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### Creating Home Modification Solutions for Individuals with Spinal Cord Injury

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# Creating Home Modification Solutions for Individuals with Spinal Cord Injury

Ryan Heuer, OTS

Faculty Mentor: Dr. Teresa Plummer, PhD, OTR/L, CAPS, CEAS, ATP



## Identified Needs

- Research conditions of spina bifida and traumatic spinal cord injury to expand evidence-based resources for this population at Tucker's House
- Portion of assessment packet dedicated to specific needs for individuals with spinal cord injury
- Meeting specific needs of clients with SCI/spina bifida and their caregivers in the home and the community
- Creating evidence-based home modification recommendations for current Tucker's House clients
- Assistance with follow-up assessments to assess client satisfaction with DME

**Mission:** "To create safer, more accessible homes and environments for children and young adults with disabilities"

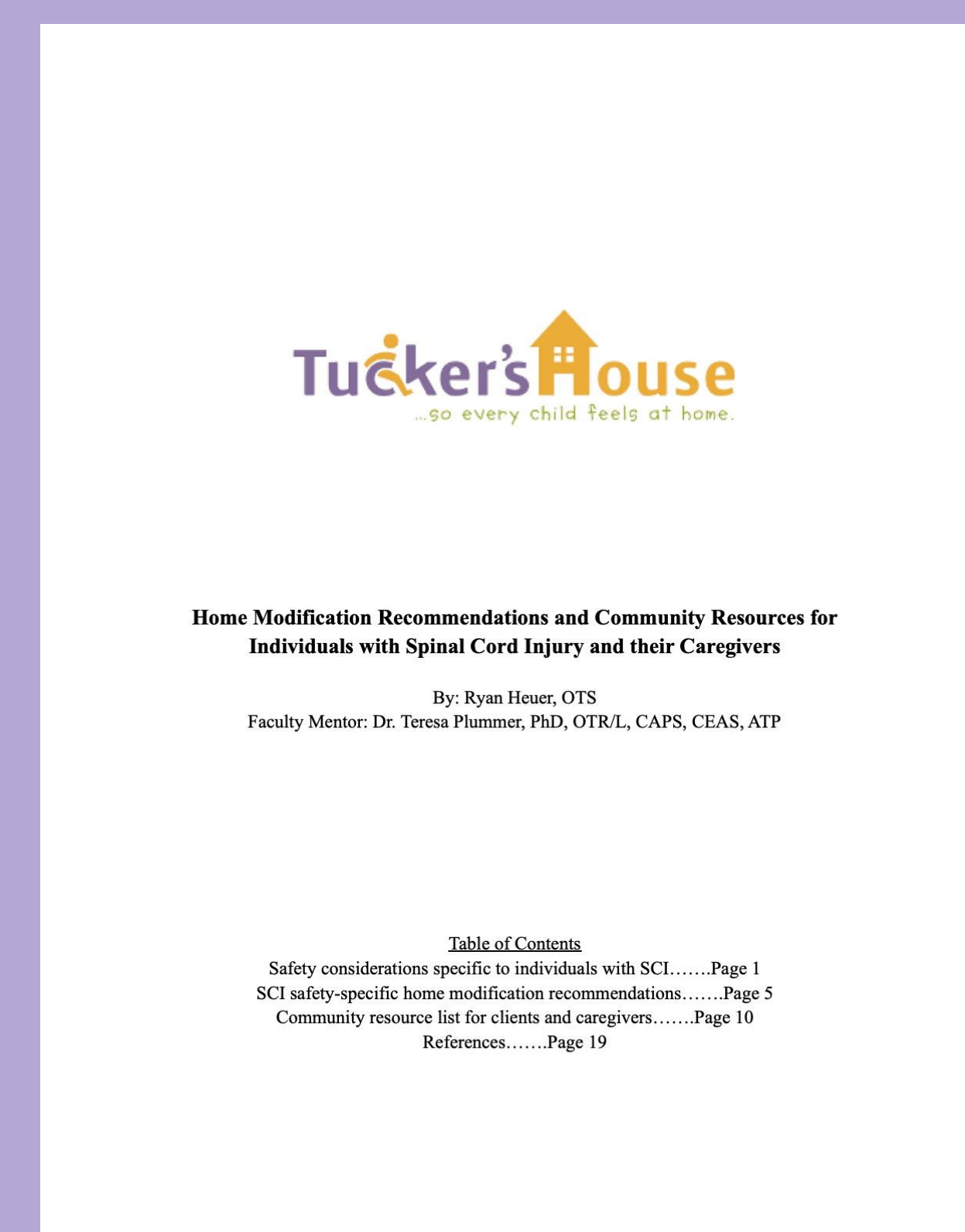
**Vision:** "Our vision is to see all families of children with disabilities have access to the necessary resources needed to make their homes both safe and accessible and fully equipped for immediate, intermediate, and long-term needs"

## Outcomes of the Project

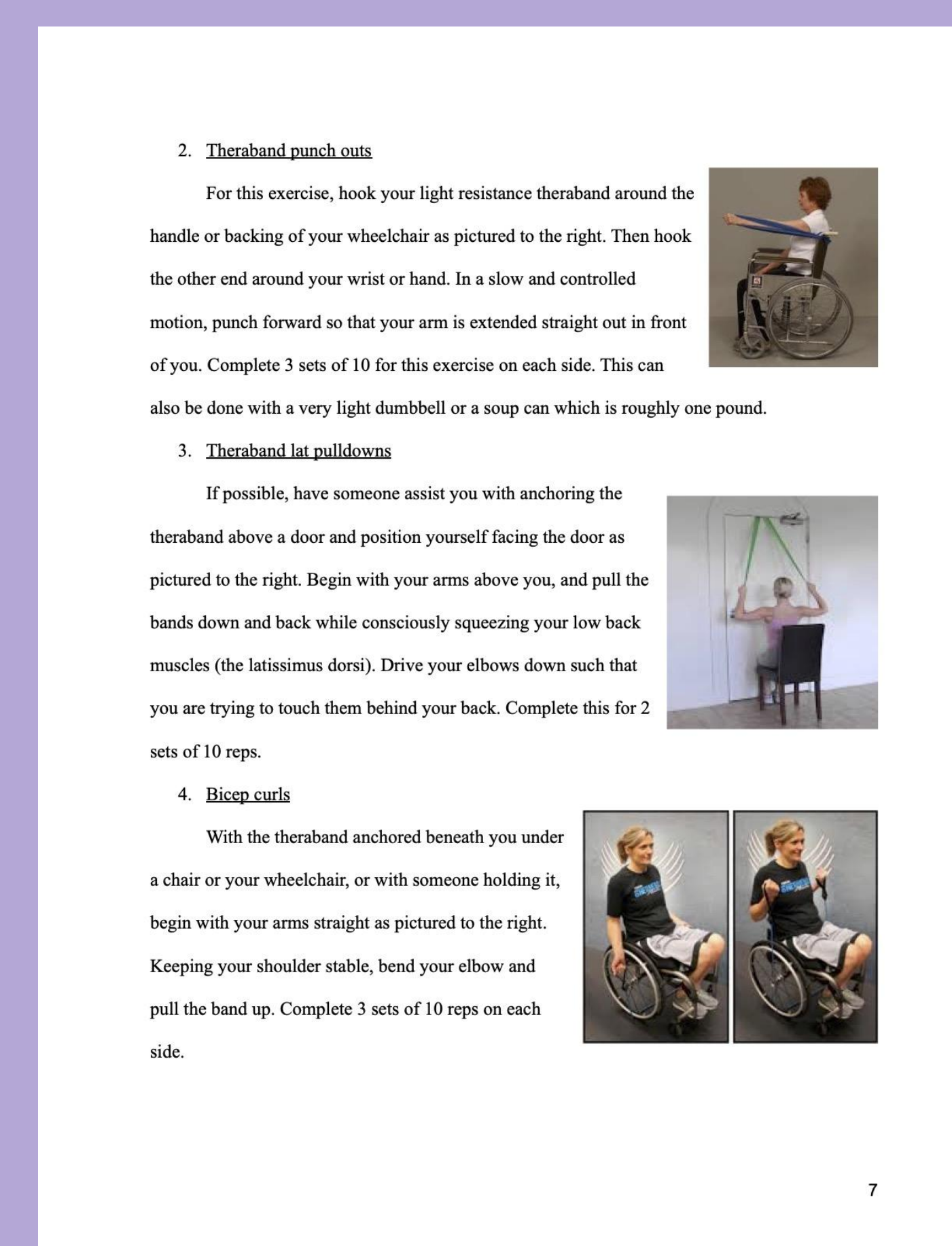
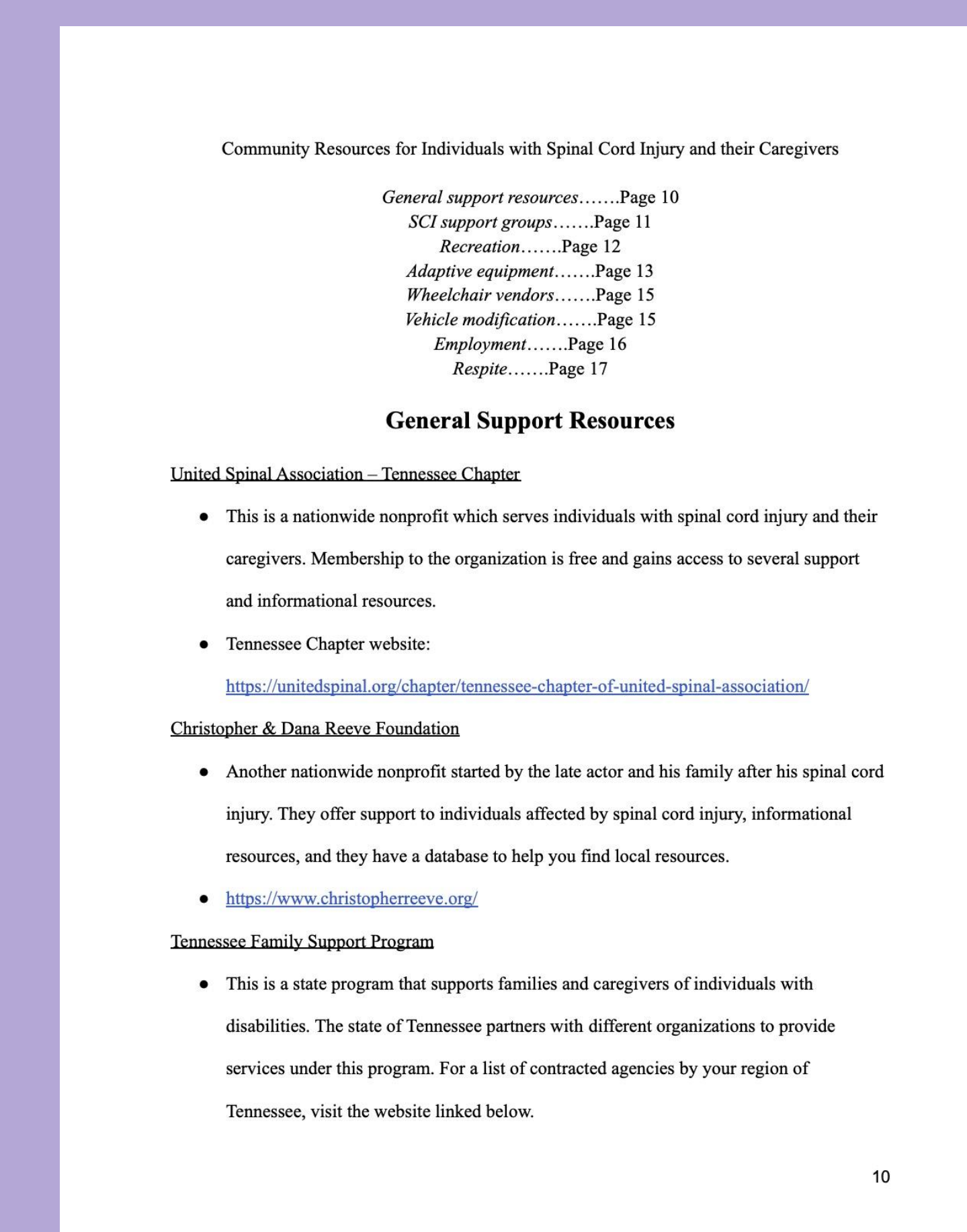
- Created a three-pronged client/CG resource packet for clients with SCI
- Created an exercise program for clients with SCI/SB experiencing shoulder pain based on extensive literature review
- Assisted with several home assessments for current clients and collaborated with expert mentor to create evidence-based home modification recommendations

## Goals of the Capstone

- Review reputable sources to increase knowledge on SCI/SB
- Create a client and caregiver resource packet for clients with SCI/SB:
  - A list of SCI-specific health concerns
  - A table matching each concern to specific home accessibility problems and cost-effective AT to address each
  - A list of community resources grouped by topic such as employment, recreation, vehicle modification, and more
- Conduct literature review to create evidence-based exercise program to reduce shoulder pain for clients who use wheelchairs and forearm crutches



Safety Issue	Possible Hazards	Recommendations
Thermoregulation (Handrakis et al., 2017)	Mobility impairments limiting client's ability to manually adjust temperature in home environment	Voice- or phone-activated smart home thermostat will address the hazard in an accessible way for someone with mobility limitations secondary to SCI. Link: <a href="https://www.imccc.com/best-budget-smart-thermostat">https://www.imccc.com/best-budget-smart-thermostat</a>
	Mobility impairments and physical environment of the home making it difficult to do/doff clothing as needed	Options for voice operation include Amazon Alexa, Google Home, Nest smart devices
	Showering can cause core temperature to drop - entering shower without clothes and having wet skin and hair after the shower until the client can be dried and dressed	Heating vent located above shower/ceiling in bathroom to warm the area during shower Portable heater in client's room and other rooms he or she frequently spends time in:
		Design home env to support client's ability to access clothing by reducing clutter, creating open and accessible closet/dresser, etc.
Sunlight hypersensitivity (Shepherd Center, 2015)	Window blinds not being pulled leading to sun "hotspots" can cause issues, as well as physical and mobility impairments preventing ability to move out of hotspots	Voice- or phone-activated smart blinds will address the hazard in an accessible way for someone with mobility limitations secondary to SCI. Link: <a href="https://www.zobablinks.com/blog/5-affordable-smart-blinds-for-modern-home-10-2-11-2416">https://www.zobablinks.com/blog/5-affordable-smart-blinds-for-modern-home-10-2-11-2416</a>



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Expert Mentor: Sandra Zaccari, PT, Director of Needs Assessment

References available upon request  
For a copy of the resource packet and exercise program please contact the author at [ryan.heuer@gmail.com](mailto:ryan.heuer@gmail.com)