"Multiple Sclerosis (MS) is a Disease that affects the Myelination of the Nervous System and can result in Decreased Skeletal Muscle Function, Muscular Fatigue, and Decreased Ambulatory Ability"

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Recommended Citation
Connors, Ryan T., "Multiple Sclerosis (MS) is a Disease that affects the Myelination of the Nervous System and can result in Decreased Skeletal Muscle Function, Muscular Fatigue, and Decreased Ambulatory Ability" (2018). RCEU Project Proposals. 183.
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RCEU History: I applied and received RCEU funding last year. My student received a publication in a reputable journal and is on another manuscript currently under review.

Project Summary

Multiple Sclerosis (MS) is a disease that affects the myelination of the nervous system and can result in decreased skeletal muscle function, muscular fatigue, and decreased ambulatory ability. Currently, there is no cure for this debilitating disease, and therefore, treatments have been created in order to control the symptoms that occur with the disease. Exercise interventions are currently being researched as potential improvement mechanisms for MS patients and helping to manage the physical demands being placed on the body of MS patients. Although evidence exists showing the benefits of exercise in adults with MS, people with MS continue to be physically inactive. Exercise intervention programs for persons with MS typically incorporate aerobic training, given the positive therapeutic effects of endurance exercise in reducing body weight and improving cardiovascular endurance. However, factors such as muscle weakness and diminished exercise tolerance can lessen participation in and adherence to aerobic-type activities among individuals with MS. Interventions featuring resistance-type exercise have also been shown to increase skeletal muscle mass, muscular strength, and functionality among middle-aged adults with mild to moderate disability. Moreover, gains in muscle strength in the MS population enable activities of daily living to be accomplished with less relative physical strain.

While these findings provide support for persons with MS to regularly engage in exercise, participation can be difficult to sustain, especially among individuals who are relatively sedentary, overweight, display low exercise capacity, or experience musculoskeletal pain while being physically active. Hence, a clinical need exists to test new strategies to optimize the health-producing benefits of physical activity for persons with MS, which incorporate both endurance and resistance exercise, while enhancing program compliance and minimizing the risk of health complications. Against this backdrop, our primary goal in conducting this project is to quantify the therapeutic and functional benefits of an 8-week, aquatics-based, treadmill walking program in adults with MS. We will analyze the effect of an underwater treadmill walking program on cardiovascular endurance, body composition, muscular strength, balance, and functionality amongst adults with MS.

Female and minority students are encouraged to apply.

Student Prerequisites

No course work perquisites are needed but the individual should be in either junior-or-senior level standing.