

# **IRGF Final Report**

## **Strzalkowski - #103264**

### **The impact of hypoxia on standing balance following visual and vestibular perturbations**

#### 1.1 Project Summary

This project investigated the influence of hypoxia (low oxygen) on the sensory (visual and vestibular) contributions to standing balance. Data collection was completed Spring 2023 in Nepal.

#### 1.2 Project Outcomes and Impacts

This project was part of a larger international research expedition to Nepal May-June 2023. We investigated the influence of hypoxia (low oxygen) on the sensory (visual and vestibular) contributions to standing balance in 15 lowlanders and 14 highlanders (Tibetan/Sherpa). Data collection occurred in Kathmandu (1400 m, low altitude) and in Pheriche (4300 m, high altitude). Three different research papers are currently being drafted to present the findings of this work. The first paper investigates changes in standing balance looking at eyes open and eyes closed conditions. The second paper is looking at changes in the vestibular control of standing balance. The third paper investigates changes in the visual control of standing balance. Data collected was completed with an MRU undergraduate research assistant who will be first author on the different papers. She presented preliminary data at the Alberta Motor Control Conference this past fall.

#### 2.1 Use of Awards Funds

This funding was critical to the success of the project. Funds were used to fund equipment and consumables, and flights to and from Nepal.

#### 2.2 Additional Outcomes/Research Issues

n/a

#### 2.3 Dissemination of Project

Three manuscripts are currently in preparation. Preliminary data were presented by the MRU undergraduate research assistant September 2023 at the Alberta Motor Control Conference. A collaborator from the University of British Columbia will be presenting additional findings March 2024 at a conference in Kelowna BC.

#### 2.4 Future Research Plans

This work has motivated additional investigation into how hypoxia impacts standing balance. Myself and other members of the Nepal 2023 research team (notably MRU's Dr. Trevor Day) are planning another high altitude expedition to Bolivia July 2024.