands may well have helped slow the spread of all infectious diseases, including the common cold, flu and SARS-CoV-2.

According to a story in DW that was translated from German, the monthly influenza report by Germany's Robert Koch Institute (RKI)<sup>9</sup> found there "had been no "measurable" wave of flu infections in Germany or in other European countries during the 2020/2021 flu season."<sup>10</sup>

A report from the World Health Organization found similar results,<sup>11</sup> stating that "despite continued or even increased testing for influenza in some countries, influenza activity remained at lower levels than expected for this time of the year." In addition to measuring influenza infections, the RKI report also found there was a 35% drop in infectious diseases generally between March and August 2020.<sup>12</sup>

For example, whooping cough dropped by 64% and measles dropped by 86%. Other infectious diseases that are not spread through respiratory droplets, such as gastrointestinal infections, also decreased. For example, rotavirus infections drop by 83% and norovirus, by 79%.

The RKI report also found that HIV infections drop by 22% but they postulate this may have to do more with diagnosis and not a reduction in actual spread based on the restrictions that clinics in counseling centers were under during 2020.

## **Rising Number of Infants With RSV Related to Immunity Debt**

Some experts are calling a rising number of RSV infections in babies a “debt of immunity” that was created when infants born during 2020 had a lack of exposure to other pathogens.<sup>13</sup> Hospitals across New Zealand are reporting rising numbers of infants, many on oxygen, ill with RSV infections.

This is straining the resources of some hospitals that have delayed surgeries or converted other rooms into clinical areas. RSV is a common respiratory illness that in adults generally produces only mild symptoms.<sup>14</sup> However, in young children it can be serious and even fatal. Doctors also find children who recover have a higher risk of asthma in later childhood.

The pediatric doctors in New Zealand are calling this outbreak of RSV a result of immunity debt, which they believe happens when people, mainly babies and children, don't develop immunity to other viruses that were suppressed during lockdowns, causing a precipitous rise in cases when children are exposed.<sup>15</sup>

According to The Guardian,<sup>16</sup> New Zealand reported a 99.9% reduction in flu and 98% reduction in RSV during 2020. This nearly eliminated the spike of deaths that happens during the winter months from flu and RSV. In the short-term, it may have prevented an overload of the health care system while others were being treated for COVID-19.

However, in the long run, it may have created an additional problem in infants and children. When their immune system is not challenged at an early age, it can lead to

larger outbreaks, which again taxes the health care system. As of early July 2021, New Zealand had reported nearly 1,000 cases of RSV over five weeks. The usual number reported is 1,743 over 29 weeks.

Doctors are hoping this doesn't necessarily mean there will be more RSV cases, only that they are occurring in more rapid succession early in the season. The current outbreak has stretched the resources in New Zealand and Australia, which is also experiencing a surge in cases. New Zealand's director general of health Dr. Ashley Bloomfield commented to a reporter from The Guardian saying he was:<sup>17</sup>

*"... certainly concerned about the sharp surge in RSV cases. We had very little RSV last year. There's some speculation that [the current outbreak] may be partly exacerbated by the fact we didn't have any last year and so there is a bigger pool of children who are susceptible to it."*

In Canada, Wellington-based epidemiologist Michael Baker warns that his country may also see a similar trend in cases of RSV in the next year, and he believes that babies who were born prematurely are most at risk.<sup>18</sup> He also believes that while the country may see a rebound in RSV infections, he does not think that a lack of exposure to pathogens at an early age will have "in any way impeded the development of a healthy immune system."

## **Masks Also May Have Harmed Health in Other Ways**

Health experts have found that forcing children to wear a face mask for long periods of time while at school and participating in activities have been doing more harm than good, considering children have a significantly lower risk from COVID-19.

As reported by the American Academy of Pediatrics,<sup>19</sup> "cases" — children who tested positive using a PCR test but did not necessarily have symptoms — represented 14.3% of the total number of people who tested positive for COVID-19. In 23 states that reported data, children ranged from 1.5% to 3.5% of the total number hospitalized for COVID-19.

In 43 states reporting, children represented from zero percent to 0.2% mortality. In other words, the risk to children was significantly less than adults, and yet adults continue to make mask wearing compulsory for school children, increasing the risk they may experience other health harms, both physically and mentally.

For example, evidence is mounting that masks increase the risk for physical and psychological harm to children,<sup>20</sup> even as others continue to publish “mask myth busters,” claiming otherwise.<sup>21</sup> One argument appears to be whether exposure to elevated levels of carbon dioxide is harmful to children in the long run.

One of the arguments against the masks has to do with how your body produces carbon dioxide as a byproduct of cellular function.<sup>22</sup> The German Federal Environmental office has set a limit of CO<sub>2</sub> for closed rooms of 2,000 ppm, or 0.2% by volume.<sup>23</sup> However, the Commission for Indoor Air Hygiene at the German Environment Agency has set an even lower limit of 1,000 ppm for hygienically adequate air exchange.<sup>24</sup>

But, when one study published in a June 2021 issue of JAMA<sup>25</sup> asserted that CO<sub>2</sub> levels in children wearing masks were unacceptably too high, the article came under immediate criticism. Less than a month later, the journal bowed to the critics and retracted the article. In a separate commentary,<sup>26</sup> the journal cited concerns about methodology of the study and the device used to assess the carbon dioxide levels in the participants as a reason for doubting the authors’ conclusions.<sup>27</sup>

## **Could Mask Complaints Be Associated With CO<sub>2</sub> Levels?**

The study measured carbon dioxide levels in children breathing through two types of masks or without a face mask.<sup>28</sup> The researchers found that children breathing under surgical, or filtering facepiece 2 (FFP2) masks reached CO<sub>2</sub> levels deemed unacceptable by the German Federal Environmental office by a factor of 6, which was reached after three minutes of measurement.

The researchers acknowledged that the short-term nature of measurement and the children's apprehension may have had some effect on the CO<sub>2</sub> measurements. However, they concluded there was ample evidence children were experiencing adverse effects.

Increased levels of CO2 may be responsible for a list of complaints gathered in a German study using data from 25,930 children, of whom 68% reported adverse effects from wearing face masks.<sup>29,30</sup> Among these, 29.7% reported feeling short of breath, 26.4% being dizzy<sup>31</sup> and 17.9% were unwilling to move or play.<sup>32</sup>

Hundreds of other children experienced “accelerated respiration, tightness in chest, weakness and short-term impairment of consciousness.”<sup>33</sup> The database also gathered a list of other symptoms in children who wore face masks for an average of 270 minutes each day,<sup>34</sup> including impaired learning, drowsiness or fatigue, malaise, headache and difficulty concentrating.

Yet, despite all this data, Research Square editors still posted a warning on top of the abstract, telling readers that this study has “numerous limitations” and therefore “cannot demonstrate a causal relationship between mask wearing and the reported adverse effects in children.” So, the only question may be, will all mask studies be rejected similarly, unless they show masks are great for children and do no harm at all?

Dr. Vinay Prasad, a hematologist-oncologist and associate professor of medicine at the University of California San Francisco, published a thoughtful synopsis of the current situation, noting there are both benefits and risks to children wearing masks. While large, empirical studies could answer the question of whether masks help or harm children, “we did literally zero of them,” Prasad said adding:<sup>35</sup>

*“Here is the real answer to the question of whether it's worth it to mask kids: No one has any clue. During the last year and half, the scientific community has failed to answer these questions. Failed entirely.*

*We have no idea if masks work for 2-year-olds and above, 5 and above, 12 and above. No idea if they only work for some period of time. No idea if this is linked to community rates. No idea if the concerns over language loss offset the gains in reduced viral transmission, and if so, for what ages.”*

## **Strategies to Strengthen Your Immune Health**

Although the long-term effects of social distancing, masking and lockdowns may not be fully appreciated for years, it is known the psychological effects of social isolation, including loneliness and stress, can significantly affect your immediate immune response.<sup>36</sup>

When you feel lonely, your immune system is suppressed. Studies have found people who feel socially connected were 50% less likely to die over the study<sup>37</sup> and those with social ties are also less susceptible to catching the common cold.<sup>38</sup>

2020 created different types of stressors that may have had a harmful effect on the immune system when cortisol stimulates the production of sugar and epinephrine and norepinephrine elevate blood pressure.<sup>39</sup>

One way to help reduce stress and buffer the effects is to be outdoors in nature. Walking through a park, woodland or green space may lower your heart rate and blood pressure, and normalize your secretion of stress hormones.<sup>40</sup> Living close to and engaging with nature has also been linked with a reduced risk of Type 2 diabetes, cardiovascular disease and early death.<sup>41</sup>

And, as I discuss in my Mid-Cape Summer Fest presentation below, being outdoors also helps to optimize your vitamin D levels, which plays a significant role in your immune system. In fact, it's one of the top strategies I recommend to help support your immune health. Here are several ways to improve your health:<sup>42</sup>

- **Eat all your meals within a compressed window of time** — Compress your eating window to six to eight hours. It may be somewhat challenging initially, but it's a powerful strategy that will improve your immune function and help your body repair and regenerate. Begin slowly compressing the time until you reach six to eight hours, with the last time you eat at least three to four hours before going to bed.
- **Eat the right types of fat** — Before processed foods became the norm for our diets, only 1% to 2% of your diet came from linoleic acid. However, currently people are getting upward of 20% of their diet from linoleic acids, which is associated with damaging your metabolic health by damaging your mitochondria. Your body can

store linoleic acid for years. It is found in seed oils, such as sunflower, canola, safflower oil and other vegetable oils.

Even healthy olive oil can have up to 20% of linoleic acid. However, most olive oils sold on the market today are adulterated and watered down with linoleic acid to lower the cost and lowering the health benefit. Most restaurants use adulterated olive oil because pure olive oil is very expensive – added to which, most restaurant food is also high in linoleic acid.

- **Make time to exercise** – Your body is designed to move! By not providing stimulus, it may begin to decline and you'll lose muscle mass. This increases your potential for becoming frail. Although cardiovascular exercise is important, resistance training is just as important to building your muscle mass.
- **Try making a sauna part of your routine** – Another form of exercise is using a sauna since it's exercise for your vascular system. Using a sauna is important as it activates your heat shock proteins, which help to refold damaged proteins in your body.

Interestingly, 30% of the proteins in your body, when they are made, are misfolded. This means using a sauna is an important process to reduce your potential for neurodegenerative diseases, such as Alzheimer's and Parkinson's disease.

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