



ELITE

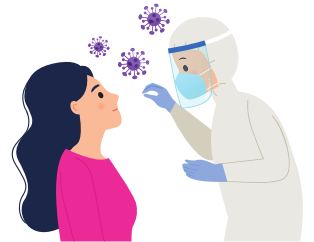
Personal Training and Fitness Solutions

HEALTH TOPIC OF THE WEEK

1/23 - Covid-19 and the Gut Microbiota

Introduction

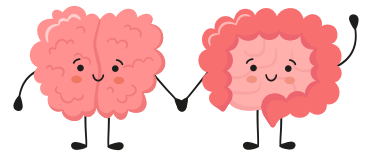
COVID-19. By now people are sick of hearing about it. I get it. We all wish it would just go away. Unfortunately, COVID-19 has not gone away. It still presents problems. Even once you test negative, a multitude of health-related issues may follow.



Why focus on the gut?

Gut health is critical in terms of prevention. It also reduces the duration and intensity of SARS virus infections!

Faithful readers know we've covered the gut before. Why the repetition? It's to stress that the gut microbiota is absolutely key to good health! It supports 70% of our immunity, is responsible for 95% of serotonin production, has a brain gut axis connection and powerfully influences mood, cognition and appetite.



When functioning properly, the gut microbiota allows toxins in the colon to be eliminated as feces but allows water and nutrients to be absorbed into the blood system.

How does COVID-19 affect the gut?

- COVID-19 is often accompanied by gastrointestinal symptoms. Persistent microbiome changes are found in people with long-term COVID-19.
- Investigations have shown that all COVID-19 patients manifest differences in gut bacterial populations when compared to healthy controls.
- Infected patients treated with broad-spectrum antibiotics while in the hospital have an increased risk of developing multi-drug resistant secondary infections and dying from septic shock.



Elite Personal Training and Fitness Solutions does not provide medical treatment or intervention. We acknowledge scientific evidence that appropriately intensive exercise and sustainable nutritional intervention can have significant impact on chronic health disorders and obesity, dramatically improving symptoms when recommendations are followed. Please visit us at Eliteptf.com for more information and to schedule your evaluation.

What is the relationship between COVID and the gut?

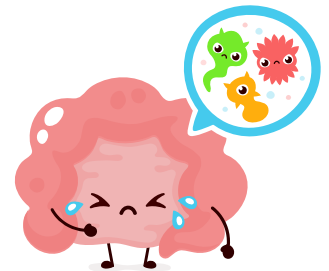
Does coronavirus infection result in a disrupted gut microbiome, or does an already weakened gut microbiome make the body more vulnerable to infection? The causal relationship has been unclear.

Fascinated by research? Read on.

A recent study conducted by the NYU Grossman School of Medicine explored the relationship between COVID and the gut. Initially, researchers tested changes in gut microbes found in laboratory mice that had been infected with SARS-CoV-2.

They found that the diversity of different bacterial species in the gut decreased dramatically within the first few days of infection.

Some families of important bacteria disappeared from the gut, while other families proliferated. These findings led the researchers to suspect that the virus would also disrupt the microbiome in humans.



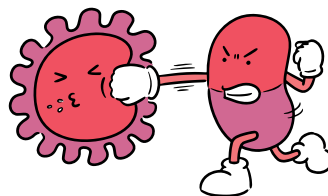
From rats to humans

The researchers investigated changes to gut microbes in 96 men and women who were hospitalized with COVID-19 in 2020 in New York City and New Haven, Connecticut. They analyzed the microbe communities present in stool samples taken throughout each patient's hospital stay.

The results, published in the journal Nature Communications, showed that the majority of patients had low gut microbiome diversity, as was found in the experimental mice, with around a quarter of the patients showing a microbiome dominated by a single type of bacteria.

The effect of antibiotics

At the same time, populations of several microbes known to include antibiotic-resistant species increased, possibly due to widespread antibiotic use early in the pandemic. Antibiotics kill off species that are susceptible to the drugs but leave, in their place, different species that are resistant to the drugs.

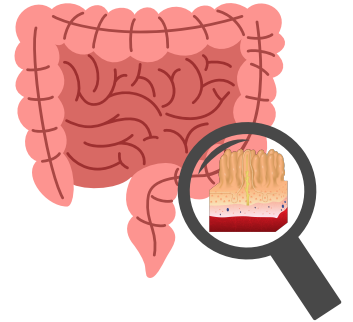


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Additional findings

“Our findings suggest that coronavirus infection directly interferes with the healthy balance of microbes in the gut, further endangering patients in the process,” says study co-senior author and microbiologist Dr. Ken Cadwell.

Under normal circumstances, microbes are not able to migrate between the gut and the bloodstream unless the intestinal barrier is damaged. The researchers found gut epithelial cell alterations in the mice infected with SARS-CoV-2, implying that the virus in some way also changes the permeability of the intestinal lining. In previous research, the influenza virus was also shown to disrupt the intestinal barrier in mice by damaging the gut microbiota.



The research findings support a scenario in which gut-to-blood migration of microorganisms occurs in COVID-19 patients due to the virus causing disruption to the normal gut microbiome. This migration may lead to infections and dangerous complications.

Summary

The gut microbiota is crucial to our health. COVID infections alter the gut microbiota and damage the gut in multiple ways. This damage increases when antibiotics are prescribed.

It is always desirable to maintain gut health, but it is imperative to manage it during and after COVID infections!

Please reach out to us to discuss important protocols in managing COVID infections.



References

Bernard-Raichon, L., Venzon, M., Klein, J. *et al.* Gut microbiome dysbiosis in antibiotic-treated COVID-19 patients is associated with microbial translocation and bacteremia. *Nat Commun* **13**, 5926 (2022). <https://doi.org/10.1038/s41467-022-33395-6>



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