

## SWACSM Abstract

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### At Home Progressive Resistance Training for Adults with Down Syndrome – Study Materials Development

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#### ABSTRACT

Down syndrome (DS) presents secondary characteristics including hypotonia, obesity and poor physical fitness that increase barriers to participation in physical activity. **PURPOSE:** This project developed tailored exercise videos for adults with DS with the aim of reducing the barrier of access to physical activity. **METHODS:** In a 2020 pilot study, adults with DS (n=5) consented to a 4-week at home intervention following three separate pre-recorded exercise videos (a warm-up video, an exercise routine video to be replayed 2-3 times, and a cool-down video) hosted online, (n=2) dropped before baseline testing. Videos contained a progressive resistance training (PRT) routine demonstrated by a person with neurotypical development. **RESULTS:** Participants (n=3) showed variable upper body (modified push-ups: 7-22 reps) and lower body (30 seconds sit-to-stand: 8-11 reps) muscular strength at baseline. Three participants completed the intervention with 100% indicating the need for continuous flowing videos. Based on these results a 10-week PRT program for adults with DS was developed, with volume increasing every 2 weeks following linear periodization. The program contained 30 instructional videos (15 beginner & 15 intermediate). Each 2-week interval included three videos for each week. Videos were 1-hour-to-1.3 hours long and consisted of a warm-up (~10 min), a main exercise routine (~40-50 min), and a cool-down (~10 min). The warm-up included a brief aerobic component and full body muscle priming. Exercise routines depicted 2-3 sets of 7-8 exercises with 6-14 repetitions targeting all major muscle groups using body weight and a backpack for load. The cool down had static stretching. Demonstrations, scripted verbal and breathing cues were provided for all exercises. Regressions were provided for difficult exercises. Exercises went from large to small muscle groups and spaced by one minute of rest time. Males and females, neurotypical and with DS were demonstrators in each video. **CONCLUSION:** Pilot study results informed future study PRT workload, the need for beginner and intermediate levels, and continuous flowing videos. Access to tailored exercises for adults with DS can be potentially increased by an on-line PRT program. Future studies should evaluate the feasibility and efficacy of this intervention strategy.