

Gardner-Webb University

## Digital Commons @ Gardner-Webb University

---

Gardner-Webb NewsCenter Archive

Gardner-Webb Publications

---

10-15-2019

### GWU Research Scholar Develops Protocol to Test Accuracy of Tracking Devices

Office of University Communications

Follow this and additional works at: <https://digitalcommons.gardner-webb.edu/gardner-webb-newscenter-archive>

---

#### Recommended Citation

Office of University Communications, "GWU Research Scholar Develops Protocol to Test Accuracy of Tracking Devices" (2019). *Gardner-Webb NewsCenter Archive*. 174.  
<https://digitalcommons.gardner-webb.edu/gardner-webb-newscenter-archive/174>

This Book is brought to you for free and open access by the Gardner-Webb Publications at Digital Commons @ Gardner-Webb University. It has been accepted for inclusion in Gardner-Webb NewsCenter Archive by an authorized administrator of Digital Commons @ Gardner-Webb University. For more information, please contact [digitalcommons@gardner-webb.edu](mailto:digitalcommons@gardner-webb.edu).

# GWU Research Scholar Develops Protocol to Test Accuracy of Tracking Devices

[webpublish.gardner-webb.edu/newscenter/gwu-scholar-tests-fitness-trackers/](http://webpublish.gardner-webb.edu/newscenter/gwu-scholar-tests-fitness-trackers/)

Office of University  
Communications

October 15, 2019

## Micah Balltzglier '20 Gains New Appreciation for Conducting Research

BOILING SPRINGS, N.C.—After being in the Air Force for almost seven years, Micah Balltzglier took a job as an aircraft mechanic. He hated the work.

One of his friends, Dr. Jonathan Ahearn, is a physical therapist and teaches at Gardner-Webb University. Knowing Balltzglier had a passion for fitness, he suggested he apply for a technician position at his physical therapy clinic in Shelby, North Carolina.

Balltzglier enjoyed the work and decided to pursue a career in the field. Through the GI Bill, he came to Gardner-Webb to pursue a bachelor's in exercise science.

When Dr. Jeff Hartman suggested he consider submitting a project for the Undergraduate Research Scholars Program, Balltzglier was intrigued. "I didn't know you could do undergraduate research," he asserted. "It has been one of the most rewarding things I have done during my undergraduate experience."

Balltzglier received a grant from the GWU Undergraduate Research Scholars Program to work 40 hours a week for five weeks on his study. Hartman was his mentor, guiding him through the process. Balltzglier proposed to test the accuracy of an Apple Watch and fitness trackers in predicting a person's VO<sub>2</sub> maximum number.



Micah Balltzglier, right, recruited students to participate in fitness testing for his research study. One test involved participants pushing themselves in a wheelchair while wearing fitness trackers. Photo by Lindy Lynch / GWU Photo Staff

“VO<sub>2</sub> is a measure of your cardiorespiratory fitness,” Balltzglier explained. “It literally is a number that tells you how efficient the mitochondria in your cells are at taking the oxygen you give them and converting it to energy.”

After reading literature on the subject, Balltzglier found a gap in the research. There were no studies to determine the accuracy of the watches and trackers for people who are wheelchair bound. He decided to focus on this area. To develop a suitable protocol for the fitness testing, he and Hartman spent a lot of time racing each other as they pushed themselves in wheelchairs.

Once a reliable method for the testing was established, Balltzglier began recruiting subjects to participate. They wear an Apple Watch, a Garmin fitness tracker and another less expensive tracker for seven days and during that time, do two exercise sessions on their own. Then, he has them push themselves in the wheelchair wearing all three devices until a VO<sub>2</sub> is recorded. Lastly, they come to the Exercise Science lab, where they exercise on a machine until a VO<sub>2</sub> number is obtained using metabolic analysis. His next steps are to analyze the data and write his report, which he hopes to finish in the spring semester. He won't speculate on the results until then.

The experience gave him a new appreciation for research. While applying to graduate schools to study physical therapy, he asks about research opportunities. “That’s something I wouldn’t have done before,” Balltzglier shared.

Learn more about the [Department of Exercise Science](#) and the [Undergraduate Research Scholars Program](#).

*Located in the North Carolina foothills, Gardner-Webb University is a private, Christian, liberal arts university. Gardner-Webb emphasizes a strong student-centered experience and rigorous academics to prepare students to become effective leaders within the global community. Ignite your future at Gardner-Webb.edu.*