

## USAFA Hosts First DOD Microbiome Symposium

Is it possible to prevent the sudden onset of gastroenteritis and nausea that often plagues service members upon arriving at a deployed location?

Does the treatment or prevention of post-traumatic stress disorder lie in the diversity of your gut bacteria?

The Military and Veteran Microbiome Consortium for Research & Education addressed these and other questions and highlighted multiple microbiome research initiatives focusing on the benefits to military, veterans and their families during the first Department of Defense Microbiome Symposium, hosted at the United States Air Force Academy on April 6 and 7. The two day event featured researchers throughout the DOD and other federal agencies and academia, offering participants a variety of plenary speakers, short talks, poster sessions and discussion groups.

Lt. Col. Andrew Hoisington, assistant professor and environmental engineering division chief at the Air Force Academy and presenter at the symposium, spoke about a cadet-led research project that looked at the homogenization of the microbiome in the environment over time when people come together. This type of data allows researchers to see how quickly microbiome begins to resemble the microbiome of those in close proximity.

“We believe strongly that cadet research is important. What’s great about this study is we had 7 cadets that were actively involved as cadet researchers and then we also had more than 50 cadets that were involved as participants so even though they are not doing the research, they see the big picture of research happening. Cadet Amelia Roddenberry, who is a senior this year, was directly in charge of the whole project, she got not only the research aspect but the leadership aspect of trying to coordinate with 50 people to get into their rooms, collect samples and surveys. We had over 3200 microbiome samples she had to figure out how to store, label and ship the samples” said Hoisington.

Roddenberry said she felt her participation and role as the lead in this project gave her better insight and understanding into the various aspects and pieces of the mission and how it all fits together, a leadership experience she may have not otherwise received as a cadet.

One plenary speaker at the symposium, Dr. Christopher Lowry, associate professor at the University of Colorado Boulder, spoke about the studies of particular bacteria, *M. vaccae*, and how it has been shown to reduce fear and anxiety. The study has demonstrated desired results in mice and could lead to the bacteria being used in a process similar to a vaccination for those at high risk of PTSD, prior to a possible exposure such as a combat deployment.

Through funding provided by the Sloan Foundation, the MVM-CoRE, a collaboration between the Academy, University of Colorado, University of Maryland, University of Texas, University of Chicago and the Veterans Administration, has focused their efforts on microbiome research efforts that stand to change health practices and quality of life for veterans and Americans everywhere.