

# Kinesiology Undergraduate Student Highlight

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Undergraduate student Jordan Speth

My name is Jordan Speth. I am a senior at Utah State University studying Kinesiology with an emphasis in exercise science and a minor in chemistry. I was born and raised here in Cache Valley and have always bled Aggie blue. Ever since I was little, I've loved being active and playing sports. I played little league basketball and soccer when I was younger and did lacrosse and cross country in high school. As of late, I have come to enjoy motocross and riding dirt bikes in the summer and snowboarding and snowmobiling in the winter. I was lucky enough to marry my high school sweetheart, Tia, who shares many of the same hobbies. Needless to say, we snowboard and ride dirt bikes together every chance that we get.

When I first began school at USU, I started getting into fitness and weightlifting. The more I learned about it, the more I loved it. My interest in health and wellness grew into a passion for healthcare, and I currently plan on going into either sports medicine or emergency medicine. This past August, I was hired as a research assistant by Dr. Anne Beethe and Dr. Dave Bolton at the Perception-Action

Laboratory. Beyond many of my other experiences, this work has helped me prepare for my career in medicine.

The purpose of the Perception-Action Laboratory is to research how we adapt corrective balance reactions to meet environmental challenges under extreme time pressure. At the moment, I am working with Dr. Beethe on the Global Suppression study. In this study, we use Transcranial Magnetic Stimulation to stimulate and evaluate the descending corticospinal drive and how it alters when presented with alternative choices in balance recovery (i.e. taking a step to catch a fall, grabbing onto a handrail, or stop the fall by standing upright). I collect and analyze data from participants as they complete a series of tests within our lean-and-release device, which creates a forward perturbation to cause participants to lose balance and experience a falling sensation. We ask participants to catch themselves according to the environment while a magnetic stimulation is delivered from the brain to the hand muscles using the Transcranial Magnetic Stimulation device. This measures the changes in neural preparation immediately prior to the loss of balance. This data will inform us how people react to their environment when they have lost their balance, as well as the mechanism by which the brain sends signals to the body.

The opportunity to work with Dr. Beethe and Dr. Bolton has been extremely beneficial for me as the research assistant. Medical schools, and the field of medicine in general, rely heavily on data collected by research studies like this one. The hands-on experience I've received while researching in this field I am interested in has added tremendous value to my skills as a medical school applicant. It has helped me to develop the research tools I need to one day help people live better, healthier lives.