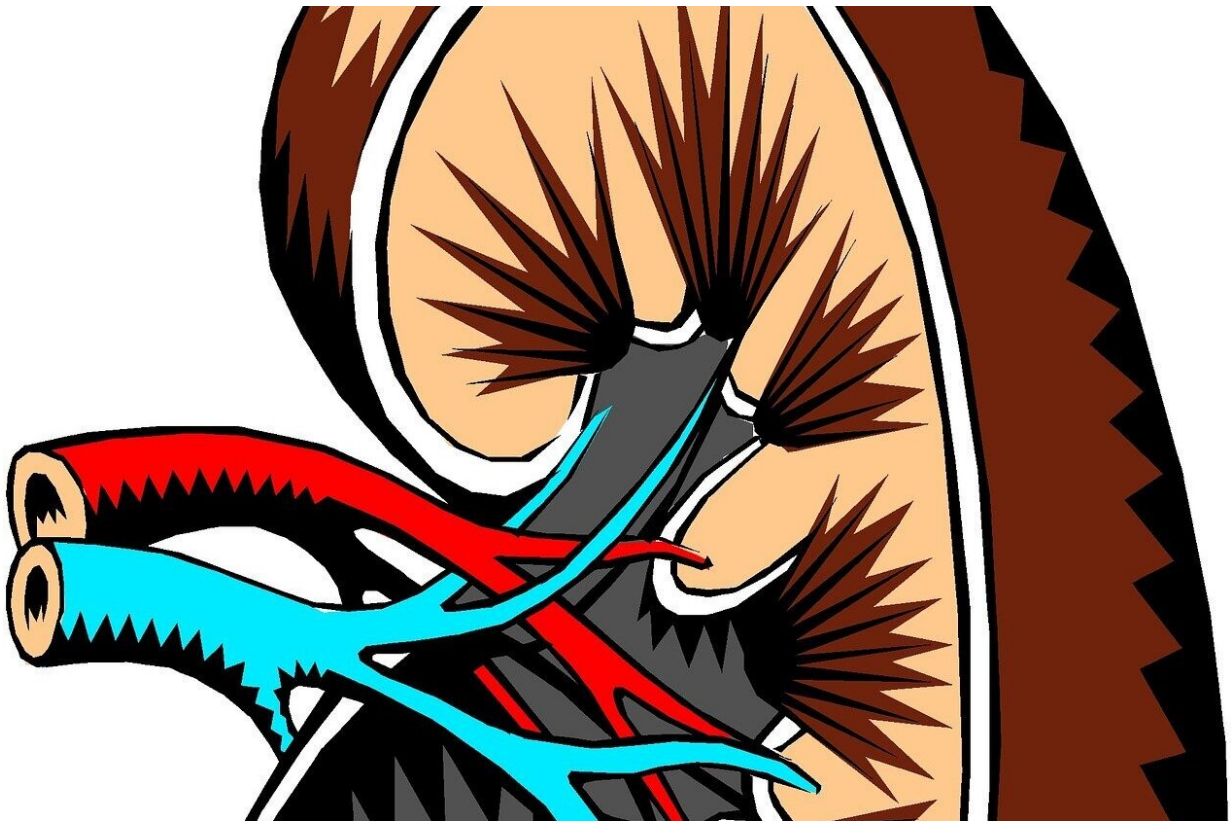


COVID-19 long-haulers at risk of developing kidney damage, disease

September 1 2021, by Kristina Sauerwein



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Research continues to mount indicating that many people who've had COVID-19 go on to suffer a range of adverse conditions months after their initial infections. A deep dive into federal health data adds to those

concerns, pointing to a significant decline in kidney function among those dubbed COVID-19 long-haulers—and even among those who had mild infections of the virus.

The data, plucked by researchers at Washington University School of Medicine in St. Louis and the Veterans Affairs St. Louis Health Care System, show that those infected with SARS-CoV-2 are at an increased likelihood of developing [kidney damage](#) as well as chronic and end-stage [kidney](#) diseases.

The study is published online Sept. 1 in the *Journal of the American Society of Nephrology*.

Known as the silent killer, kidney dysfunction and disease tend to be free of pain and other symptoms—so much so that the National Kidney Foundation estimates that 90% of people with ailing kidneys don't know it. Kidney disease affects 37 million people in the U.S. and is one of the nation's leading causes of death.

"Our findings emphasize the critical importance of paying attention to [kidney function](#) and disease in caring for patients who have had COVID-19," said senior author Ziyad Al-Aly, MD, an assistant professor of medicine at Washington University. "If kidney care isn't an integral part of COVID-19 post-acute care strategy, then we will miss opportunities to help potentially hundreds of thousands of people who have no idea that their kidney function has declined due to this virus. This is in addition to the millions of Americans who suffer from kidney disease not caused by COVID-19."

The findings coincide with a surge in COVID-19 infections spurred by the delta variant. More than 38 million people have been diagnosed with the virus since the pandemic started.

"Based on our research, we believe that 510,000 of those people who have had COVID-19 may have kidney injury or disease," Al-Aly said.

The researchers analyzed de-identified medical records in a database maintained by the U.S. Department of Veterans Affairs, the nation's largest integrated health-care delivery system. The researchers created a controlled dataset that included health information from more than 1.7 million healthy and COVID-infected veterans from March 1, 2020, through March 15, 2021. Of those veterans, 89,216 had confirmed COVID-19 diagnoses and made it through the acute phase (the first 30 days of the disease).

The COVID-19 patients in the study were mostly men and in their late 60s; however, the researchers also analyzed data that included 151,289 women—including 8,817 with COVID-19—and adults of all ages. Among the COVID-19 patients, 12,376 (13.9%) required hospitalization, including 4,146 (4.6%) who were admitted to intensive care units (ICUs).

"The risk of decreased kidney function is highest among people who were in the ICU; however, it's important to note that the risk extends to all patients, even those who had milder cases of COVID-19," said Al-Aly, who is also director of the Clinical Epidemiology Center and chief of the Research and Education Service at the Veterans Affairs St. Louis Health Care System.

Earlier stages of kidney disease often can be treated with medication.

"It's essential to discover [kidney dysfunction](#) before the problem progresses and becomes harder to treat," Al-Aly said. "But kidney problems are silent problems that won't be found until somebody checks the bloodwork. Based on our research, it's especially important that health-care providers do this for people who have had COVID-19.

Otherwise, we'll miss a lot of people and, sadly, we'll be dealing with more advanced kidney diseases down the road."

Compared with patients who did not become infected, people who contracted the virus but did not need to be hospitalized for it had a 15% higher risk of suffering from a major adverse kidney event such as chronic kidney disease, a 30% higher risk of developing acute kidney injury, and a 215% (more than twofold) higher risk of acquiring end-stage kidney disease. The latter occurs when the kidneys can no longer effectively remove waste from the body. In such cases, dialysis or a kidney transplant is needed to keep patients alive.

The risk increased for patients hospitalized for COVID-19, and considerably so for those who were in the ICU for the virus: seven times the risk of experiencing a major adverse kidney event, eight times the risk of acute kidney injury and 13 times the risk of end-stage kidney disease.

"People who were hospitalized for COVID-19 or needed ICU care are at the highest risk," Al-Aly said. "But the risk is not zero for those who had milder cases. In fact, it's significant. And we need to remember that we don't yet know the health implications for long-haulers in the coming years."

After the initial 30 days of COVID-19 infection, 4,757 (5.3%) of the patients experienced a decrease of 30% or more in glomerular filtration rates (GFR), which physicians use to assess kidney function and, if applicable, determine the severity of kidney disease. The rate is determined by a simple blood test that measures levels of creatinine, a waste product in the blood that is filtered by the kidneys and discarded into urine.

The researchers found that people who had milder COVID-19 cases had

1.09 times the risk of having an estimated GFR decline of 30% or more. For hospitalized COVID-19 patients not in intensive care units, there was two times the risk of having an estimated GFR decrease of 30% or more, while [intensive care unit](#) patients were at three times the risk of experiencing an estimated GFR drop of 30% or more.

"The kidney damage was in excess of reduced function caused by normal aging," Al-Aly explained. "A 60-year-old's kidney function is less robust than the kidneys of a 20-year-old. The kidney function decline we've observed in these patients is not graceful aging. It is not normal anything. It is definitely a disease state.

"Kidney [disease](#) is one important facet of the multifaceted long COVID-19," he said. "It is a critical component of the long COVID-19 story, and it must be taken into account when caring for people with long COVID-19."

More information: Benjamin Bowe et al, Kidney Outcomes in Long COVID, *Journal of the American Society of Nephrology* (2021). DOI: doi.org/10.1681/ASN.2021060734

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