



5. *Nathan A. Chiarlitti¹, Alexandra Sirois¹, Ross E. Andersen¹, Susan J. Bartlett².

¹Department of Kinesiology and Physical Education, McGill University, Montreal, QC, Canada; ²Department of Epidemiology, McGill University, Montreal, QC, Canada

Resistance Training Improves Physical Function, and Body Composition in People with Rheumatoid Arthritis.

Objectives: To conduct a pilot trial exploring the feasibility and safety of a 12-week progressive resistance training program (PRT) on physical function in rheumatoid arthritis (RA). A secondary objective was to explore potential mechanisms associated with changes in physical function including energy metabolism, body composition, and muscle strength.

Methods: Eighteen participants with RA (17 females, mean (SD) age 38 (19) years, weight of 65.1 (8.4) kg, RA duration of 8 (5) years) were randomized to 12 weeks of either a resistance training + flexibility group (PRT+FLEX) or flexibility group (FLEX). The PRT+FLEX group completed two supervised workouts using resistance training equipment and range of motion exercises, and one home-based workout per week using elastic resistance bands. The FLEX group completed the same range of motion exercises at home. At baseline, participants provided sociodemographic information and completed validated questionnaires assessing perceived physical function/disability (i.e., PROMIS-4a, MDHAQ, RA-FQ Physical Function), disease activity (RAPID3 and RA-FQ), exercise self-efficacy, physical activity enjoyment, and daily physical activity. Participants also underwent tests assessing resting energy expenditure (REE), body composition (dual energy x-ray absorptiometry), and physical function (Short Performance Physical Battery, 400-m walk, muscle strength).

Results: Repeated measures ANOVA revealed statistically significant interaction effects in body fat percentage ($p = .010$), fat-mass index ($p = .017$), RA-FQ Physical Function ($p = .002$), RA-FQ disease activity ($p = .002$), RAPID3 ($p = .002$), and physical activity enjoyment ($p = .026$) that favoured the PRT+FLEX over the FLEX group. Additionally, there was an effect of time for appendicular lean mass ($p = .028$), lower body lean mass ($p = .030$), PROMIS-4a ($p = .002$), MDHAQ ($p = .005$), 400-m walk ($p = .002$), knee flexion strength ($p = .008$) and REE ($p = .014$) with the PRT+FLEX group improving more than the FLEX group.

Conclusions: The findings of this study suggest that a 12-week resistance exercise program is feasible, safe, and enjoyable in people with RA and can improve physical function, body composition, and muscle strength.