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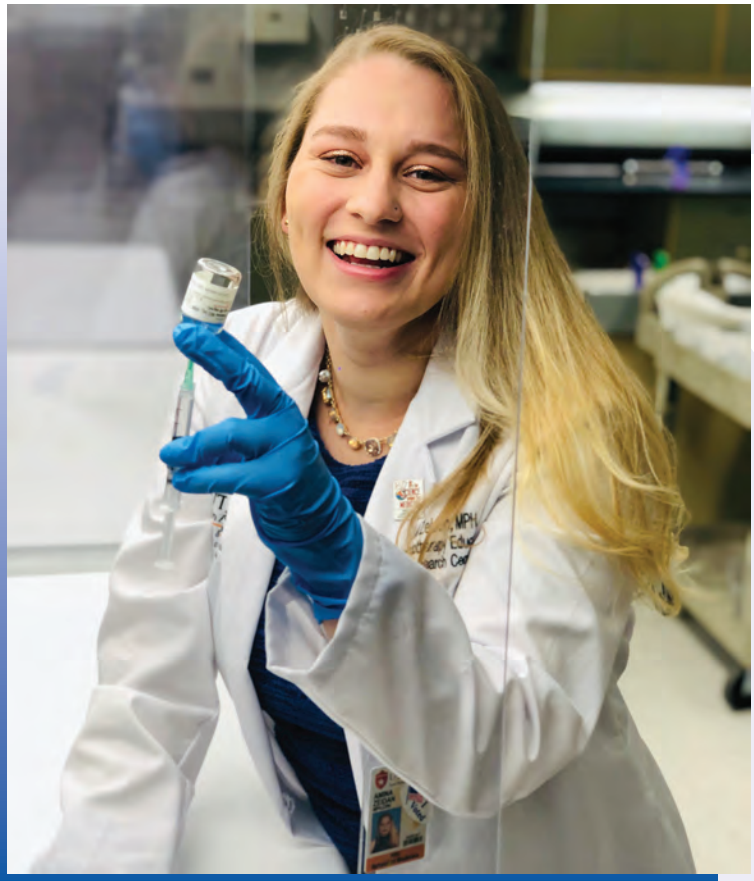

The Gut Microbiome – Implications for Health on Earth and in Space

Dr. Amina R. Zeidan

September 21, 2021
7:30 p.m.

Lecture: *https://go.nasa.gov/3mTjaK8*

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Each human hosts a microbiome in their gut that houses more than 1,000 species of bacteria and other microbes. This microbiome weights about 3 – 4 pounds in total – but these are pounds you won't want to lose. These microorganisms are highly involved in reactions that influence host physiology and metabolism. Nearly 70% of our lymphocytes and immune function reside in gut tissues, therefore the gastrointestinal tract plays several roles in maintaining health and risk of cardiovascular disease, cancer, and neurodegenerative diseases.

What is the relevance of the gut microbiome to human health and astronauts? There are several stressors of space travel, including: microgravity, radiation exposure, isolation, anxiety, sleep deprivation, and isolation from medical care, all of which can potentially negatively impact the gut and overall human health. With several unknowns regarding how changes can alter health in the long-term, it is critical for researchers to determine how space travel stressors affect the gut microbiome so that we ensure the health and safety of astronauts during and post-mission.

Dr. Zeidan is a Research Fellow with NASA Langley's Space Radiation Risk Group. As a translational scientist, she researches the gut microbiome and infectious diseases, environmental exposures, and stressful environments. Dr. Zeidan has presented her research both nationally and internationally, notably as a returning presenter at the European Congress of Clinical Microbiology & Infectious Diseases. A native Missourian, she received her BS from George Mason University (Health & Preventive Medicine), two MPH degrees from the University of South Florida (Epidemiology & Global Communicable Diseases), and PhD from the University of Texas at Austin (Translational Science). She is adjunct faculty at George Mason University and guest lectures at several colleges and universities.

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