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UD student-athlete splits summer between soccer and microbiology research

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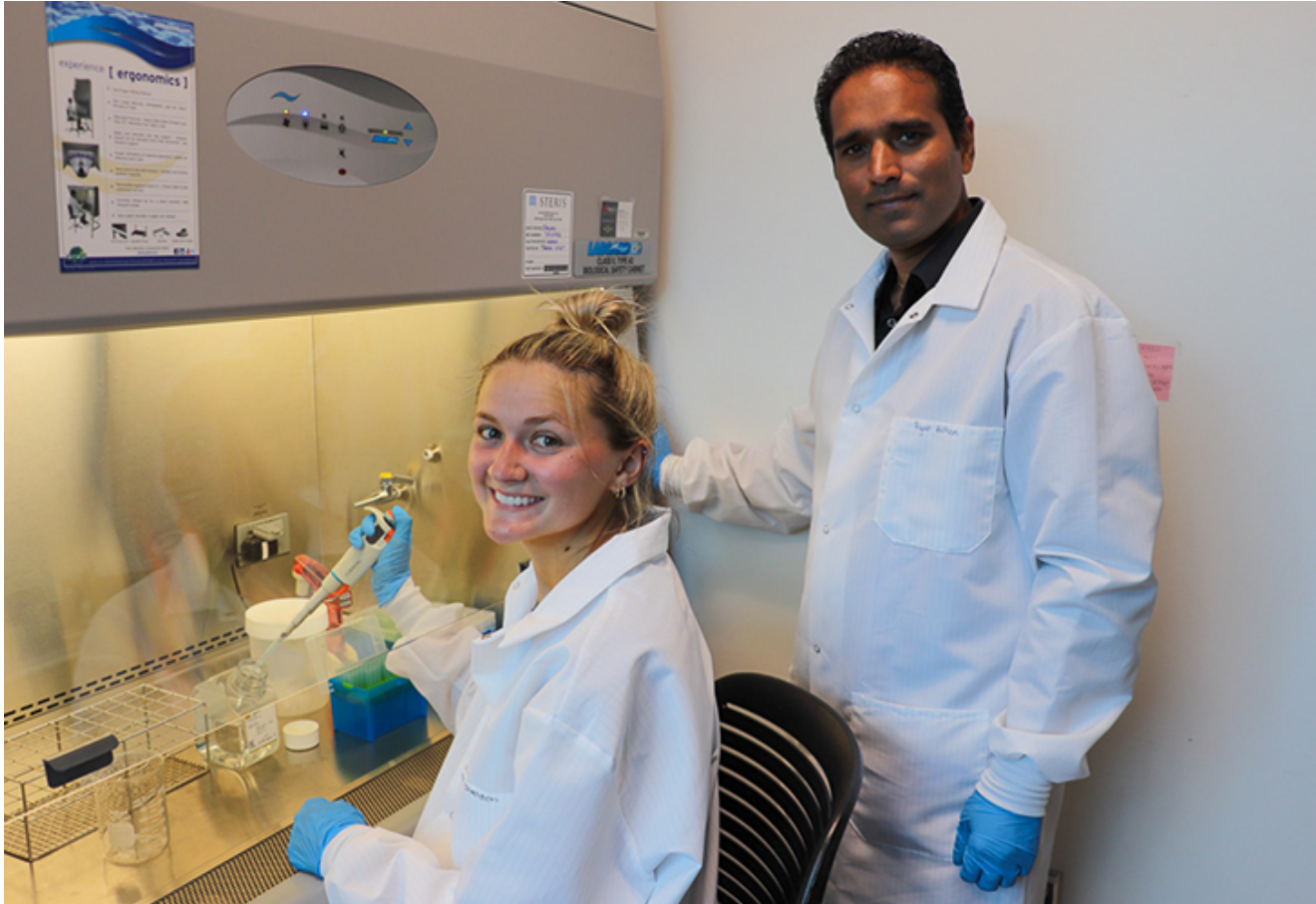
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UD student-athlete splits summer between soccer and microbiology research

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By Lucy Waskiewicz '24

Rather than scoring goals on the pitch, University of Dayton women's soccer player Jessica Sheldon spent summer 2022 achieving them in the science lab during her College of Arts and Sciences Dean's Summer Fellowship.

Sheldon, a senior pre-medicine major, studied the link between gut bacteria and its metabolites with higher intestinal antibody response. She said one of the most rewarding parts of the experience was collaborating with fellow students in the research process.

"The Dean's Summer Fellowship made me realize research was both exciting and a team effort," she said. "It pushed my boundaries and challenged me to be inquisitive and intellectually creative."

During summer 2022, Sheldon and Rajput's research focused on identifying bacteria that produced the highest amounts of intestinal Immunoglobulin A (IgA), an antibody in the immune system. IgA can neutralize pathogens like viruses and bacteria that enter the body and cause disease. High IgA-producing bacteria can be used to supplement oral vaccines to increase vaccine response.

Sheldon said studying pathogens such as viruses in light of the COVID-19 pandemic was one of the most interesting parts of her research.

"We investigated the pathology of human coronavirus OC43," she said. "Although it was a less infectious strain than COVID-19, it was fascinating to learn in-depth about the pathology of this family of viruses during the pandemic."

However, studying how to better combat disease wasn't Sheldon's only "goal" that summer. As a midfielder on the Dayton women's soccer team, she split her time between the lab and the pitch — sometimes arriving to research sessions straight from practice.

"Jessica is a very hardworking and sincere student," Rajput said. "During the summer, she was also studying for the Medical College Admission Test and training for soccer. There were a few times when I assigned her work in the morning and she came directly from her soccer practice without any excuses."

The hard work paid off. Sheldon started all 18 matches during the 2022 women's soccer season, scoring two goals and assisting on two others. She also was selected for UD's all-academic team, which recognizes student-athletes for outstanding academic and athletic performance.

Although being a student-athlete can be challenging, Sheldon said she wouldn't have it any other way.

"I have learned so much about time management, discipline and teamwork through school and soccer," she said. "Along the way, I have made lifelong friendships with my teammates and meaningful relationships with mentors, coaches and professors."

Sheldon concluded her fellowship at the 2022 Summer Undergraduate STEM Research Symposium, where she shared a poster presentation of her research alongside other dean's summer fellows.

Her research also was presented at the 2022 Stander Symposium and Sigma Xi-University of Dayton Chapter Research Day. It was published in a peer-reviewed manuscript for the Elsevier Journal for Veterinary and Animal Science, on which she is listed as a co-author.

Sheldon plans to pursue medical school after graduation. She said the Dean's Summer Fellowship has been helpful in the application process — especially during interviews, when she's been asked about the fellowship multiple times.

“I think my time spent developing my research skills over the past two summers will prove extremely beneficial in my research in medical school and beyond,” she said. “This experience has encouraged me to develop meaningful work and make advancements in the medical field as a future physician.”

For more information, visit the [Department of Biology website](#).

