

Final Report

Name of BritInn Fellow: Professor Justin Stevan Lawley

Home Department: Sportwissenschaft **Home University:** University of Innsbruck

Guest Department: Sport Health and Exercise Science **Guest University:** Bangor University

From: 18th April 2019 **Until:** 29th April 2019

Title of the Research Project: Baroreceptor control of long-term blood pressure regulation

Report about visit and future plans:

The project: The goal of this project was to gain experience with and modify a classic physiological technique (neck pressure / neck suction) to non-invasively alter small pressure sensors located in the arteries of the neck (baroreceptor). These receptors are responsible for relaying information back to the brain about how high or low blood pressure is inside the body. Bringing this technique to Innsbruck will allow us to ask a wide range of experimental questions regarding the control of blood pressure during exercise, environmental situations and clinical populations.

Implementation: One of our major goals was to develop a system where we could also use ultrasonography to measure the pulsatility inside the carotid bulb, which is responsible for activating the receptors. Visiting Dr Moore’s laboratory in Bangor, we experimented with a variety of neck collar setups and compared their physiological response to the classic design. After we found a design that was optimal, Dr Moore visited my Laboratory this June and we performed some pilot testing including software development to automatically trace the carotid bulb and to control pressure inside the neck chambers.

Outlook: Thanks to this fellowship, we have a prototype design for our new neck collar system. Over the next 6 months, we will be collecting preliminary data and optimization of the system prior to its use in two research projects during 2020.

