

What is Taking so Long? Understanding Long COVID (And what can be done)

written by Eugene L. Heyden, RN. | June 16, 2022



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By Eugene L. Heyden, RN

“Studies have shown that long covid can affect the whole spectrum of people with covid-19, from those with very mild acute disease to the most severe forms.

“The symptoms of long covid include fatigue, dyspnea, cardiac abnormalities, cognitive impairment, sleep disturbances, symptoms of posttraumatic stress disorder, muscle pain, concentration problems, and headache.” ~Crook et al., 2021

You can't help but be disappointed. You recovered from COVID-19 (or so they say), but the battle is far from over. For weeks to months, you are still having symptoms, symptoms you can feel but cannot explain. Looks like you are in it for the long haul. You, like so many others, have a continuation of the original disease (COVID-19), in a form known as Long COVID. Quite surprisingly, when it comes to its development, the degree of severity of the initial infection does not seem to matter in the least. Long COVID can arise from even the mildest of COVID-19 cases.

“Many patients with mild acute symptoms also develop long covid symptoms, in fact, studies show minimal differences between the prevalence of long covid symptoms between hospitalized and nonhospitalized covid-19 patients.” (Crook et al., 2021)

Here, in this article, we will explore what is really going on here and what can be done. But first, let's examine COVID-19 with the goal of seeing how you got from the acute infection stage to where you are today.

Understanding COVID-19

“Severe SARS-CoV-2 infection mostly presents with coagulation abnormalities, pulmonary microvascular thrombosis, and severe inflammatory response.” ~Fard et al., 2021)

You know the story. COVID-19 is caused by the virus called SARS-CoV-2. An infection follows a successful interaction between the virus spike protein and a cell surface receptor known as ACE2, found abundantly (and invitingly) throughout the

human respiratory tract and mucus membranes. Following spike protein/receptor interaction, the virus enters a target cell where it can replicate and create a host of clones with the freedom to leave to infect other cells or leave to infect another individual. It needs a host in order to replicate. Someone warm like you.

The virus in question is new to the human experience. So, we were caught off guard. But it is not as though we are defenseless. We have an array of innate immune responses engineered for times like these. We normally have antivirals such as lactoferrin, pre-positioned within the mucus that lines the target cells of the respiratory tract (Zanin et al., 2016; Pisani et al., 2020). And we normally have immune cells that enter the spaces between cells for the purpose of devouring and destroying viruses and other pathogens that have been placed under surveillance and pose an imminent threat (Budinger et al., 2021). These are but two of the many defenses we have at our disposal. But this new virus is crafty and can take advantage of defects and weaknesses present in our defenses, those that allow an infection to take hold. Besides, it is also very sneaky. The SARS-CoV-2 spike protein is all dressed up in camouflage to avoid detection (Grobbelaar et al., 2021). And this seems to work all too well. Likely, the virus only wants to infect and replicate, not destroy. But destroy it has. Millions of lives have already been lost. More to follow.

Speaking of defenses, one of our more interesting and surprising defenses is known as **immunothrombosis** (Bonaventura et al., 2021). Likely you have never heard of it before, so I will let you in on this little secret. Simply put, when other defenses fail, allowing the virus to reach the capillary bed, the body strategically turns to clot formation, AKA thrombosis, to immobilize (freeze in place) the virus to prevent its advance into the circulation. Although this defense is quite effective, there is a price to be paid. Clotting within the capillary bed—a natural defense mechanism directed against viruses and bacteria that dare to enter the bloodstream—has the power to interfere with oxygen delivery to the very tissues it is trying to protect (Kell et al., 2022). This is the disease that the disease creates! SARS-CoV2 evokes clot formation which impairs tissue oxygenation at the capillary level. And from this, people need ventilators. And from this, people need prayers for recovery. And so begins a life-or-death struggle. This struggle invites the strong possibility that immune responses will become so intense, so frantic, that an individual can be taken from us by what is called a “cytokine storm.”

“The cause for which patients with severe COVID-19 die is not related to the damage caused by the replication of the SARS-CoV-2 virus but rather it seems to be linked to the so-called cytokine storm.” (Lete, 2021)

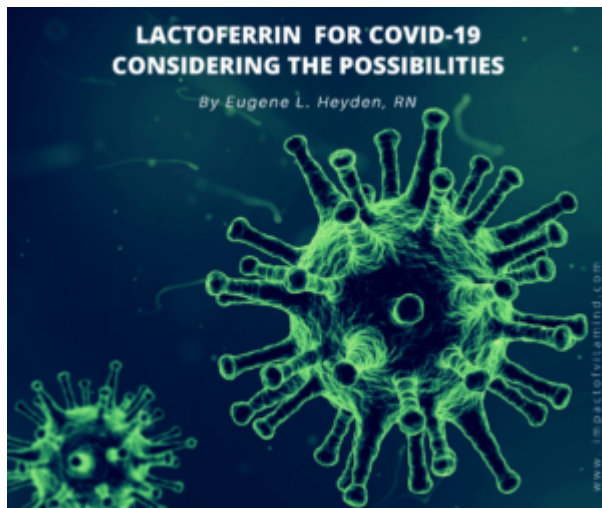
Above is the streamlined version of disease progression in COVID-19. Unfortunately, as COVID-19 transitions over time into a chronic form, the clotting continues. We call it Long COVID.

Long COVID is . . .

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References

- Bonaventura A, Vecchié A, Dagna L, Martinod K, Dixon DL, Van Tassell BW, Dentali F, Montecucco F, Massberg S, Levi M, Abbate A. **Endothelial dysfunction and immunothrombosis as key pathogenic mechanisms in COVID-19.** Nature Reviews Immunology. 2021 May;21(5):319-29. <https://www.nature.com/articles/s41577-021-00536-9?elqTrackId=9a206ed2d5ee4a3fa6306f5a40c06750>
- Budinger GS, Misharin AV, Ridge KM, Singer BD, Wunderink RG. **Distinctive features of severe SARS-CoV-2 pneumonia.** Journal of Clinical Investigation. 2021 Jul 15;131(14):e149412. <https://www.jci.org/articles/view/149412/files/pdf>
- Crook H, Raza S, Nowell J, Young M, Edison P. **Long covid—mechanisms, risk factors, and management.** bmj. 2021 Jul 26;374. <https://www.bmj.com/content/374/bmj.n1648.abstract>
- Fard MB, Fard SB, Ramazi S, Atashi A, Eslamifar Z. **Thrombosis in COVID-19 infection: Role of platelet activation-mediated immunity.** Thrombosis Journal. 2021 Dec;19(1):1-1. <https://link.springer.com/article/10.1186/s12959-021-00311-9>
- Grobbelaar LM, Venter C, Vlok M, Ngoepe M, Laubscher GJ, Lourens PJ, Steenkamp J, Kell DB, Pretorius E. **SARS-CoV-2 spike protein S1 induces fibrin (ogen) resistant to fibrinolysis: Implications for microclot formation in COVID-19.**

Bioscience reports. 2021 Aug 27;41(8).
<https://portlandpress.com/bioscirep/article-abstract/41/8/BSR20210611/229418>

Kell DB, Laubscher GJ, Pretorius E. **A central role for amyloid fibrin microclots in long COVID/PASC: origins and therapeutic implications.** Biochemical Journal. 2022 Feb 17;479(4):537-59.
<https://portlandpress.com/biochemj/article-abstract/479/4/537/230829>

Lete I. **Combined hormonal contraception and COVID-19.** The European Journal of Contraception & Reproductive Health Care. 2021 Mar 4;26(2):128-31.
<https://www.tandfonline.com/doi/abs/10.1080/13625187.2020.1867845>

Pisani A, Rizzo M, Angelucci V, Riccio E. COVID-19 **Experience in hemodialysis patients: a cue for therapeutic heparin-based strategies?** Nephron. 2020;144(8):383-5. <https://www.karger.com/Article/Abstract/508638>

Zanin M, Baviskar P, Webster R, Webby R. **The interaction between respiratory pathogens and mucus.** Cell host & microbe. 2016 Feb 10;19(2):159-68.
<https://www.sciencedirect.com/science/article/pii/S193131281600038X>

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