

# Long-term symptoms after COVID-19

Outlines of post-COVID syndrome

No. 2022/04, The Hague, February 14, 2022

## Executive summary

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Health Council of the Netherlands



Some people who have suffered from COVID-19 will continue to experience symptoms or develop new and persistent symptoms. This is generally called “long COVID” or post-COVID syndrome. In this recommendation, the Health Council describes the picture gleaned from scientific literature of the nature, prevalence, causal mechanisms and risk factors of post-COVID syndrome.

Scientific research on the medical long-term impact of COVID-19 involves following COVID-19 patients for a reasonably long period of time. For this reason, this recommendation is based on studies performed in people who experienced COVID-19 in the early stages of the pandemic, before first the Delta and then the Omicron variants of the SARS-CoV-2 virus became dominant.

### **What kind of symptoms do these patients experience?**

The scientific literature that is currently available shows a wide range of symptoms. Symptoms can persist for several months after the patient contracted the virus. The severity and number of the symptoms can decrease over time.

Common symptoms include: fatigue, shortness of breath, headache, memory loss and difficulty concentrating, loss of sense of smell, heart palpitations, muscle pain, anxiety and depression. These symptoms may negatively affect sufferers’ performance of daily activities and quality of life.

A small number of reports on studies involving control groups is available. According to these study reports, the symptoms listed above are significantly more common in people who have experienced COVID-19 than in people who

have not experienced COVID-19, which might indicate that the symptoms can be attributed to COVID-19.

The scientific literature shows that children can also experience persistent symptoms after COVID-19, comparable to the persistent symptoms observed in adults.

### **How common is post-COVID syndrome?**

The currently available scientific literature on the subject does not allow us to properly estimate how common post-COVID syndrome is in either adults or children. Estimates vary sharply since different researchers used different definitions of post-COVID syndrome, worked with different study populations and did not follow up on their study populations for the same amount of time.



**What mechanisms in the body cause post-COVID syndrome?**

Researchers have described various theories on the mechanisms that cause post-COVID syndrome. Two potential causes that are often mentioned in scientific literature are tissue damage and a persistent dysfunction of the immune system. There is only limited evidence for the described theories at present.

**What factors constitute possible risk factors for post-COVID syndrome?**

It is not clear at present what factors put people at a greater risk of post-COVID syndrome. The patient population is heterogeneous in terms of age, general health status and the severity of the initial infection. The patients who report persistent symptoms after COVID-19 also include formerly healthy adults and children.

**Effects of new developments in the fight against the pandemic**

Vaccines are known to reduce the risk of COVID-19. This being the case, they also indirectly reduce the risk of post-COVID syndrome. Whether they also protect people from post-COVID syndrome if people develop COVID-19 despite having been vaccinated is currently unknown. Another thing that studies have yet to demonstrate is whether better treatment of COVID-19 in the acute phase reduces the risk of the onset of post-COVID syndrome or its severity, and whether vaccination of patients with post-COVID syndrome may positively affect the symptoms.

**Recommendation**

The committee believes that, based on what scientists currently know, we are beginning to see the outlines of post-COVID syndrome. These outlines are such that the committee expects the syndrome to affect not only the patients concerned, but also the healthcare system and Dutch healthcare policy. Since the

currently available study reports still harbour much uncertainty, further studies will be needed to allow us to focus more effectively on the prevention, diagnosis and treatment of post-COVID syndrome. Furthermore, the committee recommends that the care currently given to patients with post-COVID syndrome be monitored. Finally, the committee would like to emphasise the importance of raising awareness of post-COVID syndrome. Awareness should be raised in the general population, so that people can include it in their considerations with regard to vaccination, and also in healthcare professionals, so that they can inform patients adequately, for instance about the perspective on the decline of symptoms over time.



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The Health Council receives most requests for advice from the Ministers of Health, Welfare and Sport, Infrastructure and Water Management, Social Affairs and Employment, and Agriculture, Nature and Food Quality. The Council can publish advisory reports on its own initiative. It usually does this in order to ask attention for developments or trends that are thought to be relevant to government policy.

Most Health Council reports are prepared by multidisciplinary committees of Dutch or, sometimes, foreign experts, appointed in a personal capacity. The reports are available to the public.

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Preferred citation:

Health Council of the Netherlands. Long-term symptoms after COVID-19: Outlines of post-COVID syndrome.

The Hague: Health Council of the Netherlands, 2022; publication no. 2022/04.

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