

# HONOURS

## Kortland Clifford

Supervisors: Drs. Saïd Mekary & René Murphy

### Research Focus

Scientific and research methods for simulating microgravity on Earth have remained relatively unchanged since humans first began preparing for spaceflight. One of the most commonly used protocols is the Head-Down Bed rest model, and consists of a subject lying on their back horizontally in a slight head-down tilt position, with their face-up and arms kept to their side. This protocol ultimately makes the subject's body fluids flow toward their head, which mimics body fluid redistribution in microgravity. However, our research looked to alter the subject's body position to determine if there would be any effect on the redistribution of body fluids and blood flow to the frontal cortex to assess impacts on cognition. This pilot study, impacted by COVID-19 restrictions, resulted in a successful first probe into determining some of the changes occurring between the well-established face-up protocol versus our novel face-down protocol. Our results suggest future work on this modified microgravity simulation is warranted.

### The Researcher



Kortland Clifford was born and raised in Kingston, Ontario and is pleased to be completing his honours in Kinesiology under the supervision of both Dr. Saïd Mekary and Dr. René Murphy at Acadia University. Kortland has long been fascinated with the idea of space flight and is grateful to have had the opportunity to learn more about its intricacies and have contributed to helping with its research. He is currently unsure what his future holds, however, he looks forward to contributing more to the physiology field in whatever capacity that might be.