Investigating obstacles to power wheelchair use and handwear performance during winter

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The objective of this research is to investigate the challenges that power wheelchair users commonly face during winter conditions, in particular the efficacy of various types of handwear and the effects of handwear on operating a powered wheelchair. The study consists of three stages. A single power wheelchair user has been identified to participate in this study. An interview of the subject will be conducted to explore a range of issues associated with wintry conditions to provide a broad picture of wheeled mobility during the winter months. The participant will be asked to test three different types of handwear during the normal daily commute (5 d with each type of handwear). After sampling each handwear option, the subject will fill out a questionnaire and rank them based on comfort. Finally, the participant will maneuver around an obstacle course while wearing the three types of handwear to determine the impact on dexterity. The obstacle course will be completed three times for each type of handwear. Completion time and errors will be recorded. Errors will consist of deviations from the course’s boundaries and missed targets. These results shall be used to rank the handwear based on the impact on dexterity. The knowledge gained from completion of all three stages will be used to make recommendations on the type of handwear to be used by power wheelchair users during a Manitoba winter.