

Introduction

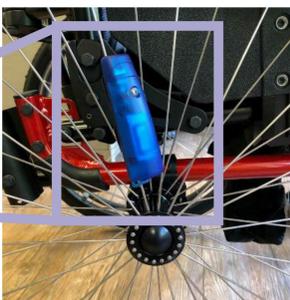
Bouts of mobility are continuous segments of movement between stationary periods (1). They reflect transitions between activities (2) and are strong predictors of social participation (3). This study aimed to describe differences in characteristics in wheelchair mobility inside and outside the home. A secondary objective was to identify if there were any interaction effects of ethnicity or the onset of the COVID-19 pandemic on bout characteristics.

Methods

The activities of wheelchair-users were tracked for 7 days with accelerometers and Wi-Fi loggers placed on their wheelchairs.

Participants:

- 24 men living with paraplegia
 - 8 Non-Hispanic Black (NHB)
 - 8 Hispanic (HIS)
 - 8 Non-Hispanic White (NHW)
- Time since injury ≥ 2 years
- Use a manual wheelchair as primary means of mobility (> 40 hrs/week)



Outcome measures:

- Average speed of each bout
- Average distance of each bout
- Average duration of each bout
- Where bout was performed



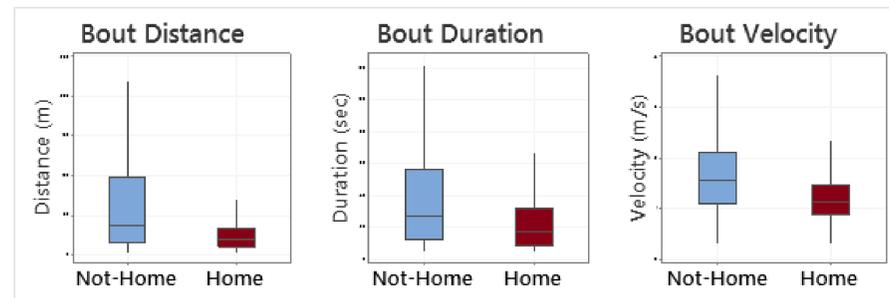
Not in a
Bout of Mobility



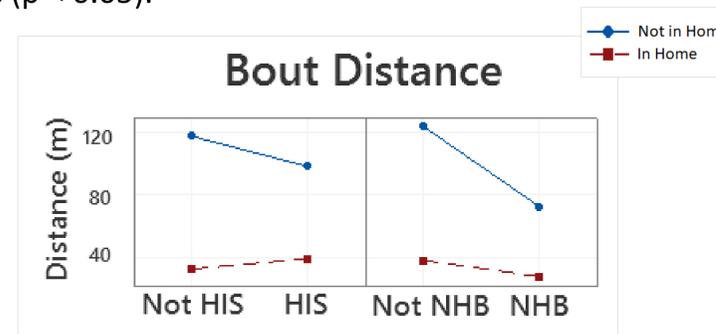
In a
Bout of Mobility

Results

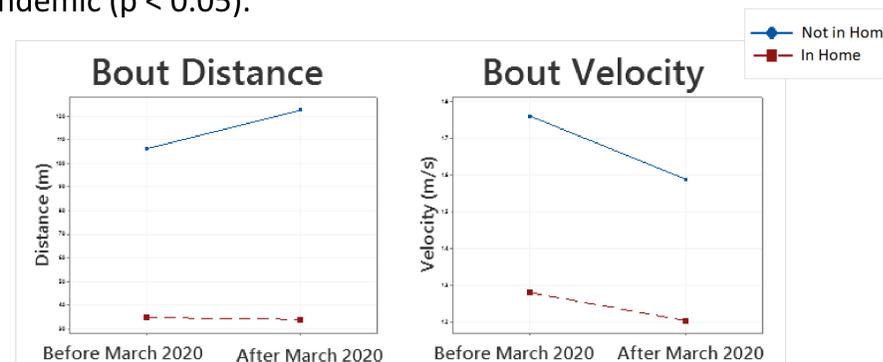
The average bout was longer and faster when performed outside of the home versus inside the home ($p < 0.05$, 95% CI).



Bouts outside the home were significantly shorter for NHB versus non-NHB and HIS versus non-HIS participants ($p < 0.05$). The bouts were also slower for NHB versus non-NHB and HIS versus non-HIS participants ($p < 0.05$).



There was also a significant decrease in bout velocity despite an increase in bout duration and distance after the onset of the COVID-19 pandemic ($p < 0.05$).



Discussion

The average bout characteristics outside the home show individuals have the capacity and need to push at higher speeds for longer distances. However, the home environment likely limits their need and/or ability to move at the same rate. These results have implications for the design needs for wheelchairs used primarily inside the home versus out. Access to assistive technology, appropriate equipment, and environmental adaptations have been reported to be some of the biggest facilitators to social participation for people with SCI (4). Improving wheelchair users' endurance for long, steady-state wheeling, whether through training or equipment design, could help increase community participation and quality of life.

These implications become even more important when considering racial and ethnic minorities whose out of home bouts were slower and shorter than their non-Hispanic white peers. Did they access different environments outside their home, or was their capacity for mobility reduced compared with their peers? The longer but slower bouts recorded after the pandemic may also indicate a decrease in capacity and/or need for high speeds while still needing to cover the same amount of ground throughout the day.

References

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4. Meyers, A. R. (2002). Social Science & Medicine 55(8): 1435-1446.

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