Experts provide further proof of the role testosterone plays in preventing severe COVID-19

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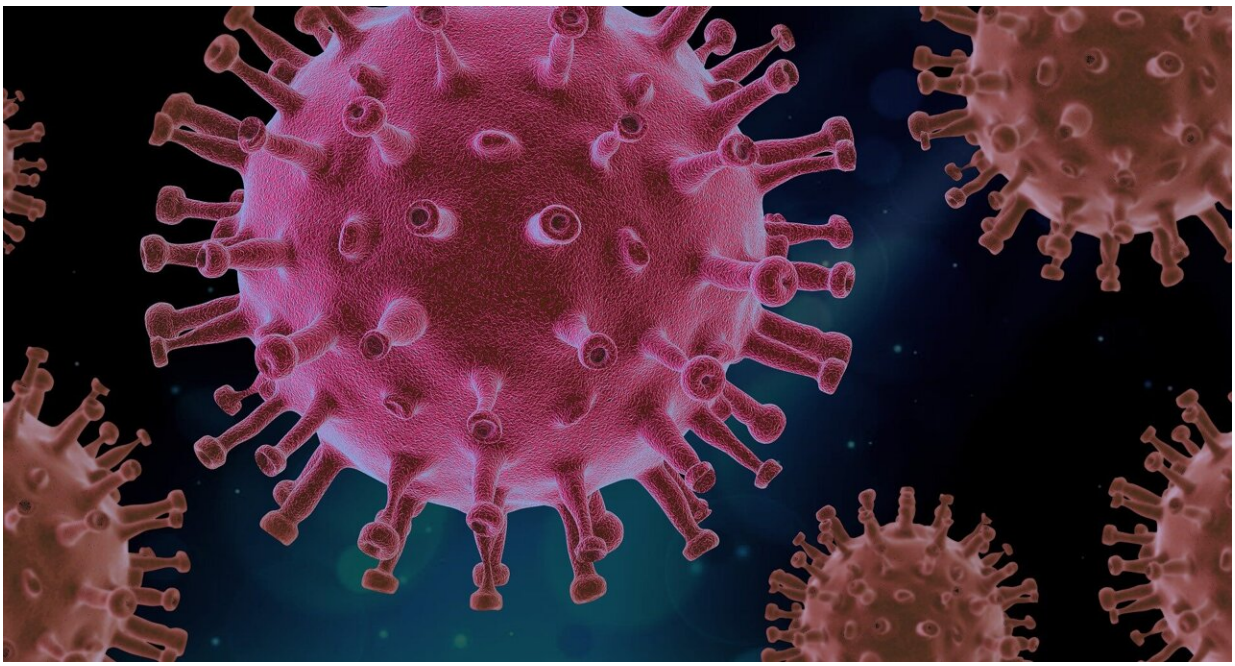

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A new study has revealed important information about how a patient's testosterone level can help protect them from severe COVID-19. Previous research involving Swansea University investigated how sex hormones are likely to be important determinants of COVID-19 severity.

Now, digit ratio expert Professor John Manning, of the Applied Sports, Technology, Exercise and Medicine (A-STEM) research team, has been working with colleagues in Poland and Sweden to look more closely at the subject. He says their findings, which have just been published by the journal *Andrology*, could have significant implications for public health and future treatments.

Professor Manning said, "COVID-19 varies markedly in its severity across both nations and individuals. It is most severe in elderly men. This has led to suggestions that testosterone may influence severity. However, it is unclear whether testosterone increases or decreases severity.

"In collaboration with colleagues in Poland and Sweden, we have been looking at testosterone-dependent finger patterns in hospitalized-patients compared to controls."

He explained there are two opposing explanations—the low-androgen-driven and high-androgen-driven theories. The first theory implicates high testosterone as aiding infection by the virus, but the latter theory argues that it is the low levels of testosterone found in elderly men which increases their inflammatory immune response to COVID, resulting in a poor prognosis.

For this new research, the team looked at sex differences in relative digit length in hospitalized patients and controls. It is thought that sex differences in relative digit lengths arise as the result of exposure to testosterone and/or estrogen in the womb or at puberty. Long index-fingers are thought to relate to low testosterone/high estrogen and long little-fingers to high testosterone/low estrogen.

The study, conducted at the Medical University of Lodz, Poland, considered two samples taken before and after vaccination were widely available. In both samples, hospitalized patients had short little fingers

relative to controls.

Professor Manning said, "The patients had digit ratios that indicated low testosterone before and after birth. The pattern was present at the beginning of the pandemic and after widespread vaccination.

"This means we can conclude that testosterone is protective against severe COVID-19. The effect may arise because the hormone reduces inflammation in the lungs and other organs. The findings have public health and treatment implications."

More information: Anna Kasielska-Trojan et al, Digit ratios and hospitalization for COVID-19: A test of the low-androgen-driven and high-androgen-driven theories of COVID-19 severity, *Andrology* (2024). DOI: 10.1111/andr.13709

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