

**Individualized Reduction of Falls: Online (iROLL):
An Online Multifaceted Fall Prevention Program for
Wheelchair and Scooter Users Living with Spinal Cord
Injury and Multiple Sclerosis**
Participant Manual

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Thank you!

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Dalhousie University, Wheelchair Skills Program

MossRehab Outpatient SCI Therapy and Wheelchair Clinic

National Multiple Sclerosis Society

Permobil, AB

University of Pittsburgh, Model Center on Spinal Cord Injury, Wheelchair Maintenance Training Program

University of Washington, The Empowerment Project, Northwest Regional Spinal Cord Injury System

Rebuilding Together

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Welcome!

Dear Participants,

Thank you so very much for your participation in the iROLL (O) fall prevention education program! We are very excited to work with you!

This research study is funded by the Paralyzed Veterans of America Education Foundation and is designed to evaluate iROLL (O), an online structured fall prevention education program, which has been specifically designed for people who use wheelchairs or scooters. Our hope is to use the findings from this research to develop high-quality education programs that can be used to help other individuals with Spinal Cord Injury (SCI) and Multiple Sclerosis (MS) prevent and manage their falls. iROLL (O) is informed from research on the circumstances associated with falls among wheelchair and scooter users and pilot research¹⁻³.

The goal of this program is to help you build the skills and confidence you need to safely participate in activities you would like to do in both your home and community. To help you build this confidence, this program focuses on teaching you methods to prevent falls from occurring. This program was developed to build upon your current knowledge, skills, and expertise. The activities covered in this program have been designed to help refine the activities that you are currently doing, such as transfers and wheelchair/scooter skills. We will provide suggestions to you on ways to perform these skills in a safer manner, save energy, use your body in a way that is most efficient and prevent overuse injuries.

Please note, when you are performing any of the physical skills associated with this program, please have a care partner with you to assure your safety.

Each week, this program will involve viewing online videos (~1 hour of material per week) and a 1 hour online “live” session where you will have a chance to talk with a Physical or Occupational Therapist about the videos that you watched. As much as possible, we ask you to watch the videos *before* you attend the live session. Further details of the program will be given to you during an introductory session. You can access all of the pre-recorded videos at: <http://iroll.kch.illinois.edu/>.

Thank you for your participation! Your involvement in this study will help improve the care provided to other wheelchair and scooter users living with Spinal Cord Injury and Multiple Sclerosis! If you have any questions during the course of the study, you can talk with your trainer or reach out to Dr. Rice using the contact information below.

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Thank you for your participation and we look forward to working with you!

Sincerely,



Laura A. Rice, PhD, MPT, ATP

1. Rice L, Kalron A, Berkowitz SH, Backus D, Sosnoff JJ. Fall prevalence in people with multiple sclerosis who use wheelchairs and scooters. *Medicine (Baltimore)*. 2017;96(35):e7860.
2. Rice LA, Isaacs Z, Ousley C, Sosnoff J. Investigation of the Feasibility of an Intervention to Manage Fall Risk in Wheeled Mobility Device Users with Multiple Sclerosis. *Int J MS Care*. 2018;20(3):121-128.
3. Rice LA, Sung JH, Keane K, Peterson E, Sosnoff JJ. A brief fall prevention intervention for manual wheelchair users with spinal cord injuries: A pilot study. *J Spinal Cord Med*. 2019:1-9.

Our Commitment to You

Thank you very much for your participation in this research study. We are very excited to talk with you about this important topic and support your individualized needs. Although the program is structured to assure the information is presented in the same way to all study participants, there is plenty of room to discuss items important to you. Our trainers can help you work through your own specific challenges and support you in any way that we can. Please feel free to ask your trainer about any specific needs you might have or any problems you are having with the program.

Participant Responsibilities

Each week you will be asked to watch a series of online videos from the website: <http://iroll.kch.illinois.edu/>. In addition, we will ask you to meet online for about 1 hour to discuss the education provided and give you a chance to ask questions and get feedback on some of the skills you are working on.

You will receive a weekly e-mail from a research assistant. In this e-mail you will receive an overview of the topics for each week, instructions on which videos to watch, an estimate of how long it will take to watch the videos for each week and a reminder of when your live discussion will be held. You can watch these videos on your own schedule and review them as much as you would like. In addition, this manual contains the same information provided in the videos. We encourage you to follow along with the manual. In addition to watching the videos, we will ask you to do 2 short homework exercises each week – set a weekly goal and write a journal entry reflecting on the materials that were discussed that week. You can either type directly in the electronic version of the manual or you can write in the physical copy of the manual. As much as possible, please write down your ideas so that you can refer back to them during the live discussion session.

Who is this program for?

This program is designed for wheelchair and scooter users living with Spinal Cord Injury (SCI) and Multiple Sclerosis (MS). While there are many differences in the way that a Spinal Cord Injury and Multiple Sclerosis affects a person, when it comes to fall management, there are a lot of similarities. When appropriate, we have discussed specific information about each disorder. Otherwise, the information presented is applicable to everyone in the program. If you feel you need more specific information, you can talk with the trainer during the live session about your specific needs. If you would like to learn more about Spinal Cord Injury and Multiple Sclerosis, you can read additional information here: Spinal Cord Injury: <https://www.ninds.nih.gov/Disorders/All-Disorders/Spinal-Cord-Injury-Information-Page>.

Multiple Sclerosis: <https://www.ninds.nih.gov/Disorders/All-Disorders/Multiple-Sclerosis-Information-Page>

Ground Rules

Below are the ground rules that will be followed during the iROLL (O) program. Please look over these rules before the start of each session. Please feel free to suggest additional rules for the group to discuss.

1. Participants are asked to watch the pre-recorded videos prior to the live sessions.
2. Participants are free to ask questions at any time during our live sessions.
3. When practicing skills, you must have a care partner with you.
4. During the live sessions, when another person is speaking, please do not interrupt.
5. During live sessions, show respect for others, especially when differences of opinions arise or when others describe experiences that are different from yours.
6. All information disclosed by other participants should be kept confidential.
7. Additional ground rules:

GET WISE Framework

The iROLL O program follows the acronym 'GET WISE' to organize the education modules. We will refer to this acronym throughout the program to help you follow along. Below is a list of the components of GET WISE:

G-Goals

E-Exercise

T-Transfer Training

W-Wheelchair/Scooter Management

I-Individual Activity in the Home & Community

S-Symptom Management

E-Environmental Safety



Module 1

Welcome to the first iROLL Module! We are very glad to have you! In this first module we will be discussing the following items:

- Circumstances associated with falls among full time wheelchair and scooter users living with Spinal Cord Injury (SCI) and Multiple Sclerosis (MS)
- Fear of falling and the impact of fear of falling on daily life
- Introduction to the journal and goal setting activities associated with the program
- Introduction to the home exercise program
- Detailed description of the exercise program and less challenging and more challenging modifications to the program

Many of the items discussed in this module are foundational items that we will keep coming back to during the six-week program.

Falls 101- Introduction to Falls

GET WISE Section: Individualized Activity in the Home and Community

Introduction

Falling can have a large impact on the health, wellbeing, and community engagement of people living with SCI and MS.

Our research team surveyed full time wheelchair/scooter users living with MS. They found that 75% of participants reported at least one fall in a period of six months. Of those who reported a fall, almost half were injured. We also found that over 75% of participants had a fear of falling. 65% of participants limited activities in their home and community due to this fear.

Falls and fear of falling are also common among people living with SCI. In a study involving wheelchair users living with SCI, 69% of wheelchair users reported at least 1 fall in a 12-month period. 65% of participants were worried about falling. Of these participants, 26% stopped doing things they liked to do because of this fear.³

While research shows that people living with SCI may limit activities due to fear of falling less than people with MS, it is still important to address this concern. Concerns about falls and fall-related injuries can make it harder for you to do the things that are important to you—both in your home and in your community.

Consider this example: If you are afraid of falling during a car transfer, you may stop going places that require this type of transfer. You may stop grocery shopping, going out to eat, or visiting your friends. In this example, your fear is keeping you from doing things you want to do in your community. Throughout this program, you will build your knowledge and skills to help decrease your falls and fear of falling. This will help you confidently and safely do the things you want to do every day.

You probably also know that most wheelchair/scooter users need assistance to get up after a fall occurs. People who need help to get up are at a higher risk for additional physical injuries, so knowing how to get the right kind of help when falls occur is important!

This program is designed specifically to support people living with SCI and MS who use wheelchairs or scooters to manage their concerns about falling, reduce their risk of falling, and manage falls when they happen. In this section you will learn:

- How we define a “fall” and why prevention is important
- How falls most frequently occur

- How fear of falling can also have negative consequences.

What is a fall?

According to the World Health Organization, a fall is defined as:

“An event which results in a person coming to rest inadvertently on the ground or floor or other lower level⁴”

In other words, a fall is an accident where a person ends up on the ground. Consider the real-life example below:

Martin is a full-time manual wheelchair user living with SCI. Martin just took a shower and is transferring from his shower bench back to his wheelchair. The floor is wet, and Martin’s feet slip during the transfer. Martin’s body moves from the shower bench to the floor. In this moment, Martin experienced a fall.

Why is it important to prevent and manage falls and fear of falling?

- Falls can cause bodily injuries such as fractures and concussions.
- A fear of falling can harm quality of life, community participation, and performance of essential activities of daily living (e.g. dressing, bathing, toileting).
- Most wheelchair/scooter users living with SCI and MS need help to get up after experiencing a fall. These individuals are at a higher risk for:
 - More bodily injuries.
 - A decline in performance of daily activities.
 - An increased chance of hospital admissions.
 - An increased fear of falling.

How do falls occur?

Falls can happen for a lot of different reasons. These reasons can be related to the environment (including the assistive technology that you use), your body, or the activity you are doing. Usually, it is a combination of things that lead to a fall. Understanding different influences on fall risk is the first step to managing them.

Let us start by thinking about activities and locations linked to falls among wheelchair and scooter users.

Below is a chart of common activities and locations where falls take place. Take a minute to think about the most memorable fall you have experienced. Then, please carefully look at the lists below and circle what you were doing (actions) and where the falls occurred (location). Feel free to use the blank space to add additional actions or locations that are specific to falls you have experienced.

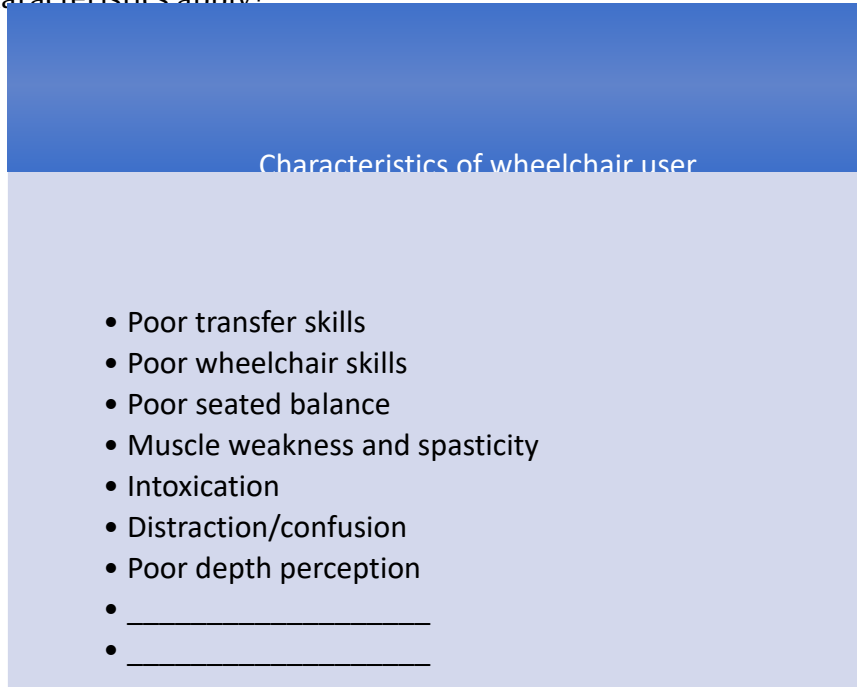
<ul style="list-style-type: none">• Wheelchair Transfer (most common action)• Manual wheelchair propulsion• Driving a power wheelchair• Reaching for an object• Walking short distances• _____• _____	<ul style="list-style-type: none">• Bathroom (most common location)• Street• Bedroom• Living room• Garage• Garden• Kitchen• Bus• _____• _____
---	--

Next, let us consider the environment: some places are safer than others. The wheelchair or scooter and other assistive technology/equipment you use are also a part of your environment. Take a look at the lists below and circle any of the factors that you think might have been associated with the most memorable fall you have experienced.

Environmental hazards	Equipment (wheelchair)
<ul style="list-style-type: none">• Wet floor• Poor lighting• Unexpected obstacles• Crack or debris on the street• Unfamiliar environment• Uneven surface• Inaccessible environment• _____• _____	<ul style="list-style-type: none">• Footplate design• Forgetting to engage wheel locks or turning off chair• _____• _____

Feel free to write in any additional factors. Through this program, you are going to learn and practice how to manage these types of environmental challenges.

Now we come to an important piece of the puzzle: here is a listing of characteristics linked to falls among wheelchair and scooter users. Think about your most memorable fall. Do any of these characteristics apply?



Characteristics of wheelchair user

- Poor transfer skills
- Poor wheelchair skills
- Poor seated balance
- Muscle weakness and spasticity
- Intoxication
- Distraction/confusion
- Poor depth perception
- _____
- _____

Reflection:

Reflect on your most recent or most memorable fall. What caused the fall and was it caused by a combination of issues?

Very rarely does one single event cause a fall. Most falls are caused by many risk factors working together.¹ For example, falls frequently occur in the bathroom while a person is transferring to the toilet or the shower. A wet floor is often involved. Another common occurrence is a fall occurring while a person is pushing or driving the wheelchair/scooter on the sidewalk and hits a crack or piece of debris. Because there are so many risk factors for falls and they often occur together, this education program covers a wide variety of risk factors that can be modified.

Being aware of the risk factors for falls will help you to avoid or modify dangerous situations. During this program, we will help you to learn how to manage these risk factors.

Fear of Falling

Another important part of preventing falls is managing the fear of falling. Fear of falling is a lasting concern that can lead an individual to avoid activities that they remain capable of performing. Most of our understanding of fear of falling comes from research involving older adults. However, there is some research specific to fear of falling for people living with SCI and MS including those who use wheelchairs/scooters.

Here are two important facts from the research about fear of falling among people living with SCI and MS:

- 1) It is very common.
- 2) It can increase fall risk.

Reflection

Why do you think fear of falling increases fall risk?

Take a look at the figure below on page 12. Research involving older adults and people living with SCI and MS tells us that a fall can lead to fear of falling OR fear of falling can lead to a fall⁵⁻⁷.

The figure on page 12 also shows us that the cycle can be *self-perpetuating*. In other words, a fall or fear of falling can turn into a bad cycle of having more fear, cutting back on activity, and having more falls.

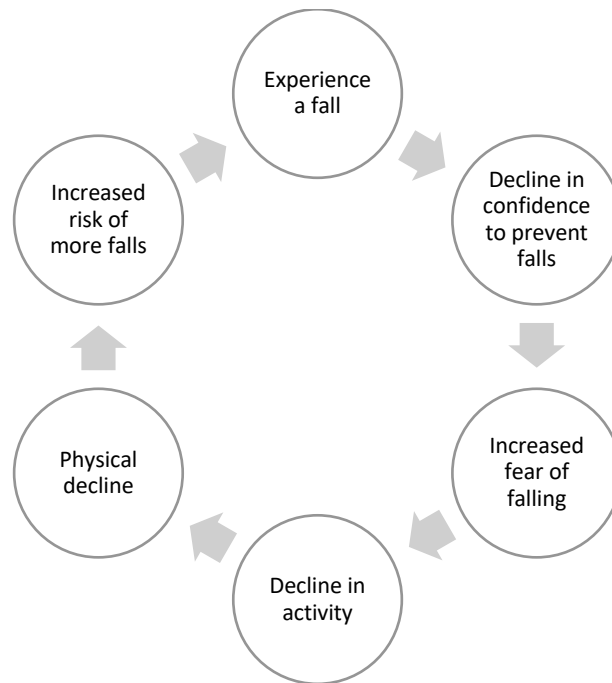


Figure: Fear of Falling

The issue here is not only that fear of falling increases fall risk, but it can impact your quality of life. Fear of falling can lead you to give up activities that are fun or important to you. This is why we are talking about fear of falling in this session focused on individual activity in the home and community!

We know that fear of falling is a big concern among wheelchair and scooter users, even if they have not had a bad fall¹. That probably does not surprise you!

Fear of falling is a rational response to a real concern for people with SCI and MS. The fact is, there are symptoms of SCI and MS including spasticity and muscle weakness that can lead to a higher risk of falling⁸. Additional symptoms that can increase fall risk and strategies to address these symptoms are detailed in Session 4.

The key is to think about your own activity to determine if your concern about falling is keeping you from doing things that really are not safe for you to do or keeping you from doing things you **safely could be doing**. In other words, there is a difference between a fear of falling that is **protective** and a fear of falling that is greater than it needs to be, given your abilities⁹. A fear of falling that is too high often leads to an unnecessary decline in activity. Please look back again at the figure above. Fear of falling needs to be managed before it gets to the point that critical activity is avoided.

Let us take a look at two examples: Jerry and Pam. Jerry and Pam have very different approaches to managing their fear of falling.

Jerry

Jerry is 47 years old, diagnosed with secondary progressive MS. Three years ago, he began to have more trouble with his walking and decided to start using a 4-wheeled walker around the home and a manual wheelchair for longer distances. He found the walker and the wheelchair at a yard sale. Over time, he has been using his wheelchair more and more.

About a month ago, Jerry had a fall. He was getting the mail, just as he usually does, one Monday afternoon. He rolled his wheelchair to the mailbox, stood up to get the mail inside the mailbox, and when he went to sit back down after retrieving the mail, he fell to the ground.

Ever since that fall, Jerry just cannot shake this fear of falling. He has decided it is best to no longer get the mail. He is also thinking he should avoid going on the weekly shopping trip with his wife.

Jerry sees himself as a self-reliant person. Rather than talk about his experience and fears with his family and/or doctor, he has decided to try to sort things out on his own and cut back on activities as he sees fit.

Pam

Pam is 53 years old, diagnosed with primary progressive MS. Early on in her MS journey, she began to have trouble walking due to weakness, fatigue and balance issues. Pam and her doctor developed a plan for Pam to use a cane initially, which then transitioned to occasional walker usage.

The difficulty with walking continued, and Pam and her doctor recently decided using a manual wheelchair for daily mobility is a safe and appropriate choice. They are also starting to talk about a power chair for longer distances.

Last month, Pam fell while transferring from her wheelchair to the toilet. This fall really shook Pam up. She found herself worrying a week after the fall, and then two weeks after the fall. She was also mad because she knew she should be able to get on and off the toilet safely without worrying about it all the time. Her doctor listened carefully and referred her to outpatient physical therapy (PT) and occupational therapy (OT).

During her PT sessions, Pam worked on strengthening her leg muscles, improving balance for stand-pivot transfers, and safety during transfers. She also got a home exercise program and now is dedicated to her exercise routine.

During her OT sessions, Pam and her OT collaborated on different strategies to more safely perform everyday activities such as bathing and toileting. Pam learned more about safety in the bathroom in general and available tools to prevent falls, such as how to use a toilet safety frame, bath bench, and hand-held showerhead safely. She also learned how to better manage her fatigue by spreading out tasks over a period of time. As a result, Pam was able to better assess the match between her physical abilities at any given time and the demands of an activity.

Pam and her OT worked together to identify common fall risks in her home. She discovered some her own habits might be adding to her fall risk. For example, Pam was wearing socks while transferring. Pam was also letting her dog into the bathroom while she was in there, which increased her risk of falling.

Breaking these habits and building safer approaches to activities in the bathroom helped Pam feel much more confident in her ability to prevent future falls.

Pam felt her fear of falling as a low-grade hum that got louder when she was in the bathroom. Like Jerry, Pam felt strongly that she could take care of herself. Unlike Jerry, Pam believed that taking care of herself included building a team of support as needed. In line with this view of self-sufficiency, Pam decided to talk to her doctor about her fear continues to transfer well, has some fall prevention strategies “in her pocket”, and has a new awareness of her surroundings and daily symptoms. Most importantly, Pam was able to continue participating in her valued everyday activities both in and outside her home.

Take home points:

Jerry and Pam both experienced a fall. They both experienced challenges with their daily mobility in addition to their daily routine. They both, in fact, experienced some fear of falling, which was understandable. However, Jerry and Pam **chose different paths to deal with their concerns**. Jerry chose to **cut back on his activities and not communicate with those around him**. As a result, Jerry **decreased participation in important life activities and roles both inside the home and in the community**. Pam chose to **talk to her doctor**. With her health care team, she came up with some strategies to **improve her overall strength, confidence with transfers, and to prevent future falls**.

A response like Jerry's can lead to a **physical decline, more fear of falling, and an increased fall risk**. You can take action to avoid having a story like Jerry's. Pam's self-management journey started by **being aware** that she was experiencing concerns about an activity she should be able to do safely and talking to her doctor about it.

Reflection

1) Name one activity that raises your concerns about falling, even though you think you should be able to do it safely.

2) Name one thing you have done to address those worries OR one thing you could do.

Session #1 Journal Entry
GET WISE Section: Goals

To Do:

You will be asked to make a journal entry every week after completion of the session. Your journal entry will be tied to items discussed during the previous session. The journal entry will be discussed during the live online discussion.

Why:

The journal entries will help you to think about the information that was presented during the education session and help you integrate what you have learned into your everyday life. You will then share your reflections during the online discussion sessions.

Prompt:

Please reflect on your most recent fall or most memorable fall. Think about what you were doing when you fell, where you were, and if any other factors influenced your fall (i.e. slippery surfaces, poor lighting, etc.) **Based on the information you learned today, list one specific action you could take to reduce your risk of falling if you once again found yourself in the situation that led to that fall.**

Response:

Exercise Program Description
GET WISE Section: Exercise

Exercise is a very important component of this education program. Throughout this program, we will discuss the importance of exercising. We will also go over these exercises during the live online discussion. Past research found that exercise is helpful to individuals living with SCI and MS.

Exercise benefits

Exercise is beneficial for individuals living with MS and SCI.

MS	SCI
<ul style="list-style-type: none"> • Increase physical fitness (muscle strength and cardiorespiratory function)¹⁰ • Enhance mobility¹¹ • Improve balance¹² • Enhance cognitive function¹³ • Reduce fatigue¹⁴ • Reduce depressive symptoms¹⁵ 	<ul style="list-style-type: none"> • Increase physical fitness (muscle strength and cardiorespiratory function)¹⁶ • Increase cardiometabolic health¹⁶ • Increase quality of life¹⁷ • Reduce pain • Reduce depressive symptoms

Exercise can also help prevent falls among individuals living with SCI and MS. This is done by:

Among individuals living with MS:

- Exercise can help improve sitting balance by strengthening the core (stomach and back) muscles². Good sitting balance can help maintain an upright posture and makes you more stable when reaching for items. Strong core muscles can also help make you more stable when doing transfers.
- Exercise can also strengthen your arm muscles, which will be helpful when transferring and performing wheelchair/scooter skills.

Among individuals living with SCI:

- Improving functional independence, which can include: dressing, transferring, and propelling/driving your wheelchair¹⁸.
- Improving wheelchair skills, which can include: moving forwards/backwards, turning, going over obstacles forwards/backwards, and picking up objects¹⁸.

Reflection Do you exercise regularly?

- If yes, what types of exercises do you do? What helps you to exercise?
- If no, what prevents you from exercising?

Throughout this program, you will be asked to do a series of exercises to strengthen your core and arm muscles. These exercises can improve your seated balance, which can help with transfers and wheelchair/scooter skills.

Exercises and instructions are provided on page 22 (Exercise Manual). In addition, a summary listing on the exercises has been provided to you in your supplementary materials. We have also included a quick reference 'cheat sheet' that you can hang up in your home where you perform your exercise as a visual reminder.

Reflection:

Please think of examples of activities that are important to you that require balance in a seated position and are used during many functional activities, such as transfers or dressing/bathing?

General notes:

- Most of these exercises are performed in a seated position.
- Please sit on a firm, stable surface and place your hands on either side of your legs. If you do not feel comfortable on a surface like this, please feel free to do the exercises from your wheelchair or scooter. (Note for scooter users: Due to the instability of scooters, please exercise caution when performing the reaching activities).
- You can use your hands to assist with balance to start with, but as you get stronger, try to put your hands in your lap during the exercises.
- Ideally, your back should not be supported. However, if having back support makes you feel safe and allows you to perform more of the exercises, go for it!
- In general, please start doing 1 set of 10 repetitions of each exercise 3 times per week. If you would like, you can increase the number of sets (up to 3). You can talk

with your trainer during the online discussion about an ideal number of sets and repetitions for you.

- Try not to skip the **warm-up** or **cool-down** components of your home exercise program. **Warming-up** before exercise can help lessen your chance of getting an injury during exercise⁸. The **cool-down** is especially important for individuals living with MS, as it will help avoid overheating which can contribute to an increase in fatigue⁹.

- Below is a list of suggestions for where you can perform your home exercise program:

Location (where):	Tips for set-up:
Living room	<ul style="list-style-type: none"> ➤ Use a couch or futon as your stable surface ➤ Surface should ideally be firm
Bedroom	<ul style="list-style-type: none"> ➤ Use a firm mattress ➤ Surface should ideally be firm
Garage	<ul style="list-style-type: none"> ➤ If you have a garage with enough space, you can designate a portion of it as your home gym. ➤ Make sure to include a large enough surface such as a wide bench for your stable surface. ➤ If converting your space, make sure the area is clear of any objects that can be a fall-hazard.
Basement	<ul style="list-style-type: none"> ➤ If you have a basement, you can potentially convert a portion of it to a home gym if desired. ➤ Make sure to include a large enough surface such as a wide bench or futon. You can place the bench against the wall for additional stability.
Guest room or extra bedroom	<ul style="list-style-type: none"> ➤ If you have an extra guest room available, you can potentially convert it to a home gym if desired. ➤ Utilize the additional bed in the guest room as your stable surface.

Remember:

- **You must have a friend or family member stand next to you while you are doing the exercises to assure that you don't fall during the exercises.**
- **Listen to your body! If something doesn't feel right, stop the exercise!**

After you exercise you might feel soreness in your muscles. However, you should not feel pain or extreme fatigue. Some indicators of extreme soreness or fatigue include tingling, numbness, or pain that begins during or immediately after exercise and does not go away after a period of time. Another indicator that you may be overworking your body is an inability to complete important daily activities due to extreme fatigue or pain. Soreness that goes away after about 24 hours is okay. This means that you worked the muscle enough to gain some benefits but not enough to cause damage. As you do the program more frequently, the soreness that you feel should reduce.

If you are feeling extreme fatigue or soreness, decrease the number of repetitions and/or reduce the number of days per week that you exercise. Other ways that might help reduce soreness include massage or icing sore muscles after a workout¹⁹. However, use caution when icing if you have any of these conditions: decreased sensation, thinned skin, decreased circulation, hypersensitivity to temperature, new wounds (2-3 weeks old), or high blood pressure. Completing the appropriate warm-up and cool down exercises as part of your home exercise program may help with soreness as well.

If you do not feel that the exercises are difficult, increase the number of repetitions performed (increase by five repetitions each week, with a max of 20 repetitions each, five days per week). Please see the note below for a definition of repetitions versus sets in terms of exercise.

You can discuss your program with your trainer during the course of the program. Also, if you are interested in an expanded exercise program, you can ask your doctor for a referral to see a physical or occupational therapist to expand your exercise program.

Note:

- What are **repetitions** in exercise?
 - **Repetition** refers to the number of times you perform a specific exercise in your home exercise program. For example, if a trainer were to tell you to complete 10 repetitions of a sit-up, you would complete the sit-up 10 times.
- What are **sets** in exercise?
 - A **set** is the number of times (cycle) you repeat a certain amount of repetitions of a specific exercise. For example, two sets of 10 sit-ups would mean that you would complete 10 sit-ups, take a break and then complete 10 more sit ups, for a total of 20 sit-ups.

Exercise Manual
GET WISE Section: Exercise

Warm-Up: Before you start your exercise routine, be sure to perform a short warm-up to get your muscles ready to go.

Round and Arch Spine: Round your shoulders forward and then arch your back. Each time you arch your back, it counts as one repetition. Start with a small movement and then try to increase the size of the movements as your muscles warm up.



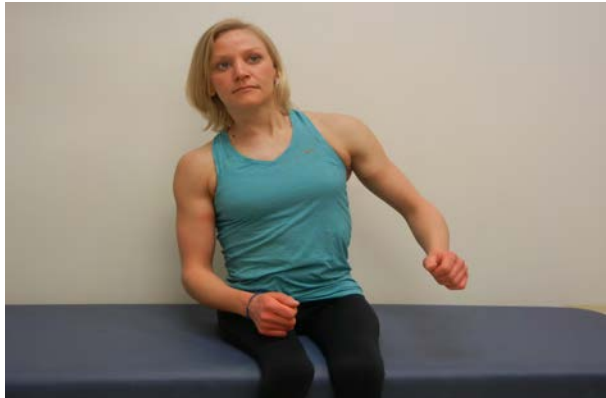
Start – Round and Arch Spine



Finish – Round and Arch Spine

<u>Intensify</u> (more challenging):	<u>Simplify</u> (less challenging):
<ul style="list-style-type: none">*Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)*Close your eyes*Hold your hands together and lift them off of your lap, elevating them near your stomach/chest*Increase the size of the movements (make a greater range of motion)*Increase the number of reps (i.e., do more) or spend more time warming up	<ul style="list-style-type: none">*Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)*Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)*Hold on to your surface for support (i.e., mat table, w/c armrests)*Decrease the size of the movements (a lesser range of motion)*Decrease the number of reps (i.e., do less) or spend less time warming up

1) Lateral Spinal Flexion: While you are sitting, bend your body to the right side, pause, then to the left. Each time you bend to the left, it counts as one repetition.



Intensify (more challenging):

- * Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Lift your arms over head
- *With arms lifted overhead, add a weight (or a small, household item—water bottle, canned good, candle, bag of coffee)
- * Bend further to both the left and right sides
- * Increase the number of reps (i.e., do more) or spend more time completing this exercise



Simplify (less challenging)

- *Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Slightly support part of your bac against the nearest surface (i.e., w wall, sofa)
- *Hold on to your surface for supp (i.e., mat table, w/c armrests)
- *Bend less to both the left and right sides
- *Decrease the number of reps (i.e do less) or spend less time



Example of how to simplify lateral bends

2) Lean Backs: Lean your body as far back as possible. Hold this position for approximately five seconds, and then return to an upright seated position. Try not to use your hands to support your body.



Start - Lean backs



Finish- Lean backs

Intensify (more challenging):

*Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)

* Hold this position for longer than 5 seconds; continue to increase the amount of time you hold this position for (the longer you hold this position, the more challenging the exercise)

*Elevate your hands/arms from the surface you are holding on to; continue to lift your hands/arms to a height that is challenging for you (the closer you hold your hands/arms to the ceiling, the more challenging the exercise)

*Increase the number of reps (i.e., do more) or spend more time completing this exercise

Simplify (less challenging):

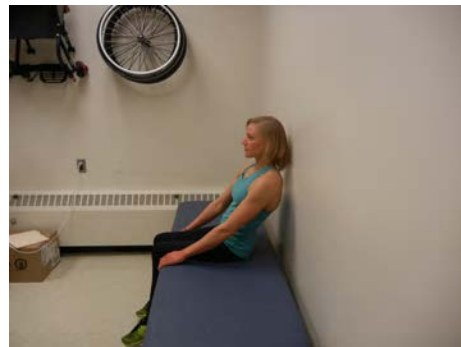
*Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)

*Use your hands to support your body

*Lean against the surface behind you for short breaks between reps

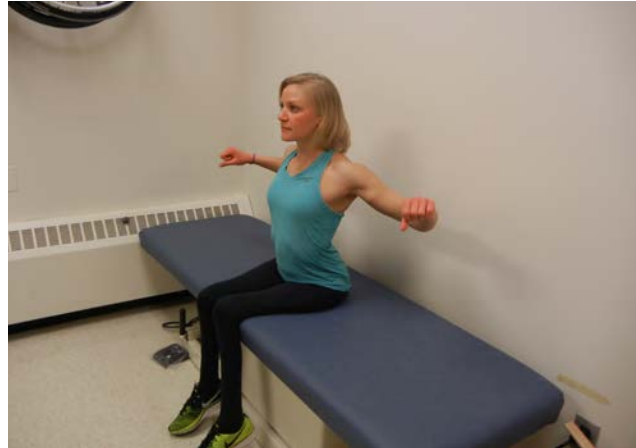
*Hold this position for less than 5 seconds (the less time you hold this position, the less challenging the exercise)

*Decrease the number of reps (i.e., do less) or spend less time completing this exercise



Simplify: lean backs

3) Scapular Retraction: Keeping your back straight, bend your elbow to 90 degrees; lift your arms approximately six inches away from the sides of your body. Squeeze your shoulder blades together and hold for approximately five seconds each time. After you hold, relax for about 3-5 seconds. This is 1 repetition.



<p><u>Intensify</u> (more challenging):</p> <ul style="list-style-type: none"> *Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa) *Close your eyes *Slightly elevate your feet from the surface they are resting upon (floor, power chair, w/c) *Hold this position for longer than 5 seconds; continue to increase the amount of time you hold this position for (the longer you hold this position, the more challenging the exercise) *Increase the number of reps (i.e., do more) or spend more time completing this exercise 	<p><u>Simplify</u> (less challenging):</p> <ul style="list-style-type: none"> *Scoot your hips and buttocks backward further away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa) *lightly support part of your lower or mid-back against the nearest surface (i.e., w/c, wall, sofa) *Hold this position for less than 5 seconds; the less time you hold this position, the more challenging the exercise) *Decrease the time you spend less time <div data-bbox="1052 1497 1369 1759" data-label="Image"> </div> <p style="text-align: right;"><i>Simplify Scapular Retra</i></p>
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4) Forward/Lateral Reach: Reach forward, then reach to the right, reach forward and then reach to the left (in a clockwise motion). Each time you reach left counts as one repetition.



Forward/Lateral Reach

- *Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Close your eyes
- *Add a weight (or a small, household item—water bottle, canned good, candle, bag of coffee)
- *Elevate your resting arm (the closer you hold your resting arm to the ceiling, the more challenging the exercise)
- *Increase the number of reps (i.e., do more) or spend more time completing this

- *Scoot your hips and buttocks backward further away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Lightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)
- *Fold on to your surface for support (i.e., at table, w/c armrests)
- *Complete this exercise while laying on your back
- *Decrease the number of reps (i.e., do less) or spend less time completing this exerc



Intensify Forward/Lateral Reach



Simplify Forward/Lateral Reach

5) Scooting: Use your abdominal and hip muscles to scoot your bottom to the right two inches, backwards two inches, to the left two inches, and forward two inches. Please-try not to use your hands unless absolutely necessary.

You will end in the same position you started. Each time you scoot forward counts as one repetition.



Scoot Left

Scoot Backward



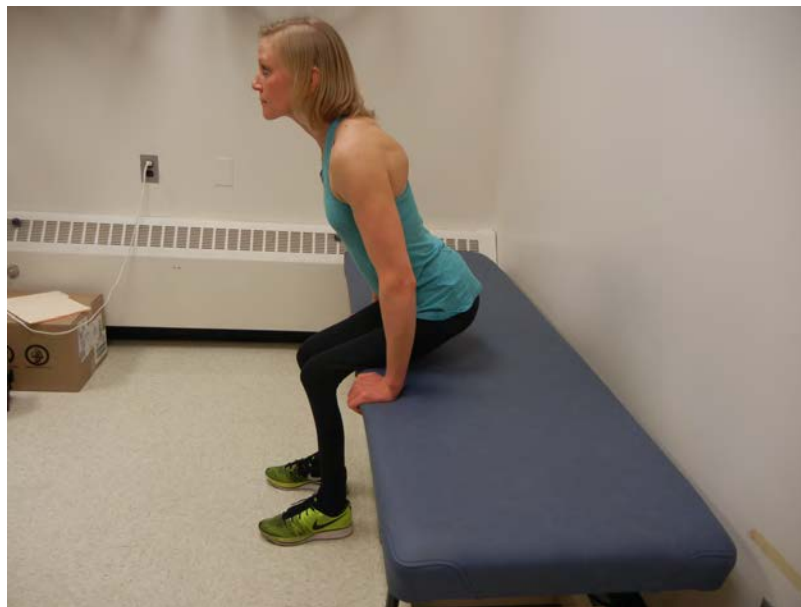
Scoot Right

Scoot Forward

Scooting

<u>Intensify</u> (more challenging):	<u>Simplify</u> (less challenging):
<ul style="list-style-type: none">*Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)*Close your eyes*While being safe and mindful of your space, scoot >2inches (space permitting) in each direction*Elevate your hands/arms from the surface you are holding on to; continue to lift your hands/arms to a height that is challenging for you (the closer you hold your hands/arms to the ceiling, the more challenging the exercise)*With arms lifted overhead, add a weight (or a small, household item—water bottle, canned good, candle, bag of coffee)*Increase the number of reps (i.e., do more) or spend more time completing this exercise	<ul style="list-style-type: none">*Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)* Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)* Hold on to your surface for support (i.e., mat table, w/c armrests)* Scoot <2inches in each direction* Decrease the number of reps (i.e., do less) or spend less time completing this exercise

6) Press Up: With your hands on a firm surface, push yourself up using your arms and shoulders and hold for a few seconds. Slowly lower your body back into the seated position.



Press-Up

Intensify (more challenging):

- * Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- * While being safe and mindful of your space, push yourself up higher
- * Slightly elevate your feet from the surface they are resting upon (floor, power chair, w/c)
- * Hold this position for longer than a few seconds; continue to increase the amount of time you hold this position for (the longer you hold this position, the more challenging the exercise)
- * Increase the number of reps (i.e., do more) or spend more time completing this exercise

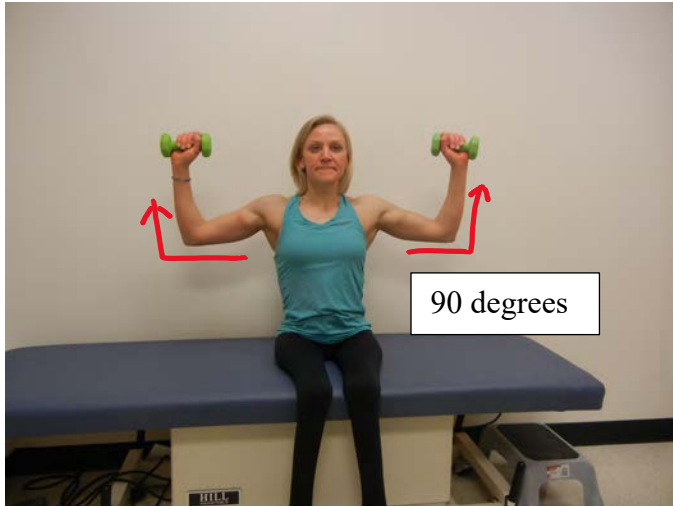
Simplify (less challenging):

- * Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- * Lightly support part of your lower back against the nearest surface (i.e., w/c, wall, sofa)
- * Hold this position for less time (the less time you hold this position, the less challenging the exercise)
- * Decrease the number of reps (i.e., do less) or spend less time completing this exercise

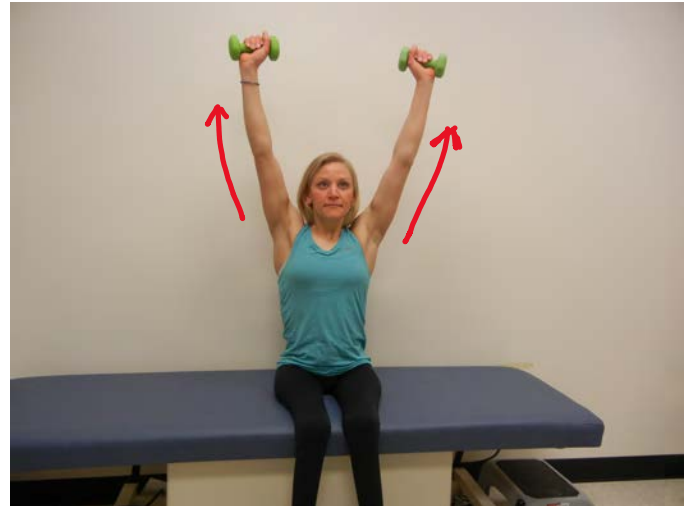


Simplify Press Up

7) Shoulder Press: Bend your elbows and raise your arms to a 90-degree position. Grasp the weights or water bottles so your palms are facing forward with your hands slightly wider than your shoulders. Slowly straighten your elbows and raise the weights above you. Then, slowly lower the weights back down to starting position.



Starting position - Shoulder Press



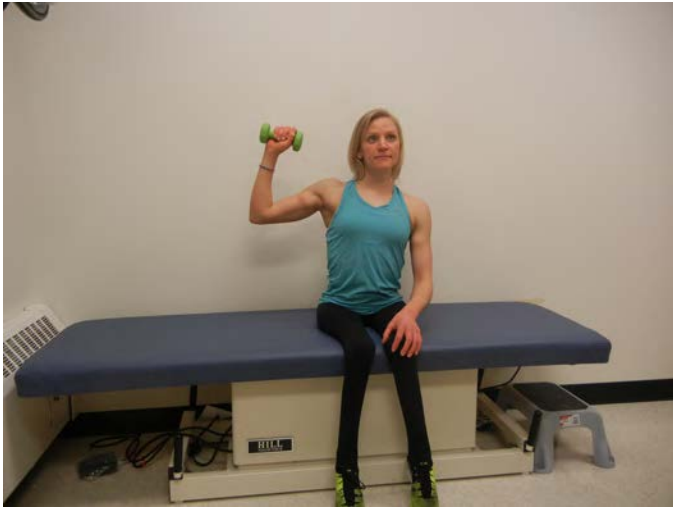
Ending position - Shoulder Press

Intensify (more challenging):

- *Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Close your eyes
- *Increase the weight that you are holding (or use a heavier, small, household item—water bottle, canned good, candle, bag of coffee)
- *Increase the number of reps (i.e., do more) or spend more time completing this exercise

Simplify (less challenging):

- *Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)
- *Complete this exercise raising one arm at a time. With your other arm, hold on to your surface for support (i.e., mat table, w/c armrests)
- *Complete this exercise while laying on your back
- *Decrease the number of reps (i.e., do less) or spend less time completing this exercise



Starting position for simplified shoulder press



Ending position for simplified shoulder press

8) Shoulder Flexion and Abduction: Raise your arms in front of you at shoulder level and slowly lower your arms back down to starting position. Then, raise your arms out from your sides to shoulder level and lower your arms. If you are able, hold hand weights or water bottles while performing the movements.



Shoulder Flexion



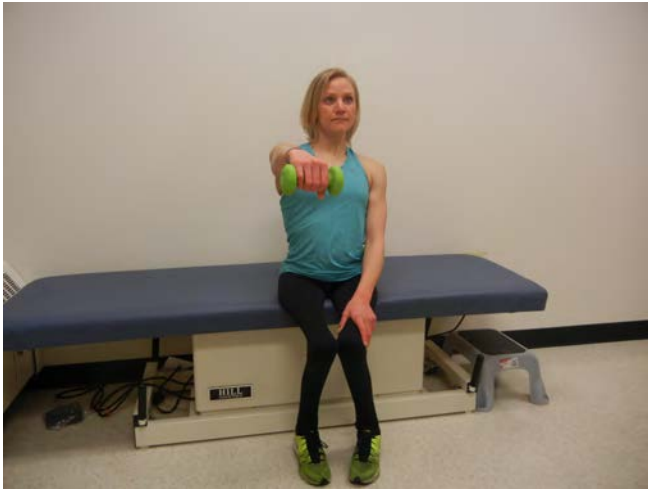
Shoulder Abduction

Intensify (more challenging):

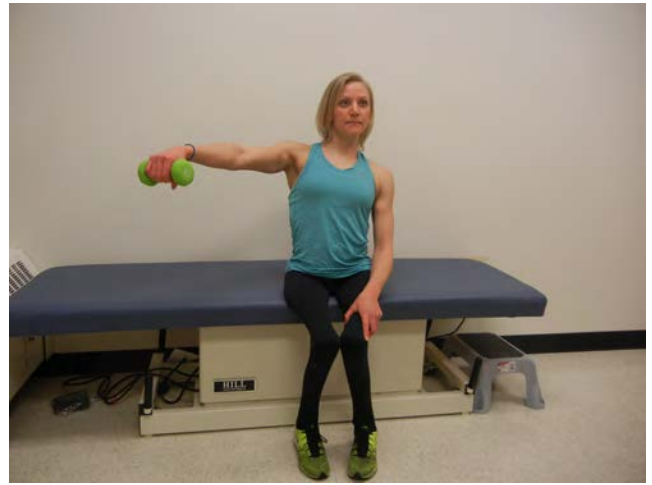
- *Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Close your eyes
- *Increase the weight that you are holding (or use a heavier, small, household item—water bottle, canned good, candle, bag of coffee)
- *While keeping your arms straight, continue to lift them higher (above shoulder height) and bring your hands to touch overhead (like making snow angel or completing a jumping jack)
- *Increase the number of reps (i.e., do more) or spend more time completing this exercise

Simplify (less challenging):

- *Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)
- *Complete this exercise raising one arm at a time. With your other arm, hold on to your surface for support (i.e., mat table, w/c armrests)
- *Complete this exercise while laying on your back
- *Decrease the number of reps (i.e., do less) or spend less time completing this exercise



Simplified Shoulder Flexion



Simplified Shoulder Abduction

9) Scapular Protraction: Lie on your back. If you are able, hold a hand weight. If you do not have weights, you can use water bottles. Keeping your elbow straight, push your hand up towards the ceiling, hold, and return to starting position. Perform this exercise one arm at a time. If you are uncomfortable on your back or prefer not to lie down, you can also perform this exercise in a seated position.



Intensify (more challenging):

Complete this exercise in a seated position
 If seated, scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
 Perform this exercise using both arms at the same time
 Increase the weight that you are holding (or use a heavier, small, household item—water bottle, canned good, candle, bag of coffee)
 Increase the number of reps (i.e., do more) or spend less time completing this exercise



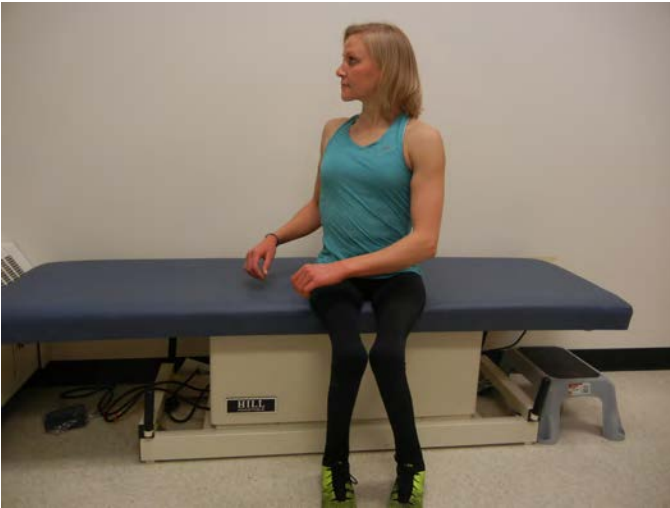
Intensify Shoulder Protraction

Simplify (less challenging):

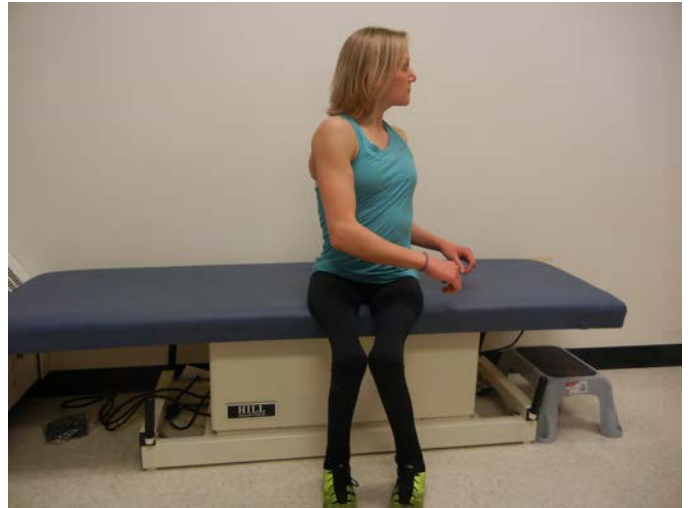
*If seated, scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
 *If seated, slightly support part of your lower or mid-back against the nearest surface (i.e., w/c, wall, sofa)
 *With your resting arm, hold on to your surface for support (i.e., mat table, w/c armrests)
 *Avoid using a weight, or decrease the weight that you are holding (or use a lighter, small, household item—water bottle, canned good, candle, bag of coffee)
 *Decrease the number of reps (i.e., do less) or spend less time completing this exercise

Cool Down: To help you recover faster, finish up your exercise routine with a few stretches.

Rotational Twist (lower back stretch): Gently twist your upper body to the left and hold for 20 to 30 seconds, then twist to the right and hold for 20 to 30 seconds.



Rotational Twist Left



Rotational Twist Right

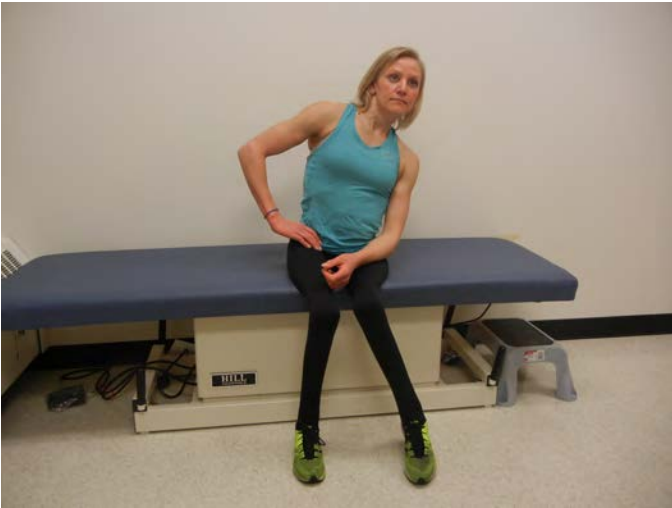
Intensify (more challenging):

- *Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Close your eyes
- *Hold your hands together and lift them off of your lap, elevating them near your stomach/chest
- *Hold each twist for longer than 30 seconds; continue to increase the amount of time you hold this position for (the longer you hold this position, the more challenging the cool down)
- *Increase the number of reps (i.e., do more) or spend more time cooling down

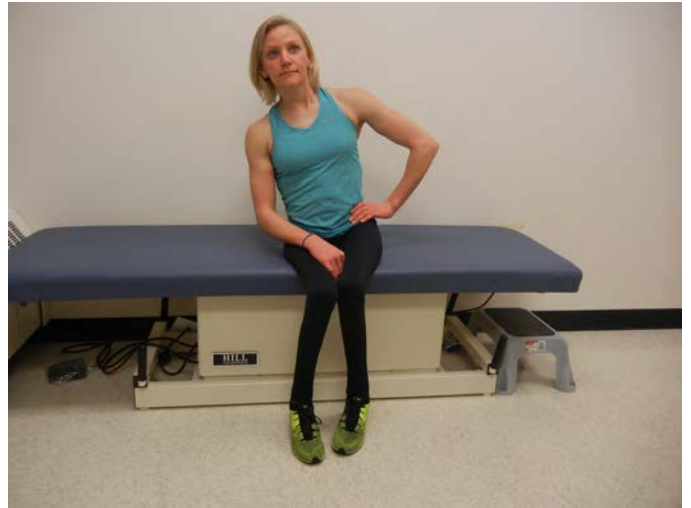
Simplify (less challenging):

- *Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)
- *Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)
- *Hold on to your surface for support (i.e., mat table, w/c armrests)
- *Hold each twist for less than 20 seconds; continue to decrease the amount of time you hold this position for (the less you hold this position, the less challenging the cool down)
- *Decrease the number of reps (i.e., do less) or spend less time cooling down

Side Stretch: Gently lean to your right side and hold that position for 20 to 30 seconds. Repeat on the left side



Side Stretch Right



Side Stretch Left

<p><u>Intensify</u> (more challenging):</p> <ul style="list-style-type: none">*Scoot your hips and buttocks closer to the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)*Close your eyes*Hold each side stretch for longer than 30 seconds; continue to increase the amount of time you hold this position for (the longer you hold this position, the more challenging the cool down)*Increase the amount of reps (i.e., do more) or spend more time cooling down	<p><u>Simplify</u> (less challenging):</p> <ul style="list-style-type: none">*Scoot your hips and buttocks backwards, farther away from the edge of the surface you are sitting upon (i.e., w/c, mat table, sofa)*Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)*Hold on to your surface for support (i.e., mat table, w/c armrests)*Hold each side stretch for less than 20 seconds; continue to decrease the amount of time you hold this position for (the less you hold this position, the less challenging the cool down)*Decrease the amount of reps (i.e., do less) or spend less time cooling down
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You are done!

Please note: Videos are posted on the iROLL website showing 10 repetitions of each exercise so you can exercise along with the video. We have developed versions for the standard exercises and the intensify and simplified versions. We have also included a summary of the exercises in Appendix A and a “cheat sheet” to give you an overview of the exercise program. The ‘cheat sheet’ is included in your supplemental folder.

SMART Goals Description
GET WISE Section: Goals

During the course of this education program, we will be setting goals at the end of each session. Just like the journal, setting goals will help you make the most of what you are learning and help you to work towards doing things that are important to you.

As much as possible, we will be using the SMART goal format listed below to help make the goals as useful as possible. Please look over each component of a SMART goal below. On the next page, we will use this format to set an actual goal. You can refer back to this page during the course of the education program to help develop your goals.

S	<p>Specific. This should be very specific to what you want to do. Example: <i>I want to engage in an exercise program to improve my abdominal and upper extremity strength.</i></p>
M	<p>Measurable. Attaching a measurement to the goal will help you track your progress and stay focused. Example: <i>I will do my exercise program 3 times per week.</i></p>
A	<p>Achievable. You should be able to achieve your goal in a reasonable time frame. Using the exercise example, think about how confident you are that you can do the program a certain number of times per week. Pick a number that you feel fairly confident that you can do.</p>
R	<p>Relevant. The goal you set should be meaningful to you and something that you really want to do! Think about if the goal is worth your time and effort. If you do not feel it is, you will be less likely to achieve the goal.</p>
T	<p>Time Bound. Set a time limit on the goal. Example: <i>I will do my abdominal and upper extremity exercise program 3 days a week for the next 3 months.</i></p>

Module #1 Goal Sheet

During Session #1, the home exercise program discussed was designed to target core and arm muscles.

Please start doing each **exercise 10 times per day, three days per week**. You can either do all the exercises at once or split them up throughout the day. If this feels like too much, decrease to performing each exercise 5 times per day. If you feel that this is too easy, you can increase the number of repetitions or the number of days per week you perform the exercises. To start, just increase one item (reps of exercise and times per week), not both. You can talk with the trainer during the online discussion to better tailor your exercise program.

Getting into a routine is very important in order to maintain an exercise program in the long term. It is also very important to pick specific days/times and locations that you think you will be able to complete the exercise program. When picking the times/days, think about what other things you need to do during the day and if you will have enough energy to complete the exercises or the other tasks.

What days of the week do you think you will do your exercises?

Please circle three days that you think you will be able to do your exercise program. You can exercise more than three days, but please try to start exercising *at least* three days per week.

Sunday Monday Tuesday Wednesday Thursday Friday Saturday

What time of the day do you think you will complete the exercise program?

You don't have to do your exercises the same time every day, but it is often easier to establish a routine. For example, you could plan to do your exercise program Monday, Wednesday and Friday mornings after you get dressed.

Things to consider when planning what time to exercise:

- Wait at least 30 minutes after eating.
- Wait a while after waking up (~1 hour). Your body may need time to adjust to being awake.
- Finish your exercise program at least 1 hour before going to sleep. This will give your body time to relax and unwind before going to sleep.

- Complete the exercises when you usually have the most energy and the least spasticity.
 - Use your fatigue as a guide. If you feel more fatigued, consider doing less repetitions or waiting until you have more energy.
 - You may also consider *intermittent exercise*, where you take longer breaks between exercises. This can help you manage your fatigue.
- Plan ahead!
 - If you plan to do other activities that require a lot of energy that day (e.g. grocery shopping, visiting a friend, going to work), make sure you space out your activities. You may also want to plan to do your home exercise program on days where you do not have as many activities scheduled.
 - Example: Do your home exercise program in the morning after breakfast on Saturday so you have time to rest before meeting your friend at a restaurant for dinner.
 - You can also plan around your medication schedule.
 - Some medications decrease your pain. Try exercising after taking these medications if possible.
 - Other medications may increase your fatigue. Try exercising before taking these medications if possible.
- Consider journaling after each time you exercise. This can help you keep track of how you felt after exercising (e.g. tired, sore, energized, etc.). You can look for patterns that can help you plan the best time to exercise for you.

Potential times:

Where do you think you will do the exercise program?

These exercises can be performed in a seated position or in your wheelchair. When possible, please do the exercises on a firm, stable surface. A firm mattress or couch often works well. Ideally, your back should not be supported. However, if you feel most comfortable and safe doing the exercises in your wheelchair, that is fine.

Potential locations:

What equipment or assistance will you need?

This program was developed to use minimal or no equipment. However, to progress the program, you might want to buy some light hand weights or resistance bands. You can buy many of these items on Amazon.com, Walmart, Target, or at your local athletic store (Dick's Sporting Goods, Finish Line, etc.).

For a low- or no-cost option, you may also consider making your own weights using common household objects. For example, you can fill empty milk jugs with sand, rocks, or even water for a low-cost option. If you use this method, make sure to weigh the milk jugs after to determine how heavy they are. If the weights you create at home are too heavy, make sure to decrease the amount of sand/rocks/water in the jugs. Likewise, if the homemade weights are too light, you can add more sand/rocks/water in the jugs to make them heavier. Below is a link that provides instructions on how to make homemade weights.

How to make homemade weights:

- <https://www.shape.com/fitness/gear/cheap-homemade-weights?>

DIY (Do-It-Yourself) Dumbbells:

- <http://thegoodmama.org/homemade-dumbbells/>

Equipment to use:

What challenges do you think you might face?

Setting the goal:

Please try to do 10 sets of each exercise in your home exercise program 3 days per week. If you are new to working out, you may start doing these exercises 2 days per week. You can increase to 3 days per week as you get stronger. If you exercise regularly, you can increase the number of repetitions and/or days per week to meet your needs. See examples of individualized goals below:

- *New to Working Out: I will do 10 reps of each exercise in my home exercise program two times this week.*

- Standard: Over the next week, I will do 10 reps of each exercise in my home exercise program three times this week.
- Experienced with Working Out: I will do 15 reps of each exercise in my home exercise program four times this week.

Sample SMART table for Standard goal: “Over the next week, I will do 10 reps of each exercise in my home exercise program three times”

<i>S</i>	<i>Specific: I will do each exercise in my home exercise program.</i>
<i>M</i>	<i>Measurable: I will do 10 reps of each exercise three times this week.</i>
<i>A</i>	<i>Achievable: On a scale of 0-10, I am 8/10 confident I can meet this goal.</i>
<i>R</i>	<i>Relevant: This goal is very important to me. Doing these exercises consistently will help me get stronger, which can help with my transferring and wheelchair skills. I also believe that I will fall less often if I am stronger.</i>
<i>T</i>	<i>Time Bound: This goal is only for one week. If I am able to meet this goal easily this week, I will try to increase the number of reps or days per week. If this goal is too hard for me to meet, I will think about decreasing the number of reps or days per week.</i>

Please write out your exercise goal using the SMART goal framework and share your findings with the group:

S	Specific:
M	Measurable:
A	Achievable: Include: On a scale of 0-10, how confident are you that you can achieve your goal: _____/10
R	Relevant:
T	Time Bound:

Make it a Habit!

One of the most difficult parts of exercising is getting started. Once you get started and have established a routine, it is easier to stick with the home exercise plan.

Therefore, once you have decided when, where, and how you will exercise, try to stick with that plan. Even if you are unable to do the full exercise program, please try to do at least one to two reps of each exercise to keep your routine going! You may also want to think about what barriers you might face when performing the exercises. Please consider these barriers when you are developing your plan. You can also talk with your trainer during the online discussion about any barriers you might face.

Exercise Log:

Please keep track of your exercise frequency using the provided exercise logs. On page 44 of the manual, you will see an example of the exercise log and how it should be completed. In your supplemental packet, you will also find blank exercise logs to be used during the course of the exercise program.

Note: Please remember the supplemental materials we have provided to help you with your exercise program:

- Video of 10 repetitions of each exercise if you would like to exercise along with the model. There are 3 versions of these videos: Standard exercises, intensified and simplified.
- “Cheat” sheet listing of exercises. This sheet is provided in your supplemental folder.
- Summary of the exercises: Provided in Appendix A

i-ROLL: Exercise log

Please place a check mark on each day you complete the various exercises listed below.

Exercise	Date & Day	Goal for a week	Monday	Wed	Friday			
Warm-up	Round and Arch Spine	20	20	20	20			
	Lateral spinal flexion	10/2	8/2	9/2	10/2	/	/	/
	Lean backs	10/2	10/2	10/2	10/2	/	/	/
	Scapular retraction	10/2	10/2	10/2	10/2	/	/	/
	Scapular protraction	10/2	10/2	10/2	10/2	/	/	/
Routine	Forward/Lateral Reach	10/2	11/2	10/2	10/2	/	/	/
	Scouting	10/2	4/2	4/2	5/2	/	/	/
	Press up	10/2	11/2	16/2	10/2	/	/	/
	Shoulder Press	10/2	10/2	9/2	10/2	/	/	/
	Shoulder flexion and Abduction	10/2	10/2	10/2	10/2	/	/	/
Cool down	Rotational twist (20-30 seconds)	2	2	2	2			
	Side Stretch (20-30 seconds)	2	2	2	2			

Note:

Module #1 Skill Building Activities

Please complete the following items in the week between Session #1 and Session #2.

Please complete the * items prior to the Module #1 online discussion.

- Look through your program manual to familiarize yourself with the program. *
 - Respond to the journal question (Page 17) regarding your most memorable fall. *
 - Look over your exercise goal sheet and make any additional revisions (Page 39). *
 - Begin doing the home exercise program three times per week (Page 22). *
 - Use your exercise log to track your exercises (folder).
-
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Module 2

Welcome back! For this module, we will be discussing:

- refinement of basic transfer skills
- influences of the environment on falls
- refinement of basic wheelchair & scooter skills

Some of the videos and education this week are specific to people who perform transfers independently and those who transfer with assistance. Also, some videos and education are specific to manual wheelchair users and some for power wheelchair and scooter users. Please watch the videos and review the education materials that apply to you and the devices you use.

Transfers 101
GET WISE Section: Transfers

What is a transfer?

A *transfer* is a movement from a wheelchair or scooter to/from a desired surface. You will need to transfer to perform many activities in your home or community. A transfer can be performed either completely independently or with the assistance of assistive technology and/or a care partner.

Reflection

- Identify one type of transfer you are very good at
- Identify a transfer that you would like to improve/refine

Why is refinement of transfer skills important?

- Transfers are used frequently! You need to transfer to perform even very basic activities of daily living, such as getting out of bed in the morning, using the toilet, or getting into a car.
- Falls often occur during transfers. Two things that increase fall risk are:
 - Rushing through activities
 - Slippery/unstable surfaces
- Using proper transfer techniques will help prevent falls and the development of arm injuries.
- Some of your current transfer techniques may be leading to falls and/or not allowing you to achieve your desired mobility goals.

Tips for success:

Please see the information below for some tips to help make your transfers as safe and efficient as possible:

- **Take a moment to reflect before your transfer!** It is easy to get into a routine with your transfers. On one hand, this is a good thing because it makes our movements more efficient, but it is still important to pause before each transfer to

make sure everything is set up correctly and you are paying attention during each step of the transfer. Before you transfer, take a brief **'time-out'** to make note of any potential problems (e.g. wheel locks unlocked). This step is very important to prevent falls.

- **Set up the transfer!** If you set yourself up to transfer correctly, the rest of the transfer will be easier and will go smoothly. Instructions on how to set up the transfer will be provided in the next section.
- **Think about how your body is feeling.** Are you tired or have increased spasticity? If so, ask yourself if you can wait to perform the transfer until you are feeling better or if you can perform the activity in another way. Consider asking a care partner to be close by to provide assistance should you need it.
- **Check the surface your feet are on, and where you will be transferring to.** Is it wet or slippery? Are there any obstacles that might get in your way? If possible, try to change the conditions of the surfaces (such as drying the floor or making sure the surface is stable). If not possible, try to find another place to perform your transfer.

In the next sections we will show you how to properly and safely perform a transfer. We have **three different** versions of the education materials – one is designed for people who perform transfers independently in a sitting position, one is for people who perform transfers independently in a standing position, the other for people who need someone's help when performing the transfer. Please pick the version that is most appropriate for you. **You do not need to review all the versions!**

Options:

- 1) **Independent sitting pivot transfer:** This material provides information on how you properly perform a sitting pivot transfer without assistance. In this type of transfer you do not stand upright. If you perform this type of transfer, please see page 50 and watch this video: 2C- Independent Transfers
- 2) **Independent standing pivot transfer:** This material provides information on how you properly perform a standing pivot transfer without assistance. In this type of transfer, you stand upright. If you perform this type of transfer, please see page 54 and watch this video: 2D- Stand Pivot Transfers
- 3) **Assisted transfer:** If you need someone's help when you perform a transfer, please see page 56 and watch this video: 2E- Assisted Transfers

Please note: A transfer is a complex skill to perform which requires a lot of practice. If you feel you would like to get additional practice and/or feedback on your skills, please talk to your physician about how to continue working on the transfer skills after the education program. Your doctor may provide a referral to a physical or occupational therapist, who will further help you with the transfer training.

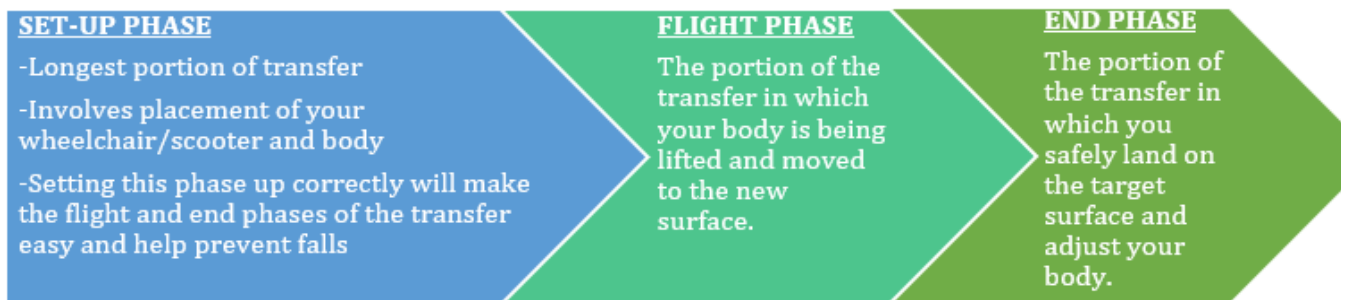
Independent Transfer Education
GET WISE Section: Transfer

Note: Please review this section if you perform a transfer independently/without assistance of a care partner.

Learning how to perform safe transfers is very important! People living with SCI and MS use transfers to do even basic activities of daily living. Learning the proper techniques will help keep you safe, prevent falls, and prevent the development of arm injuries.

Building transfer skills is a fall prevention essential for people who use wheelchairs and scooters. Transfers are used frequently and are needed to perform even very basic activities of daily living. In addition to preventing falls, building transfer skills can prevent upper extremity injuries, and injuries to the person helping you with your transfers.

A transfer is divided into three phases: the set-up phase, flight phase and end phase.



Please review the points below about each phase of the transfer.

General Tips to Reduce the Frequency of Falls and Injury

- Perform a level transfer whenever possible. Level transfers reduce the amount of force placed on your shoulders during a transfer.
- Look for alternative surfaces to transfer to (not just the most convenient place) or adjust the height of the surface (if possible).
 - *Example:* Adjust the height of your tub seat or bedside commode so you do not need to perform an uphill transfer every day.



Level transfer

- Alternate which arm you use to push off with. This helps to even out the forces that are put on your shoulders and reduce the forces placed on one specific shoulder.
 - *Example:* do not always use your right arm as your push off arm– alternate between left and right.
- Use a transfer board or other assistive technology if you have difficulty performing transfers.
- Try to make the transfer as easy as possible.



Reflection: What are you currently doing to help keep you safe during transfer activities?

Set Up Phase:

Position your chair and body properly for a safe and easy transfer.

Step 1: Position Your Chair

- Your chair should be as close to the surface you are transferring to as possible. (ideally, your chair should be touching the surface)
- Shorter distances decrease the: potential risk for falls, amount of time you have a significant amount of weight on your arms, and flight time/duration.
- Position your chair with a 20-45-degree angle between your chair and the surface.
 - This position will help put your shoulder in the best alignment for the correct transfer position.
- Lock your **wheelchair/scooter brakes** when you are happy with your position.



Step 2: Chair Set Up

- If you have an armrest or sideguards on your chair, take out the armrest or sideguard on the side you are transferring toward before you transfer (if possible).

Step 3: Feet and Body Positioning

- Place your feet in the most stable position (on the floor if possible) before you transfer. Your feet should be positioned close to where you would like them to be at the end of the transfer. Even if you have significant weakness in your legs, putting them in the proper alignment will provide a small amount of support and stability.
- Scoot your hips and buttocks toward the front 2/3rd of your chair (or close to the edge of the surface you are transferring from).



Feet/body position

Step 4: Hand and Shoulder Positioning

- Place your hands in a stable position prior to the start of the transfer.
 - Make sure the hand that you will be pushing from is close to your body and holding onto a stable object (such as your wheelchair).
 - Your other hand should be positioned close to where you intend to land. The angle between your arm and body should be approximately 45 degrees.
- Use a handgrip, if possible.
 - You can use the armrest on your chair, the edge of a mat table/bed, etc.
 - *Individuals living with SCI that use a tenodesis grasp:*
 - Use your tenodesis grasp and put your weight through your palm when transferring.
 - Do not open your hand all the way and place it flat on the transfer surface.
- If no handgrip is available, place your hand flat on the surface you are transferring from.
 - Do not excessively reach for a hand grip that will make you unstable!
 - Do not use a fist as this will put increased pressure on your wrist.



Proper hand/shoulder placement



Best hand placement!

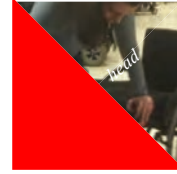


Try to avoid

Flight Phase:

Movement from point A to point B. If you have taken time to set up the transfer properly, this will be easy.

- Use the “head-hips” relationship.
 - Move your head in the opposite direction that you want your hips to move. This makes the transfer easier and reduces the potential for falls.
- The flight should feel very smooth and well-controlled.



End Phase:

Gently landing on the target surface and adjusting yourself to where you want to be seated.

- When you finish your transfer, you should feel that it was very smooth and well controlled.
- Both of your hands should be in contact with both surfaces at the end of the transfer.



End phase

Stand-Pivot Transfers

GET WISE Section: Transfers

If you are able to stand up while doing a transfer, you can use the same general instructions provided in the document “Independent Transfer Education,” page 50. To modify the transfer, please talk with your trainer and follow these instructions:

Set-up Phase:

Position your chair and body properly for a safe and easy transfer.

Step 1: Position Your Chair

- While you still want to get close to the surface you are transferring to, make sure that you have adequate room to maneuver your feet if you take a few steps when you transfer.
- Position your wheelchair parallel to the transfer surface.
 - If you are transferring to/from a couch, the arm of your wheelchair will be parallel with the couch
- Lock your wheelchair/scooter wheel locks when you are happy with your position.



Step 2: Chair Set Up

- If you use your arm rests to push up from the chair, please don't remove them
 - You will have to decide if the arm rests are more useful to push up from or if they potentially might get in your way during the transfer. Please talk with the trainer to make this determination.
- If your chair has movable footrests, remove them or swing them out of the way.

Step 3: Feet and Body Positioning

- Scoot your hips and buttocks toward the front 2/3rd of your chair (or close to the edge of the surface you are transferring from).
- Place your feet flat on the floor before you transfer.
 - Your feet should be facing your wheelchair or slightly away from your wheelchair.
 - Your feet should also be under your knees if possible. This will help you when you are standing up.



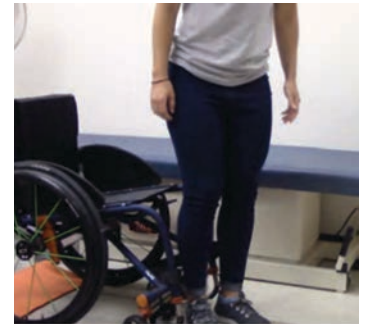
Step 4: Hand and Shoulder Positioning

- Depending on how you perform the transfer, it might be safer for you to keep both hands on your chair to help you push up. Then move one hand to the surface you are transferring towards while the other hand remains on your chair for stability.
- It is still critical to use a handgrip if one is available.
- *Individuals living with SCI that use a tenodesis grasp:*
 - Use your tenodesis grasp and put your weight through your palm when transferring.
 - Do not open your hand all the way and place it flat on the transfer surface.

Flight Phase:

Movement from point A to point B. If you have taken time to set up the transfer properly, this will be easy.

- *Note:* You will not need to use the head-hips relationship.
- Use your arms and legs to stand up from the wheelchair.
- Once you are steady on your feet, either pivot or take a few steps to the target surface.
- Continue moving until you feel/see the target surface on the backs of your legs.
- The flight should feel very smooth and well-controlled.



End Phase:

Gently landing on the target surface and adjusting yourself to where you want to be seated.

- Lower yourself to a seated position slowly and carefully.
- When you finish your transfer, you should feel that it was very smooth and well controlled.

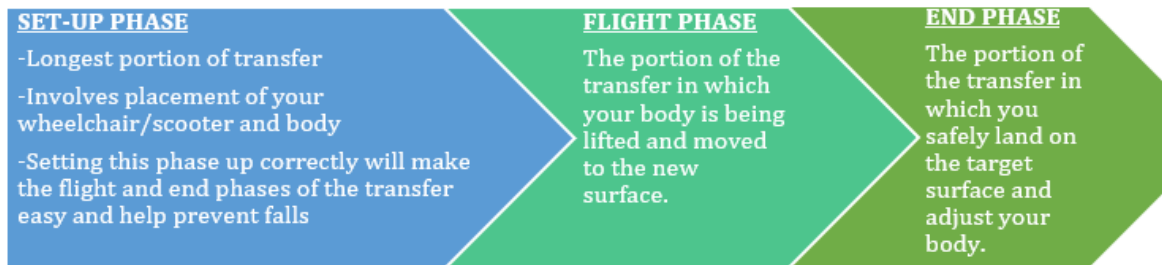


Assisted Transfer Education
GET WISE Section: Transfers

Note: Please review this section if you perform a transfer with the assistance of a care partner.

Learning how to safely and properly perform transfers is very important. Individuals living with SCI and MS need to transfer to do even basic activities. Learning or refining your techniques will help to keep you safe, prevent falls, and prevent the development of arm injuries. It is also very important to learn how to work well with your care partner if you need help to transfer.

A transfer is divided into three phases: the set-up phase, flight phase, and end phase:



Please review the points below about each phase of the transfer.

General Tips to Reduce the Frequency of Falls and Injury

- Perform a level transfer whenever possible.
 - Look for alternative surfaces to transfer to (not just the most convenient place) or adjust the surface (if possible).
 - *Example:* Adjust the height of your tub seat or bedside commode so you do not need to perform an uphill transfer every day.
- Alternate which arm you use to push off with.
 - *Example:* Do not always use your right arm as your push off arm – alternate between left and right.
- Use a transfer board or other assistive technology if you have difficulty performing transfers.
- Use a gait belt to give your care partner a solid surface to provide assistance.
- Try to make the transfer as easy as possible.



Set Up Phase:

Position your chair and body properly for a safe and easy transfer.

Step 1: Position Your Chair

- Your chair should be as close to the surface you are transferring to as possible. Ideally, the chair should be touching the surface.
 - Shorter distances decrease the potential risk for falls, amount of time you have a significant amount of weight on your arms and flight time/duration.
- Position your chair with a 20-45-degree angle between your chair and the surface you are transferring to.
 - This position will help put your shoulder in the best alignment for the correct transfer position.
- Put on your wheelchair/scooter when you feel comfortable with your position.



Step 2: Chair Set Up

- If you have an armrest or sideguards on your chair, take them out of the way, or ask for assistance to remove them before you transfer (if possible).

Step 3: Body Positioning

- Place your feet in the most stable position, on the floor if possible, before you transfer. Even if you do not have control of your legs, putting them in the proper alignment will provide a small amount of support and stability.
- Scoot your hips and buttocks toward the front 2/3rd of your chair (or close to the edge of the surface you are transferring from). If necessary, your care partner can assist you to scoot forward in your chair by moving one side of your body forward at a time.
- One you are properly positioned, make sure your care partner provides you with support if you have trouble with balance.
- *If using a transfer board:*
 - Place (or instruct your care partner to place) a transfer board under the leg that is closest to the surface you are transferring to. The board should rest somewhere between the buttock and knee.



Step 4: Hand and Shoulder Positioning

- Your hand and shoulder positioning during an assisted transfer will depend on your arm strength.
 - If your arms are not strong enough to help with the transfer, direct your care partner to help you cross them over your chest.
 - If your arms are strong enough to help with the transfer, place the hand closest to the surface you are transferring to on that surface. Place your other hand on a sturdy hand grip/surface (e.g. wheelchair arm).
- *Individuals living with SCI that use a tenodesis grasp:*
 - Use your tenodesis grasp and put your weight through your palm when transferring.
 - Do not open your hand all the way and place it flat on the table.

Step 5: Care partner positioning

- Instruct your care partner to:
 - Position their feet on either side of your feet
 - Squat down
 - Hold tightly onto a gait belt
 - Keep their back straight and lift with their legs

Flight Phase:

Movement from point A to point B. If you have taken time to set up the transfer properly, this will be very easy.

- Use the “head-hips” relationship.
 - Move your head in the opposite direction that you want your hips to move. This makes the transfer easier and reduces the potential for falls.
 - Make sure your care partner stays out of your way when trying to use the head-hips relationship.
- Make sure to clearly communicate with your care partner and let him/her know when the movement should begin (counting can help assure everyone is on the same page).
- Instruct your care partner to lift you up using the gait belt and pivot towards the surface you are transferring to.
- The flight should feel very smooth and well controlled.



Head-hips relationship

- *If using a transfer board:*
 - Instruct your care partner to move your body onto the transfer board. If possible, use your arms/legs to help with the transfer.
 - Instruct your care partner to continue moving your body towards the desired surface until you are fully seated on it.



End Phase:

Gently landing on the target surface and adjusting yourself to where you want to be seated.

- When you finish your transfer, you should feel that it was smooth and well controlled.
- Both of your hands should be in contact with both surfaces at the end of the transfer.
- Make sure your care partner properly positions you before letting go!
- *If using a transfer board:*
 - Once you are in a stable position, the transfer board can be removed, either by yourself or your care partner.
 - If you have poor seated balance, make sure your care partner helps you stay upright as the transfer board is removed. You can also put your hands down on the surface you transferred to for stability.



Influence of the Environment

GET WISE Section: Environment

Both the environment in your home and community can be a major contributor to falls among full time wheelchair and scooter users. Previous research has found that some of the most common environmental hazards include:

- wet/slippery floors
- poor lighting
- unexpected obstacles, cracks in surfaces (primarily sidewalks)
- unfamiliar environment
- uneven surfaces
- inaccessible environment

Everybody has to deal with potential fall hazards. Fortunately, there are strategies you can use to manage your fall risk. The first step in preventing falls is to pay attention to your environment and identify potential fall risks around you.

Identifying Environmental Hazards

When we think about what makes an environmental hazard, it is a combination of the person and the environment.

Person + Environment

Different situations pose different challenges for each individual depending on their level of disability, skills and previous experiences. Understanding what a challenge for you is, is an important skill is to develop.

To help to identify environmental hazards in your home, please take some time this week to fill out the Rebuilding Together **“Safe at Home Checklist.”** This checklist asks you to assess various areas inside and outside your home. It also provides suggestions of modifications to make your home safer for you. You can find a copy of this checklist in your supplemental folder, or you can access this checklist online at: <https://www.aota.org/-/media/corporate/files/practice/aging/rebuilding-together/rt-aging-in-place-safe-at-home-checklist.pdf>

Managing Environmental Hazards

Once you have identified fall risks in your surroundings, the next step is to make a plan to manage environmental hazards.

Environmental risk factors fall in one of two categories:

Category:	Example:
Environmental hazards requiring immediate action: Hazards you have to manage in the moment.	You are at a friend's house and need to use the bathroom. You typically use a grab bar to help you transfer to the toilet, but there isn't one and the toilet is quite low.
Environmental hazards requiring long-term planning: These are hazards, typically in your home, that require you to take a series of steps over time to address the problem.	You need to remove your standard tub and install a roll in shower.

Immediate Action

For environmental hazards that require **immediate action**, you can use the "Stop → Plan → Act" strategy.

- **Stop**: Pay attention, assess the environment, identify situations that could be unsafe.
- **Plan**: Determine safe options to address the unsafe situation. Select the best plan for you.
- **Act**: Move forward with your safety plan.

Let's take a look at scenarios that require immediate action.

Outdoor questionable sidewalk: Let us say that you're approaching the sidewalk pictured. You notice there is spot that appears uneven and steep. What do you do?



Potential environmental hazard: Questionable sidewalk

Response:

Let us work through the questionable sidewalk example together using the “Stop → Plan → Act” strategy. The sidewalk requires immediate action because you need to use the sidewalk to get to the grocery store.

- **Stop:** Before you reach the uneven sidewalk, stop your wheelchair so you can think about the safest option to manage this obstacle. You notice that:
 - The sidewalk is about two inches taller than the other part of the sidewalk.
 - There is grass on both sides of the sidewalk.
 - There is a steep curb down to the street on one side of the sidewalk.
 - There is a tree to the side of the uneven sidewalk.
- **Plan:** You make a list of all the possible options and narrow it down to the two safest options:
 - Go over the uneven sidewalk
 - You are currently practicing this skill in physical/occupational therapy, but you don't feel very confident yet without a spotter.
 - Go into the grass to avoid going over the obstacle
 - You decide this is the safer option because you use your wheelchair in the grass when you attend your children's soccer games. You are confident in this skill.
- **Act:** You put your plan into action. You move your wheelchair through the grass and safely pass the uneven sidewalk. Then, you move your wheelchair back on the sidewalk and continue in the direction of the grocery store.

Long term planning

For environmental hazards that require **long-term planning**, use of the strategy called **action planning that** can help to break down a large goal of yours into small, manageable steps.

Please see the table below for an example of an action plan:

ACTION PLANNING FORM										
Think about what could help you prevent a fall in your home or a place where you have fallen frequently. Think about how you could address this area and minimize the fall risk.										
Step 1: What is your environmental modification goal?										
<i>Example Answer:</i> Get a ramp to enter the house through the front or back door										
Step 2: What is one small step you could work on towards completing your goal this week?										
<i>Example Answer:</i> Investigate funding options										
What will you do?										
<i>Example Answer:</i> Call the local MS chapter to ask if grants are available OR if they can refer me to other funding sources										
When will you do it?										
<i>Example Answer:</i> Tomorrow										
Step 3: Identify what will help you succeed:										
<i>Example Answer:</i> Set phone timer to go off at noon tomorrow as a reminder to get this done before 1pm										
Step 4: How confident are you that you can succeed in this step in the next two weeks?										
1	2	3	4	5	6	7	8	9	10	
(Not sure)								(very sure)		
*You should be an 8 or higher on this step. If you're not higher than an eight, it might be difficult for you to complete the step. You should go back and break the task down into a smaller, more manageable goal.										
=====										
Step 5: Assess your progress on step #1.										
Step 6: Identify specific, manageable next steps (then repeat Steps 2 through 5 until complete).										
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Key parts part of the action plan:

- The action plan helps you break down a bigger task into manageable, thought out steps.
- The first step is to consider a manageable goal that you are confident of accomplishing in a week.
- Your level of confidence should be an eight or higher, or you should possibly reconsider the goal to make it more achievable

There are 10 copies of blank action plans in your supplemental folder. If you need more, please feel free to make copies or print one from the study website.

Remember that simple, inexpensive additions to the environment can often make a huge difference in enhancing your safety and possibly preventing a fall.

Resources for Environmental Modifications

Now that you have learned how to identify environmental hazards and develop a plan to manage those hazards, this final section will provide resources to help you make those modifications.

Once you identify your top fall hazard concerns, make an action plan for how you will modify your home to address at least one concern. A sample of this action plan can be found on page 68. There are many resources in this section to help you identify fall hazards and home modifications that can help make your home safer.

Please review the tables on the next two pages for specific home modifications and helpful resources.

Home Modification Resources:

Example of home modifications. Modified from Sabata & Lowenstein’s (2013) book chapter, “Physical Environment” (pp. 487)

Room in House	Potential Home Modifications
General	<p>Lower Cost</p> <ul style="list-style-type: none"> • Use tape to secure rugs to floor or remove them entirely • Remove clutter on floor • Transition flooring • Motion sensor lighting • Replace hinges with swing clear hinges <p>Higher Cost</p> <ul style="list-style-type: none"> • Power chair lift for stairs
Bathroom	<p>Lower Cost</p> <p><u>Toileting</u></p> <ul style="list-style-type: none"> • Raised toilet seat • Commode chair • Toilet safety frame <p><u>Bathing</u></p> <ul style="list-style-type: none"> • Tub transfer bench • Hand-held shower • Non-slip bathmat <p>Higher Cost</p> <p><u>Toileting</u></p> <ul style="list-style-type: none"> • Properly installed grab bars <p><u>Bathing</u></p> <ul style="list-style-type: none"> • Roll-in shower • Properly installed grab bars
Bedroom	<p>Lower Cost</p> <p><u>Sleeping</u></p> <ul style="list-style-type: none"> • Bedside commode • Nightlight • Lamp within arm’s reach at bedside <p><u>Getting In/Out of Bed</u></p> <ul style="list-style-type: none"> • Bed rails
Entrances/Exits	<p>Lower Cost</p> <ul style="list-style-type: none"> • Outdoor motion-sensor lighting <p>Higher Cost</p> <ul style="list-style-type: none"> • Accessible ramp for entrance

Home modifications and falls prevention resources:

Agency	Website	Summary of information
American Occupational Therapy Association, 2014 (AOTA)	https://www.aota.org/~media/Corporate/Files/Practice/Aging/Resources/Focus-On-Falls-Prevention-Home-Mod-Booklet.pdf	This compilation of articles provides a summary of current information on home modifications and falls prevention.
AOTA (2018)	https://www.aota.org/About-Occupational-Therapy/Patients-Clients/Adults/Falls/prevent-falls-in-home-tips.aspx	This 22-minute video provides tips from an occupational therapist to prevent falls in your home.
Christopher & Dana Reeve Foundation	https://www.christopherreeve.org/living-with-paralysis/home-travel/home-modification	This link provides general tips for home modifications to the entryway and each room of the house. At the bottom of the page, you will also find additional resources on support groups and other organizations.
Falls Prevention Center of Excellence	http://stopfalls.org/resources/home-modification-tools-programs-and-funding-landingpage/	Under the “Individuals and Families” section, you will find a wealth of information on preventing falls, including assessing the need for and sources for funding home modifications.
Falls Prevention Center of Excellence	https://homemods.org/resources/products/	This link provides a listing of websites that include a wide variety of home modification products, including wheelchair/stair lifts, custom shelving, and grab bars.
National Council on Aging (Trudeau, 2016)	https://www.ncoa.org/blog/falls-prevention-home-18-step-safety-checklist/	This link provides simple changes for your home that reduce your risk of falling.

<p>National Multiple Sclerosis Society (NMSS)</p>	<p>https://www.nationalmssociety.org/Resources-Support/Library-Education-Programs/Free-From-Falls/Staying-Safe-at-Home</p> <p>https://www.nationalmssociety.org/NationalMSSociety/media/MSNationalFiles/Resources_Support/Handout-Week-5.pdf</p> <p>{Handout to accompany video}</p>	<p>This video and handout focus on how to reduce your risk of falls in the home. Specifically:</p> <ul style="list-style-type: none"> • “Explore possible hazards that might contribute to falls inside and outside the home • Understand how simple changes can make your home environment safer • Identify specific changes you can make to your home environment to make it safer” (National Multiple Sclerosis Society, 2018a)
<p>NMSS</p>	<p>https://www.nationalmssociety.org/NationalMSSociety/media/MSNationalFiles/Resources_Support/Handout-Week-6.pdf</p>	<p>This handout focuses on how to reduce your risk of falls in the community. Specifically:</p> <ul style="list-style-type: none"> • “Recognize common causes of slips, trips, and falls • Be aware of fall hazards in your community and how to navigate the community safely • Employ the Stop, Scan and Plan technique to identify and navigate fall risks in your community” (National Multiple Sclerosis Society, 2018b)
<p>United Spinal Association</p>	<p>https://askus-resource-center.unitedspinal.org/?pg=kb.printer.friendly&id=3</p>	<p>This link has many resources for home modifications and accessible design. Topics include how to pay for home modifications, accessible home design, and companies that do home modifications.</p>

ACTION PLANNING FORM
iROLL Falls Prevention Program

Think about what could help you prevent a fall in your home or a place where you have fallen frequently. Think about how you could address this area and minimize the risk of falling.

Step 1: What is your environmental modification goal?

Step 2: What is one small step you could make towards your goal this week?

What will you do?

When will you do it?

Step 3: Identify what will help you succeed:

Step 4: How confident are you that you can succeed in this step in the next 2 weeks?

1 2 3 4 5 6 7 8 9 10
(Not sure) (very sure)

*You should be an eight or higher on this step. If you are not an eight or higher, let’s take a closer look at the goal you have set.

=====

Step 5: Assess your progress on Step #1.

Step 6: Identify specific, manageable next steps (then repeat Steps two through five until complete).

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Module #2 Journal Entry

To Do:

You will be asked to make a journal entry every week after completion of the session. Your journal entry will be tied to items discussed during the previous session. The journal entry will be discussed during the live online discussion.

Why:

The journal entries will help you think about the information that was presented during the education sessions and help you integrate what you have learned into your everyday life.

Prompt:

Please describe an environmental hazard that might increase your fall risk in your home and try doing an action plan. Then, write about your experiences regarding your first action plan. What efforts did you make to complete your first action plan and how did it go? If you could not complete your first action plan, what prevented you from completing the task?

Response:

Wheelchair/Scooter Skills 101
GET WISE Section: Wheelchair Management

The ability to push or drive your wheelchair/scooter effectively (wheelchair/scooter skills) is necessary to allow you to safely and successfully navigate a variety of environments in your home and community. Having good wheelchair/scooter skills is also very important when it comes to preventing falls. There are a variety of wheelchair/scooter skills related to the daily activities you perform, such as pushing or driving your wheelchair/scooter over even and uneven surfaces, navigating narrow environments, going up/down curbs, etc.

Reflection

- Identify one wheelchair /scooter skill you are very good at.
- Identify a wheelchair/scooter skill that you would like to improve/refine.

Why is learning how to properly perform wheelchair/scooter skills important?

- Falls often occur while pushing or driving a wheelchair/scooter. Specifically, falls frequently occur when people drive or push their wheelchair/scooter in a hurry, while not paying attention to the surrounding environment, or while going up and down a steep ramp.
- Good wheelchair/scooter skills are needed to perform necessary daily activities such as getting to the bathroom, shopping for food, and going to doctor's appointments.
- Good wheelchair/scooter skills will also help you get out into the community and do the activities you wish to do. For example, if you would like to go to the library but are unsure how to navigate a ramp, it might be difficult or scary for you to get into the building. If you learn how to push/drive up a ramp, you might feel more confident going to the library.

- With good wheelchair/scooter skills, you might also be able to do more things by yourself and will not need to rely on a care partner to assist you as often.
- Knowing how to use your wheelchair/scooter correctly will give you the ability to manage unexpected items such as a crack in the sidewalk or other unexpected situations.

General tips for safety:

Please see the information below for some tips on safe and efficient wheelchair/scooter skill performance:

- **Fasten your seat belt!** The seat belt will help you to stay in your chair if you accidentally hit an unexpected obstacle such as a bump or a curb.
- **Control your speed!** Even if you are in a hurry, push or drive your chair at a reasonable speed. Wheelchair/scooter users frequently report that falls have occurred because they were pushing or driving their chairs too fast and hit an obstacle.
- **Check the pathways you often travel to make sure they are clear and accessible.** Ask your care partner to arrange the furniture in your house to create a clear path. Also, keep the floors clear of small items. Random obstacles such as dog, toys, throw rugs or electrical cords can cause a fall. Outside you can consider adding a ramp or flood lights.
- **Maintain your wheelchair/scooter regularly!** Wheelchair/scooter malfunctions, such as broken seat belts, wheel locks (brakes) or footplates, are associated with falls. Regular wheelchair/scooter maintenance can help prevent these problems from occurring. This concept will be discussed further during module #5.
- **Do not drive or push your wheelchair/scooter when you are intoxicated.** It is extremely dangerous. If you have consumed alcohol, ask someone who has not been drinking to take you to where you want to go.

During this education program, you will learn and review how to perform important wheelchair/scooter skills, ranging from basic skills to more complicated tasks. In this module, we will start with basic wheelchair/scooter skills. Instructions on the performance of these skills can be found on the following pages:

- 1) Foundational skills: Manual: please see page 74, Power/Scooter: please see page 79
- 2) Intermediate skills: Manual: please see page 120, Power/Scooter: please see page 123
- 3) Advanced skills: Manual: please see page 146, Power/Scooter: please see page 152

Please be patient with yourself while learning these skills! Wheelchair/scooter skills can be challenging, and you might be asked to consider modifying or changing how you are doing some of your current skills. The trainer will work with you to refine the skills you currently have and learn new ways to navigate your community.

Note: Some of the wheelchair/scooter skills are difficult to learn and require a lot of practice. If you feel that you would like to get additional practice and/or feedback on your skills after the education program is over, please talk to your physician. They may provide a referral to a Physical and/or Occupational therapist, who will further help you learn these skills.

In the next sections we will show you how to properly and safely perform basic wheelchair skills. We have **two different** versions of the education materials – one is designed for people who use manual wheelchairs, the other for people use power wheelchairs or scooters. Please pick the version that is most appropriate for you. **You do not need to review both versions!**

Options:

- 1) If you use a **manual wheelchair**, please turn to page 74 and watch the video: 'Manual Wheelchair Skills Education (Foundational)'
- 2) If you use a **power wheelchair or scooter**, please turn to page 79 and watch the video: 'Power Wheelchair/Scooter Skills Education (Foundational)'

Reminder! Please have a care partner with you while practicing these skills. In addition, if you would like more help learning these skills, please ask your doctor for a referral to a physical or occupational therapist to further practice these skills.

Note: We have created a diagram of the various parts of a wheelchair and scooter that are referenced in this section. You can access this diagram in Appendix B.

Manual Wheelchair Skills Education (Foundational)
Get WISE Section: Wheelchair Management

Note: Please review this section if you use a manual wheelchair

In this section you will refine some basic wheelchair skills to allow you to safely navigate a variety of environments in your home and community. We will discuss how:

- to push your wheelchair on a flat surface
- reach for an object
- pick up an object from the floor
- navigate through a hinged door.

For additional videos of these wheelchair skills, please visit the SCI Empowerment Project: <http://sci.washington.edu/empowerment/videos.asp#wc>. The content is also applicable to individuals living with MS!

Pushing a wheelchair on a flat surface

Pushing your wheelchair well requires optimal pushing form and wheelchair design. A physical or occupational therapist who specializes in wheelchair seating can help make sure your wheelchair is set up to help you push. This topic will be discussed further during Session #5.

General tips to reduce the frequency of falls and injury:

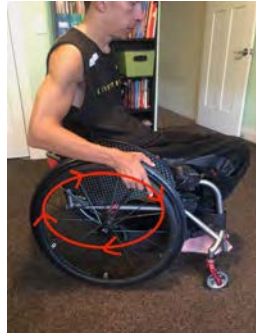
While pushing:

- Focus your attention towards the direction of travel, avoiding distractions to either side, and remain alert to potential hazards.
- Control your speed!
- Use good pushing techniques. Please review the points below.

Good pushing techniques

- Begin the push with your hands on the upper back part of the hand rim.
- Use long, smooth strokes.
- Do not rush your stroke. Take your time moving the wheel forward and try to keep in sync with the speed of the wheel.
- Release your grip toward the front of the wheel.

- Once you have released the wheel, let your hand gently relax and return to the upper back of the wheel.
- Push less often by using longer pushes.
- The overall shape of your propulsion technique should be an oval, as pictured below.



The oval shape propulsion pattern

Reaching for an object out of your range

You may often have to reach upward or forward for a light switch, elevator button, or to get an object out of a cupboard. Reaching and leaning reduces stability and puts you at risk of falling out of the wheelchair.

General tips to reduce the frequency of falls and injury

- Position your wheelchair close to the object you are reaching for.
- Reach to the side instead of reaching forward, if possible.
- Secure the seatbelt.
- Engage wheel locks/brakes before you begin reaching.
- Stabilize yourself with one hand holding onto the armrest or wheel as you reach for the object with the other.
- Use a reaching aid if it is available.



Reaching for an object

If you stand up

- First apply the wheel locks and clear the footrests out of the way.
- Please DO NOT stand on your footrest. The extra weight on the footrests may cause the chair to tip and a fall to occur.
- Keep one hand on the wheelchair to maintain your balance.

Picking up an object off the floor

You may need to pick up an object from the floor or ground, such as a piece of paper or a key. Attempting to pick up objects from the floor by reaching down reduces stability and puts you at risk of falling out of the wheelchair.

General tips to reduce the frequency of falls and injury

- Position your wheelchair close to the object you are reaching for.
- Secure the seatbelt.
- Engage wheel locks/brakes before you begin reaching.
- Stabilize yourself with one hand on the push rim or arm rest as you pick up the object with the other hand.
- If you have reduced strength in your trunk muscles, move the arms to the thighs one at a time, and then to the feet, placing the chest on the thighs to reach the ground.
- Pull the object up against one of the wheels to increase stability and make the task easier.
- Use a reaching aid if it is available.



Picking an object off the floor

If you are hesitant to reach down to pick up an object on the ground or to get an object off a high shelf because of poor sitting balance, a reacher can be a good option. A reacher enables you to easily reach an object in high places and pick up things off the ground without having to bend your body. You can buy a reacher at Amazon.com, Target or Walmart. If you have limited hand function, the “Active Hands Reacher” might be a good option for you. <https://www.activehands.com/11793/>

To use a reacher, hold the handle and move the other end of the reacher in the direction of the item you wish to pick up. Once in position, squeeze the handle to grasp the item and move it to wherever you like.



Using a reacher to pick up an object (Source: Active Hands)

Going through a hinged door

You often have to open/go through a hinged door to perform necessary and desired activities in your daily life. However, while performing this activity, you can easily lose your balance and fall.

General tips to reduce the frequency of falls and injury

- Approach the door at an angle. This brings the door handle into reach and gives you enough space to clear the door with the front of your wheelchair. Stabilize yourself with one hand on the hand rim or arm rest as you reach for the door with the other.
- Pay attention if there are any obstacles (e.g. threshold) while passing through the door.

To pull the door open

- Pull the door open with the hand closest to the door as you balance yourself with your other hand on the wheel.
- Keep the door open with your hand or elbow as you push your wheelchair through. If the door is especially heavy, pull on the door handle with one hand while pushing on the doorframe with the other.



Pulling a door open

To push the door open

- Keep pushing one wheel forward with one hand as you push the door open with the other.
- While moving past the door, pay attention to avoid catching any clothing or body parts on the door handle or the surface of the door.



To close the door

- Push: You may gently swing the door closed behind you, moving the wheelchair quickly through the door and out of the way.
- Pull: Turn around once through the doorway, reach forward, and pull the door towards you while backing away.
- Do not put your fingers between the door and doorframe for any longer than necessary because you may get pinched when the door closes.



Pulling the door closed

Power Wheelchair and Scooter Skills Education (Foundational)
Get WISE Section: Wheelchair Management

Note: Please review this section if you use a power wheelchair or a scooter

Today you will refine basic power wheelchair and scooter skills that will allow you to safely navigate a variety of environments in your home and community. We will discuss how to:

- drive your power wheelchair or scooter on a flat surface
- reach for an object
- pick up an object off the floor
- go through a hinged door.

Driving Forward and Backwards

The ability to drive your power wheelchair or scooter effectively is necessary to allow you to safely navigate a variety of environments in your home and community. Learning how to perform this basic skill correctly will help you prevent falls.

General tips to reduce the frequency of falls and injury

- Get to know your wheelchair or scooter.
 - How to control the joystick or throttle
 - How to select drive modes and speeds
 - If you have questions about how to operate anything on your chair, please ask the trainer or the vendor that sold you the wheelchair or scooter
- Make sure that nothing is stuck in your wheels, such as the seat belt or other straps.
- Fasten the seat belt!
- Make yourself as visible as possible by wearing brightly colored clothing and something reflective at night. You might also want to consider putting reflective markers on your chair or scooter.
- Check the pathways you often travel to make sure they are clear and accessible.

Driving forward

- Move the joystick or throttle forward gradually to achieve a smooth start.
- Pay attention in the direction of travel and remain alert to potential hazards. Avoid distractions whenever possible.
- Control your speed!

Driving in reverse

- Check behind you before you reverse. Consider the presence of moving objects, such as people or cars.
- Move the joystick or throttle backwards gradually to achieve a smooth start.
- Control your speed!
- Don't drive in reverse for a long distance.

Scooter Considerations

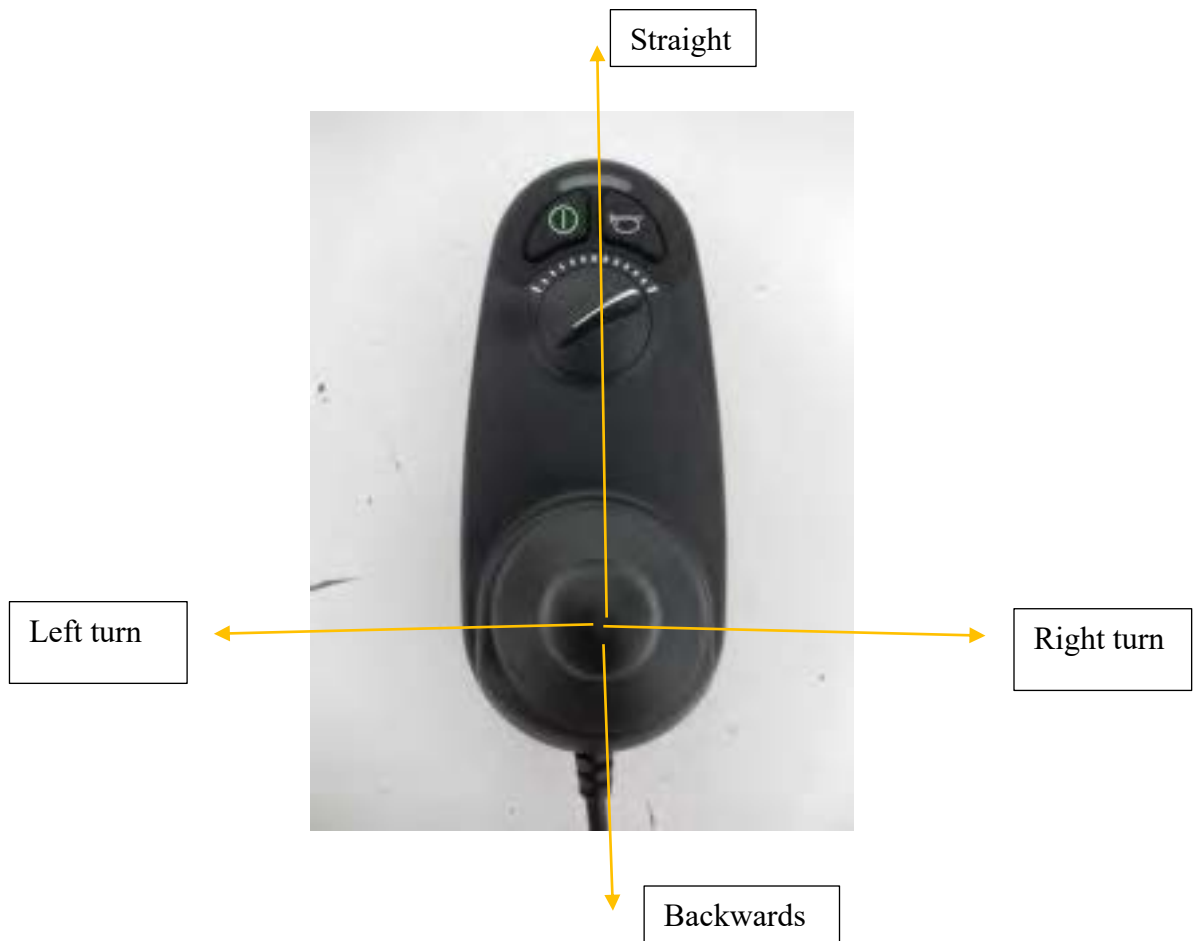
- Be ready to drive the scooter before turning the power on.
 - Place both hands on the handlebars (tiller) and position both feet on the platform. Make sure your feet are not hanging off the side of the scooter.
 - Fasten the seat belt!
- Use the same techniques as described above.
- Take some time to learn to use the throttle. Depending on your scooter design, you might use one hand to drive forward and another to drive backwards. Practice using the controls in a safe environment so that you fully understand how to use the device before you are in a challenging situation.
- Driving in reverse may be challenging due to the orientation of the throttle. Take the time to practice in a safe environment.

Turning in place

Learning how to turn in tight spaces can give you confidence to maneuver in small spaces such as elevators and bathrooms.

General tips to reduce the frequency of falls and injury

- To make the tightest turn possible **in a power wheelchair**, point the joystick in the direction you want to turn. If you think of your controller as a clock with '12' being straight ahead, point the joystick to either '3' or '9', depending if you want to turn right or left.



- Know your wheelchair configurations. The location of the drive wheels (e.g. rear-wheel, mid-wheel or front-wheel drive) and seating configurations (e.g. footrest) can affect the size of the turning radius. Before trying to maneuver in a tight space, become familiar with the turning radius of your chair. You can read more about the pros and cons of each drive wheel configuration here: <https://mobilitymgmt.com/articles/2010/07/01/power-chair-drive.aspx>.
- Control the speed for turning of the chair.

Scooter Considerations

- Scooters cannot turn in place in the same way that a power wheelchair can. To make a tight turn, you will need to move your scooter back and forth several times (“3-point turn”) to make a tight turn.
- Select the slower speed mode before maneuvering in tight spaces.
- Please note: Scooters can easily tip over when making tight turns. Make sure that you are on a flat surface and moving slowly.

Reaching for an object out of your range

You may often have to reach upward or forward for a light switch, elevator button or to get an object out of a cupboard. Reaching and leaning reduce stability and puts you at risk of falling out of the wheelchair.

General tips to reduce the frequency of falls and injury

- Secure the seatbelt.
- Position your wheelchair or scooter close to the object you are reaching for.
- Turn the power off before you begin reaching.
- Reach to the side instead of reaching forward, if possible.
- Stabilize yourself with one hand holding onto the armrest or wheel as you reach for the object with the other.
- Use your wheelchair functions. If your wheelchair has power seat functions (e.g. tilt, recline or seat elevator), this may be helpful.
- Use a reaching aid if it is available.



Reaching for an object

If you stand up

- First turn the power off and clear the footrests out of the way.
- Please DO NOT stand on your footrest. The extra weight on the footrests may cause the chair to tip and a fall to occur.
- Keep one hand on the wheelchair to maintain your balance.

Scooter Considerations

- Use the same techniques as described above but please note that **scooters can tip over very easily.**
- If possible, rotate your seat towards the object you are reaching for. Thus, you will be reaching forward for the object. Limit how far you reach forward. If you are able, rotate your seat and stand up to reach the object. Leaning while sitting on a scooter can be very dangerous!
- If you need to get out of the scooter, keep at least one hand on the scooter for balance.

Picking up an object off the floor

You may need to pick up an object from the floor or ground, such as a piece of paper or a key. Attempting to pick up objects from the floor by reaching down reduces stability and puts you at risk of falling out of the wheelchair.

General tips to reduce the frequency of falls and injury:

- Secure the seatbelt.
- Position your wheelchair close to the object you are reaching for.
- Turn off the power before you begin reaching.
- Stabilize yourself with one hand on the arm rest as you pick up the object with the other hand.
- If you have reduced strength in your trunk muscles, move the arms to the thighs one at a time, and then to the feet, placing the chest on the thighs to reach the ground.
- If you have seat functions on your wheelchair, make sure you are fully upright and not tilted backwards.
- Use a reaching aid if it is available.



Picking an object off the floor

Scooter Considerations

- Use the same techniques as described above.
- If possible, get out of your scooter before attempting to reach for something on the ground. **Remember, scooters tip over very easily!**
- If you need to get out of the scooter, keep at least one hand on the scooter for balance.

If you are hesitant to reach down to pick up an object on the ground or to get an object off a high shelf because of poor sitting balance, a reacher can be a good option (see figure below). A reacher enables you to easily reach an object in high places and pick up things off the ground without having to bend your body. You can buy a reacher at Amazon.com, Target or Walmart. If you have limited hand function, the “Active Hands Reacher” might be a good option for you. <https://www.activehands.com/11793/>

To use a reacher, hold the handle and move the other end of the reacher in the direction of the item you wish to pick up. Once in position, squeeze the handle to grasp the item up and move it to wherever you like.



Using a reacher to pick up an object (Source: Active hands)



Going through a hinged door

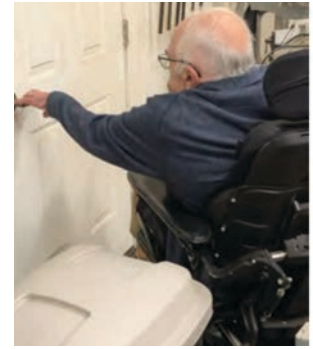
You often have to open/go through a hinged door to perform necessary and desired activities in your daily life. However, while performing this activity, you can easily lose your balance and fall.

General tips to reduce the frequency of falls and injury

- Approach the door at an angle. This brings the door handle into reach and gives you enough space to clear the door with the front of your wheelchair.
- Stabilize yourself with one hand on the arm rest as you reach for the door with the other. It may be easier to simply grasp the door handle with the hand on the side away from the joystick and then back the wheelchair up, rather than doing all the work with the arm.
- Pay attention if there are any obstacles (e.g. threshold) while passing through the door.

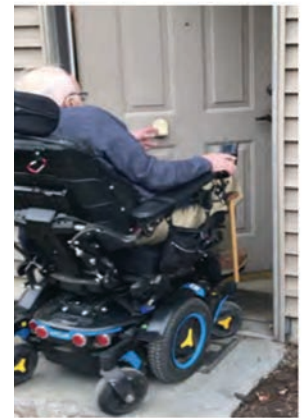
When pulling the door open

- Pull the door open with the hand on the side away from the joystick as you control the joystick with your other hand.
- Keep the door open with your hand or elbow as you drive your wheelchair through.



To pull the door closed

- You may gently swing the door closed behind you, moving the wheelchair quickly through the doorway and out of the way.
- Alternatively, turn around once through the doorway, reach forward, and pull the door towards you while backing away.
- Do not put your fingers between the door and doorframe for any longer than necessary because you may get pinched when the door closes.



When pushing the door open

- Push the door open with the arm on the side away from the joystick.
- While moving past the door, pay attention to avoid catching any clothing or body parts on the door handle or the surface of the door.



To push the door closed

- You may gently swing the door closed.
- Alternatively, turn the wheelchair around and push the door closed with the footrests.



Scooter Considerations

- Use the same techniques as described above.
- The length of some scooters can make it difficult to reach door handles. As a result, you may need to get off the scooter to open/close a door.
- If you are off the scooter, don't try to drive the scooter through the door. Use a rubber door stop to keep the door open or ask a care partner/bystander to help you.
- If getting on/off the scooter is becoming challenging, you may want to consider the use of a power wheelchair.

Session #2 Goal Form
GET WISE Section: Goals

Today's session focused on learning fundamental transfer and wheelchair/scooter skills. Please think about a goal that you can set that will help you practice either the transfer and/or wheelchair/scooter skills you learned today. We would like you to set at least one goal but feel free to set both a transfer and wheelchair/scooter skills goal. Don't forget to use the SMART goal format!

S	Specific.
M	Measurable.
A	Achievable.
R	Relevant.
T	Time bound.

Examples:

Over the next week, I will specifically think about using the correct arm position during at least 25% of the level transfers I perform.

Over the next week, I will specifically think about the position of my wheelchair/scooter when reaching for objects outside my base of support at least 25% of the time.

Goal:

--

Module #2 Skill Building Activities

Please complete the following items in the week between Module #2 and Module #3. Please complete the * items prior to the Module #2 online discussion.

- Complete the “Safe at Home Checklist” (page 60).*
- Respond to the journal question (Page 70) regarding modifications to your environment and action planning. *
- Complete one action plan (blank sheets are available in your folder).*
- Continue doing the home exercise program a minimum of 3x/week (Page 22).
- Use your exercise log to track your exercises (folder).
- Set a goal regarding practicing transfer skills/practice the skills (Page 88).*

References:

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Module 3

Welcome back! For this module, we will be discussing:

- The safest way to fall when a fall does occur
- How to plan for and recover from a fall
- Intermediate wheelchair skills
- Use of assistive technology as part of fall prevention

Some videos and education materials are specific to manual wheelchair users and some for power wheelchair and scooter users. Please watch the videos and review the education materials that apply to you and the devices you use.

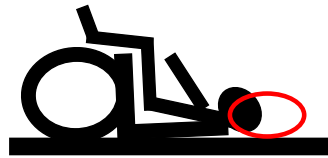
How to Fall

GET WISE Section: Environment

While the goal of this program is to prevent falls from happening, some falls may still occur. Learning how to manage a fall when it happens is important to minimize injury. Although falls often happen very quickly, the information presented in this section may help to minimize injury. Understanding how to fall and recover from a fall may also help to reduce fear of falling which can limit your engagement in desired activities.¹

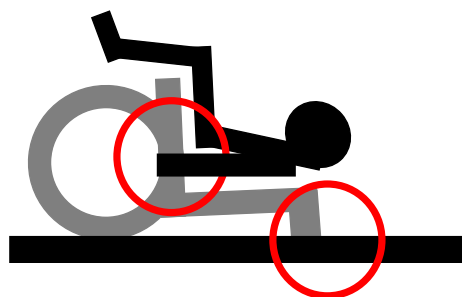
One of the most important things to do is to tuck and turn your head when you fall.

- **Tucking your head** can help to protect your head from hitting the ground or reduce the force of impact.
- **Turn your head** to the side so that your knees don't hit your face upon impact.



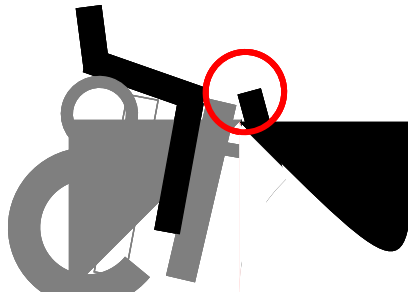
Tucking and turning the head

Manual wheelchair users: If you start to fall backwards and cannot stop the movement, tuck your head and grab the wheels. This will force the chair's push handles or backrest to take the brunt of the fall and protect your head. A rigid (hard) backrest will give you more protection compared to a sling/upholstered back. Also, grabbing the wheels can help slow the descent.



Manual wheelchair fall

Power wheelchair users: If you start to fall backwards and cannot stop the movement, tuck your head, turn your face to the side and hold onto the arm rests (if you are able). This will force the chair's push handles or backrest to take the brunt of the fall and protect your head.



Power wheelchair fall

Please note: The safe fall techniques demonstrated above are difficult and require a lot of practice. If you feel that you would like to work on these techniques after the education program is over, please talk to your physician. Your physician may provide a referral to a physical therapist, who will further help you with safe falling techniques.

Fall Recovery Plan

Get Wise Section: Environment

After a fall, it is common to feel frightened and uncertain. Today, we will discuss different ways to help you make your own fall recovery plan and get up after a fall occurs. Developing a fall recovery plan ahead of a fall can help ease some uncertainty and increase your confidence in recovery.

Reflection: Please think about your most memorable fall....

- Were you able to get back into your wheelchair or scooter by yourself or did you need assistance?
- How long did it take you to get up from the fall?
- Was there anything else that influenced your ability to get back into your chair?

Why is it important to make a fall recovery plan?

- 1) After a fall, remaining on the floor or the ground for over 10 minutes after falling is common in individuals with MS.² Remaining on the floor or ground between 5-30 minutes can be common for individuals with SCI.^{3,4}
- 2) Most wheelchair/scooter users need assistance to get up after a fall occurs.⁵
- 3) Falls can often result in injuries such as contusions, fractures, strains, and lacerations.⁶ Individuals with SCI who sustain injuries from a fall may be bedridden for a period of time.⁷
- 4) For individuals with SCI, falls can decrease self-confidence, impact participation in daily activities and leisure/recreation, limit participation in roles such as parenting, and decrease independence in community living.⁷
- 5) Lying on the floor or the ground for an extended period of time is associated with additional physical injuries, a decline in performance of daily activities, an increased chance of a hospital admission and increased fear of falling^{8,9}.

To develop a fall recovery plan, here are a few tips:

- 1) **Create a “check in” system** with a close friend or family member to make sure that someone is aware of what you are doing and can quickly get help if a fall occurs. Pick a friend or family member that you can trust and develop a plan to call or text them on a daily basis at roughly the same time each day. You do not need to make a long

phone call, just check in with the person so they know that you are doing okay. If you have a history of multiple falls, you might want to develop a plan for more frequent check-ins. The goal is to make sure that someone is aware of what you are doing and can summon assistance quickly if a fall occurs.

Reflection: Please take a moment to think about who you will develop a check in plan with. Please write the person’s name and phone number below:

Name:
Phone Number:

2) If you have a smartphone, set up the emergency features. Many modern smartphones have emergency features that can help notify family or friends if you need assistance recovering from a fall.

The table below shows a list of various phone models and how to use the emergency feature. You can also click on the links under “additional resources” if you would like a video explanation of these features. For further details on how to set up your specific phone’s emergency features, go to your phone provider’s website (listed under “Additional Resources” in table below) for more information. If your phone model is not listed in the table below, you can reach out to the phone manufacturer’s support team for more information on how to set up the emergency feature.

Phone Model	How to use emergency feature:	Additional Resources
Newer iPhones	Press and hold the side button and one of the volume buttons until an “Emergency SOS” slider appears	<p>Emergency SOS explained: https://www.youtube.com/watch?v=sz_IG4whSMg</p> <p>Phone provider website: https://support.apple.com/en-us/HT208076</p>
Older iPhones (Version 7 or earlier)	Rapidly press the side button five times. By swiping the “Emergency SOS” slider, local emergency services will be called and your emergency contacts (which you will need to pre-set in your Health	<p>Emergency SOS Explained: https://www.youtube.com/watch?v=sz_IG4whSMg</p> <p>Phone provider website:</p>




	app) will automatically be sent a text message with your current location, even if your location feature is off in your general settings.	https://support.apple.com/en-us/HT208076
Samsung Galaxy (Android Phones)	You will need to set up “Emergency Messages” prior to this function being accessible. To do this, go to “Settings” and click on “Advanced features”. In this menu, click “Send SOS messages” and “agree” to the terms of use. It will prompt you to add contacts to receive your SOS message. Once a contact is added, you can press the power button quickly 3 times in an emergency situation. This will automatically send an alert to your designated emergency contacts.	<p>Phone provider website:</p> <ul style="list-style-type: none"> • http://www.samsung.com/nz/support/mobile-devices/samsung-sos-smart-phone-emergency-message-guide/ • https://www.samsung.com/us/support/answer/ANS00050849/






3) Stay connected. Below is a listing of strategies to make sure that you can always get help if you fall.




- **Consider using a medical alert device.** A medical alert device is a wireless device that can either be automatically or manually triggered to call for assistance when a fall occurs. The device can be worn around your neck or on your wrist to assure that it is always with you. These devices can be expensive, so make sure you shop around before selecting a device. (Please see page 96 for a listing of medical alert systems). Although medical insurance does not typically cover these types of devices, you may be able to find additional resources to cover the costs. Additional funding resources will be discussed in module #5.
- **Use of a wearable communication device.** Many companies are making “smart” watches or devices that allow a person to wear a device that connects to their cellular telephone. These devices can help you call for help if you do not have your phone on you. These devices, however, can be expensive. They also provide more functions than what is needed to simply communicate.

- **Low tech:** If you would prefer not to use a medical alert system or a wearable communication device, you can develop your own low-tech solution to assure you are always connected. You can put a cellular telephone in a waist (“fanny”) pack or a small pouch around your neck. When selecting a bag, make sure that it does not affect your ability to transfer, push or drive your wheelchair/scooter, or perform any other activities of daily living.

4) Develop a plan to get off the floor. It is very important that you have a plan in place to be able to get up off the floor after a fall occurs. Please see the details in following section “Fall Recovery Strategies”.

A List of Medical Alert Systems		
Company	Device Features	Contact Information
	Wearable button which connects to landline or Bluetooth enabled phone for easy communication Sensors offered to track activity	<u>Phone</u> (800) 313-1191 <u>Website</u> MedicalGuardian.com
	24/7, 365 day monitoring Up to 32 hours of backup battery Operators stay on the line until help arrives	<u>Phone</u> (800) 668-9200 <u>Website</u> MedicalAlert.com
	Mobile GPS option for on-the-go Fall detection sensors available 24/7 Customer Service Includes Alexa Integration Can use text messaging to locate user	<u>Phone</u> (866) 688-4570 <u>Website</u> LifeStation.com

	<p>Works at home and on-the-go with GPS</p> <p>30 hour backup battery</p> <p>Water resistant and waterproof devices available</p> <p>24/7 US Based monitoring</p>	<p><u>Phone</u> (877) 309-9968</p> <p><u>Website</u> MobileHelp.com</p>
	<p>All devices have unlimited talk and call time</p> <p>Ally Location option available</p> <p>Fall Detection available</p>	<p><u>Phone</u> (800) 554-4600</p> <p><u>Website</u> HelpButton.com</p>
	<p>Press button on necklace or bracelet and receive help</p> <p>Smaller devices for on-the-go are available</p> <p>Optional Fall detection</p>	<p><u>Phone</u> (800) 658-6256</p> <p><u>Website</u> ADT.com/medical-alert</p>
	<p>Cellular phones available for easy communication and device pairing</p> <p>Lively Wearable connects to cell phone</p> <p>Instant Fall Detection in all devices</p> <p>Discount for AARP Members</p>	<p><u>Phone</u> (888)566-8769</p> <p><u>Website</u> GreatCall.com</p>
	<p>Fall Detection options available for all devices</p>	<p><u>Phone</u> (800) 331-9198</p>

	<p>Up to 30 hours of backup battery life</p> <p>24/7 Service provided</p> <p>Includes customized care plan</p> <p>Waterproof Pendant</p>	<p><u>Website</u> LifeFone.com</p>
	<p>Select devices include built-in Fall Detection</p> <p>Wearable pendant</p> <p>Waterproof help buttons</p>	<p><u>Phone</u> (855)681-5351</p> <p><u>Website</u> LifeLine.Philips.com</p>
	<p>Automatic Fall Detection</p> <p>Includes 30-day free trial</p> <p>Can customize package for affordable options</p>	<p><u>Phone</u> (877)522-9633</p> <p><u>Website</u> Bayalarmmedical.com</p>
	<p>Extensive language support (190 languages)</p> <p>30-day battery life on the go</p> <p>Customized emergency responses</p>	<p><u>Phone</u> (877) 959-6809</p> <p><u>Website</u> Alert-1.com</p>

Note: For informational purposes only. DPQoL has no relation to any of the devices listed.

Fall Recovery Strategies

Get Wise Section: Environment

How can you get yourself off of the floor after a fall? Several options are outlined below. Keep in mind that depending on your specific functional abilities, you may need to modify these suggestions. Please talk with your trainer or a physical and/or occupational therapist about your specific needs.

When a fall occurs, please follow these steps:

- Take a deep breath and orient yourself to the situation. Don't try to get up quickly.
- Evaluate the situation to determine if you are seriously injured. If you think you might have a broken bone or have a head injury, please call 911 or ask a bystander to call for you. **As much as possible, please try to stay still to prevent further injuries.**
- Be prepared tell your care partner/bystanders what to do. It is important to be able to provide clear instructions to bystanders if you need help to get back into your wheelchair or scooter. Although you may feel some embarrassment initially, it is important to be able to describe what help you need or reject help from bystanders. Below are some examples of things you can say in these situations.

Examples of how to reject help:

- "Please don't move me. Call 911."
- "Thank you but I am able to get up on my own."
- "Thank you, I should be okay to get up on my own. Can you stand by if I need assistance?"

Example directions for assistance if you are able to put weight on your legs:

1. "I would like for you to first help me into a crawling position and then a standing position."
2. "Please bend my knees up so my feet are resting on the floor."
3. "Position my legs to the left/right (depending on which direction you want to roll)."
4. "Gently push on my hips and shoulders to the left/right (depending on which direction you want to roll)."
5. "Place my top leg out in front of my bottom leg."
6. "Place your hand under my shoulder (the one that is touching the floor) and lift."

7. "Move your hands to my hips and help lift me up and over so I can get into a crawling position."
 8. "Help me crawl to my w/c or scooter (or a sturdy piece of furniture)."
 9. "Can you check and make sure my w/c/scooter brakes are locked?"
 10. "I'm going to put my knee forward and place my foot under my knee. Can you help if needed?"
 11. "I'm going to try standing now. Come to the other side and hook your arm under my arm and put your hand on my back."
 12. "I'm going to slowly turn around and sit. Can you hold me for balance and safety?"
- If you are not seriously injured, and you are able to transfer back to your wheelchair/scooter with or without assistance, please perform a floor to chair transfer (Instructions provided below).
 - Once you are sitting back in your seat, take a moment to make sure you are correctly positioned in your chair. Take a deep breath before going back to your normal daily activity.
 - See your doctor if you are concerned about any injuries. Please see the section 'medical attention after a fall' on page 109 to help you decide if you should call your doctor. **If you hit your head, you must call your doctor.**

Assistive Technology

To make the floor to chair transfer a little easier, you might want to consider using assistive technology. Assistive technology can help make a floor to chair transfer easier. Here are some options that may be beneficial to you:

	
<p>Para Ladder: (Price range: \$950-\$1100) https://livingspinal.com/daily-living/the-para-ladder-manual-lift-model-pl1000/</p>	<p>ResQup: (Price range: \$350-\$400) https://liveoakmed.com/products/resqup-patient-lift?variant=5385906847780</p>

Note: DPQoL has no relation to any of the devices listed.

These devices are essentially a series of steps that help to create intermediate surfaces between the floor and your wheelchair/scooter.

To use the para ladder or ResQup mobility aid:

- Sit on the bottom seat.
- Push yourself up to reach the next seat.
- Have at least one care partner assist or watch you while using the device.
- Do not use this device if you experience any problems or discomfort.



Use of the para ladder (source: Living Spinal)

If you require a significant amount of assistance, you might also consider a mechanical lift that can lift you off the floor. Below are some lifts that are able to lower to lift an individual from the floor. Please follow the specific manufacture instructions with each lift on how to perform the floor to chair/bed transfer.



- Invacare I-Lift Series (Invacare.com)
- Hoyer Advance-E 340 (medmartonline.com)
- Hoyer Delux Power Lifter (medmartonline.com)
- HML400 Hydraulic Patient Lift (medmartonline.com)
- Genesis 400 Hydraulic Lift (medmartonline.com)

Before you buy a transfer lift, please talk with a physical or occupational therapist and/or your wheelchair vendor. These professionals can help you select a transfer lift that best suits your needs.

Floor to Chair Transfer Skills

The next section provides specific information on how to get off the floor. Please select the option that best fits your needs:

- Option #1: You can get up from the floor by yourself, briefly put weight through your legs (weight bearing), take 1-2 steps: Weight Bearing (Independent): Page 102
- Option #2: You need assistance to get up from the floor, briefly put weight through your legs, (weight bearing), take 1-2 steps: Weight Bearing (With Assistance): Page 103
- Option #3: You can get up from the floor by yourself but are unable to put weight through your legs (non-weight bearing): Non-Weight Bearing Floor to Chair Transfer: Page 105
- Option #4: You need assistance to get up from the floor and are unable to put weight through your legs (non-weight bearing): Two-Person Floor to Chair Transfer: Page 106

Note: If you usually transfer independently, please also practice assisted transfers. This would be helpful if you were hurt during a fall and needed help with the transfer.

Option #1: Weight Bearing (Independent)

- 1) Roll yourself onto your stronger side (if applicable) and place both of your hands on the floor in front of you.
- 2) Push your torso up by continuing to roll until your chest is facing the floor with your hands in position under you. Shift your weight off of your side and into your hands and knees so that you are in a crawling position.
- 3) Crawl over to a stable surface, such as a chair, and pull yourself up into a kneeling position by resting your upper body on one of your forearms on the surface and pushing off with the arm remaining on the floor. You can also use your wheelchair as this stable surface if nothing else is available. Make sure your wheel locks are locked or the power of the chair is turned off. If you are using a manual wheelchair test out the stability of your wheelchair before you put your full weight on the chair (step #4). Due to instability, it is not recommended that you use a scooter as the stable surface. If no other stable surfaces are available, attempt to find a care partner or bystander to stabilize the scooter when you push up on the device (step #4).
- 4) Once both of your hands are stable on the surface, shift your weight to one knee on the floor, so that you may bring the opposite knee up to a 90-degree angle, planting

your foot on the floor. If one of your legs is stronger than the other, plant your foot of the stronger leg on the floor.

- 5) Lean forward onto your hands, pushing down through the foot on the floor. Press your body weight up on one leg until you are able to bring the other leg into a standing position.
- 6) Shift your hands to the side of the seat. Turn your body and sit on the seat, bed, or flat surface. Alternatively, if you are able to, you can bring your leg under you and continue to a full standing position.

Option #2: Weight Bearing (With Assistance)

To help you up from the floor, your care partner will assist you into a crawling position, then a standing position.

Note: Before you practice this transfer, it is important to communicate with your care partner prior to moving. In other words, make sure you talk through the transfer with your care partner before you start transferring to ensure that both of you are on the same page. Good communication with your care partner will help ensure that the transfer is completed in a safe manner. The instructions below also include examples of instructions you can say to your care partner prior to and during the transfer.

- 1) If you are lying on the floor on your back, have your care partner help you bend your knees up so both of your feet are resting on the floor.
 - *Example:* "I would like for you to first help me into a crawling position and then a standing position. First, please bend my knees up so my feet are resting on the floor."
- 2) Next, have your care partner position your legs to lean across your body in the direction you want to roll. They will help you roll over onto your stronger side. Have your care partner help by gently pushing at your hips and shoulders.
 - *Example:* "Position my legs to the left/right (depending on which direction you want to roll)."
- 3) Ask your care partner to help you bring your top leg out in front of your bottom leg.
 - *Example:* "Place my top leg out in front of my bottom leg."
- 4) Have your care partner place their hand under your shoulder that is touching the floor and lift so you can pull out the arm and rest your weight on your hand instead.

- *Example:* “Place your hand under my shoulder (the one that is touching the floor) and lift.”
- 5) Have the care partner move their hands to your hips and help lift you up and over, allowing you to get on your hands and knees in a crawling position.
- *Example:* “Move your hands to my hips and help lift me up and over so I can get into a crawling position.”



- 6) Have your care partner assist you in crawling to your wheelchair/scooter or a sturdy, secure piece of furniture and place your hands on it. Make sure the wheelchair/scooter is **locked** if you transfer to the wheelchair/scooter.
- *Example:* “Help me crawl to my wheelchair or scooter (or a sturdy piece of furniture).” “Can you also check and make sure my wheelchair/scooter brakes are locked?”

Assisted Weight Bearing Transfer (Source: CurePSP)

- 7) Pull your knee forward and place your foot directly under your knee. This should be done with the leg you feel is the strongest. Your care partner can assist you with this if needed.
- *Example:* “I’m going to put my knee forward and place my foot under my knee. Can you help if I need it?”

- 8) Have your care partner come around to the other side of you and help lift you to a standing position by hooking one arm under your arm and placing other hand on your back.
- *Example:* “I’m going to try standing now. Come to the other side and hook your arm under my arm and put your hand on my back.”



- 9) When you stand, take a moment to make sure you are steady and slowly turn and sit with assistance. Make sure that your care partner holds you for your balance (preferably one hand on your waist and the other on your upper arm) while turning and sitting.

- *Example:* “I’m going to slowly turn around and sit. Can you hold me for balance and safety?”

Option #3: Non-Weight Bearing (Independent)

If you cannot weight bear, please use one of the following techniques listed below. Below you will find three descriptions of floor to chair transfers: **front** approach, **back** approach, and **side** approach. Please choose one technique that you think you could perform most efficiently. You may have to try all of these out to find the one that works best for you. The floor transfer techniques are difficult and require a lot of practice. If you feel that you would like to work on these techniques after the education program is over, please talk to your physician. Your physician may provide a referral to a physical therapist, who will further help you with safe fall recovery techniques.

Lateral Approach

- 1) Position yourself on a 30-45-degree angle relative to the chair
- 2) Pull both your knees upwards so your feet are flat on the ground.
- 3) Place your hand nearest to the chair on the leg hanger and the hand furthest from the chair on the floor for stability, near your hip.
- 4) Use the head/hips relationship to help lift your hips towards the chair and push off the ground.
- 5) Alternatively, you may place your chair cushion on the floor in order to decrease the height you have to travel, use a wheelchair with a lower seat, or use push up blocks to aid you in the transfer.



Posterior Approach

- 1) Position yourself with your back to the cushion of the chair and extend your legs outwards.
- 2) Tuck both feet in towards your chest, creating a 45-degree angle with your knees.
- 3) Place both hands on the leg hangers.

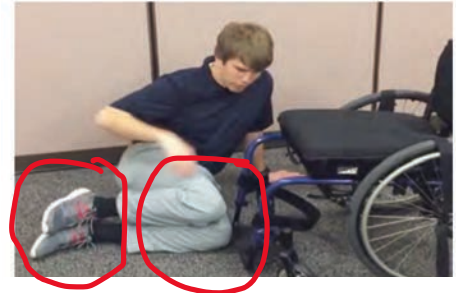


Posterior approach starting position (Source: Mass Rehab)

- 4) As you push up, throw your head back towards the chair so you can clear your sitting surface and lift it over the cushion. Once your sitting surface has cleared the cushion tilt your head forward to aid your hips in reaching the back of the chair.
- 5) Alternatively, you may place your chair cushion on the floor in order to decrease the height you have to travel, use a wheelchair with a low to aid you in the transfer.

Anterior Approach

- 1) Place your body at a 45-degree angle relative to the chair and stack your legs one on top of the other. Your feet should also be on top of each other.
- 2) Place your hand closest to the chair next to your hip on to the ground for stability and your hand furthest from the chair on the cushion on the arm rest.
- 3) Drive your head towards the ground using the head-hips relationship, tucking it in towards your armpit to help propel yourself forwards towards the chair. Land with your elbows on to the cushion.
- 4) Next, use the depression lift technique to swivel your body to land your sitting surface on to the seat. To do this, place your hands flat on to the cushion, lift your chest up, and while your knees are rising, rotate your chest and arms 90 degrees and use your arms to help you finish the rotation.



Anterior approach starting position (Source: Moss Rehab)



Option #4: Two-Person Floor to Chair Transfer

If you need total assistance to perform a floor to chair transfer, you should develop a plan with your care partner ahead of time. Make sure to have your care partner practice the steps either with you and a physical therapist and/or occupational therapist, or a friend/family member who can easily get on/off the floor.

You should also practice providing instructions to a bystander in case a fall occurs and one of these trained individuals cannot assist you.

The steps below describe how two people can help you transfer from the floor to a chair. If you need total assistance for this transfer, having two people helps keep you and your care partners safe.

- 1) Have your care partners communicate with you throughout the whole transfer process. Make sure to have them explain what they are doing and going to do before taking action. For example, the care partner can provide you instructions such as “On the count of three, I will lift you up and help you move to this chair.”
- 2) Ask your care partners to position your wheelchair/scooter as close to you as possible and to lock the brakes or turn off the power.
- 3) Have your care partners remove the arm rest or any other parts of your wheelchair/scooter that could interfere with the transfer prior to attempting the transfer.
- 4) If you are lying on the floor, ask your care partners to assist you into an upright position.
- 5) Have one person position themselves behind you. Then, ask the person behind you to place their arms under your armpits and grasp their own wrist firmly while you cross your arms on your chest.
- 6) Have the other care partner position themselves in front of you and ask the front person to lower their body to grab your legs. Have the care partner place both arms under your knees and grasp his/her own wrists for a strong hold.
- 7) When they are ready, ask them to lift you up together on the count of three. Have care partners use a squat technique when they lift you up. They need to bend with their knees, not with their back.
- 8) Have your care partners walk to the wheelchair/scooter using a squat technique.
- 9) Ask them to make sure you are secured and stable and have secured your seat belt.
- 10) Teach your care partners to use assistive devices if appropriate (e.g. gait belt, transfer board, draw sheet, Hoyer lift).



*Non-Weight Bearing Two Person Assisted Transfer
(Source: Wisconsin DPI)*

Remember! **It is important that you give people clear instructions on how you need to be assisted.** Do not let them help you without a plan. Sometimes, improper transfer assistance can aggravate an injury sustained in a fall or otherwise.

Care Partner Proper Body Mechanics

If you are working with a care partner for these transfers, your care partner should use proper body mechanics during transfers to minimize risk of injury. Below is a list of tips for how to use proper body mechanics during a transfer. It is recommended that you discuss these tips with your caregiver before they help you perform a transfer.

- Keep your feet shoulder width apart.
- Bend knees and hips and keep your back straight throughout the movement.
- Tighten your stomach muscles to decrease the strain on your back.
- Lift with your **legs**, NOT your back.
- Do not twist your back as you lift. Instead, pivot your feet.
- Keep the person's weight as close to your body as possible.
- Do not allow the person you are assisting to put their arms around your neck. This can pull you forward and make you lose your balance.

Here is a list of resources that discuss proper body mechanics during transfers. It is recommended that you share these resources with your care partner.

- Shepard Center: "Body Mechanics During Transfers for Caregivers"
 - <https://www.myshepherdconnection.org/sci/body-mechanics/transfers>
- Adult Family Care: "Know the Basics of Proper Body Mechanics"
 - <https://adultfamilycare.org/know-the-basics-of-proper-body-mechanics/>
- Independence Plus – Healthcare at Home: "12 Rules of Body Mechanics"
 - <https://www.independenceplus.com/12-rules-of-body-mechanics-infographic/>

Medical Attention After a Fall
Get Wise Section: Environment

After you experience a fall, it is important to get the correct medical help. Talking with your doctor after a fall can help prevent lifelong injuries, such as a head injury, that may harm your health and wellbeing. If you have longstanding injuries, it may be harder for you to do things that you enjoy, such as visiting friends or family. It is very important that you call a doctor if you experience a fall where you:

- **Hit your head**
 - In addition to calling a doctor, you should be monitored closely for signs of a concussion, even if you feel okay. Symptoms of a serious injury can develop hours or even days after you hit your head. For this reason, **DO NOT WAIT** to call your doctor if you hit your head when you fell. An undiagnosed concussion can put you at risk for brain damage. Some signs of a concussion include:
 - Loss of consciousness
 - Severe headache, or a headache that gets worse over time
 - Feeling confused or saying things that don't make sense
 - Slurred speech
 - Unresponsiveness
- Sustain an injury
- Have significant pain for more than 24 hours

It is also very important to speak with your doctor if you fall or if you have an increase in the number of falls after a recent medication change. This is an important conversation for you to have with your healthcare team to assure they are aware of your falls.

Fall Recovery: Putting it all together

Let's take a moment to put the steps of fall recovery all together. You will have a chance later in this module to develop your own, unique plan.

Before a fall occurs:

Consider:

- If I fall, who should I contact?
- How will I contact this person? (Medical Alert Device vs. Wearable Communication)
- Are there times that my main contact is unavailable?
- If I fall and no one is available, what would I do?
- Develop a check-in plan.
- Practice floor to chair transfer skills with a few care partners.
- Practice providing instructions to a bystander

If a fall occurs:

- Take a deep breath. Don't try to get up quickly.
- Feelings of embarrassment are common, but you are not alone! Falling is part of life as a wheelchair or scooter user and is very common. For example, 75% of wheelchair and scooter users living with MS experience at least 1 fall per a six-month period.
- Evaluate the situation to determine if a serious injury has occurred.
 - If **yes**, call 911 first and then family members. Stay as still as possible to prevent making injuries worse.
 - If **no**, evaluate the situation and figure out what is needed to help you get back up.
- Determine if you are able to get up by yourself.
 - If **yes**, perform floor to chair transfer to get back into your chair.
 - If **no**, ask for help using your established strategy.
- If you are waiting for assistance and not injured, attempt to get into a comfortable position and conserve energy until someone who can help you arrives. If you have limited sensation, make sure you are not putting excessive pressure on any areas. (Example: Use your wheelchair cushion to sit on or pad a vulnerable area if you lying down)
- Once help has arrived, use your established recovery plan.
 - What are you going to say to helpers assisting you to get back up?

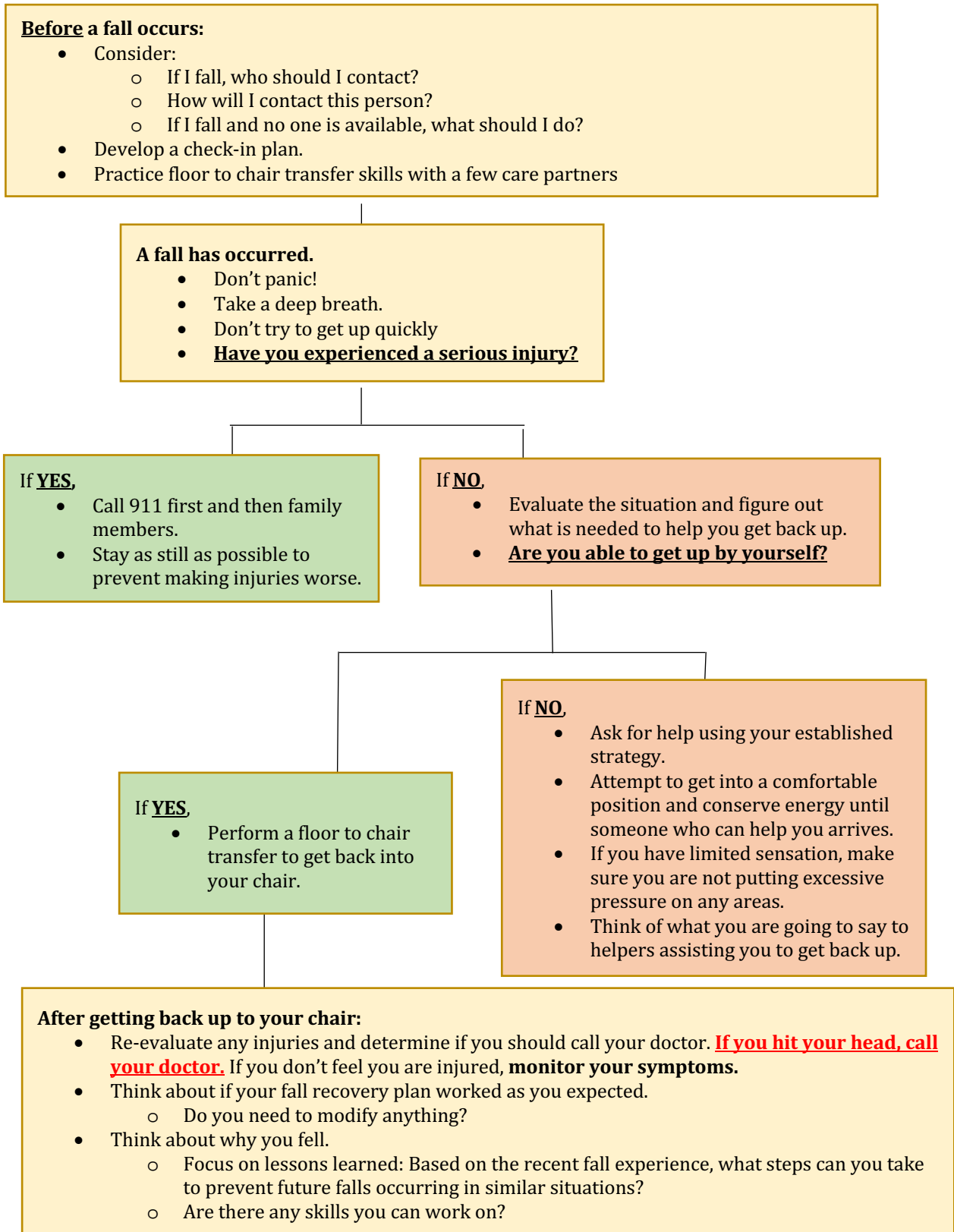
After getting back up to your chair:

- Re-evaluate any injuries and determine if you should call your doctor. **If you hit your head, call your doctor.** If you don't feel you are injured, monitor your symptoms.
- Think about if your fall recovery plan worked as you expected. (This may be performed up to 24 hours after the fall occurred)

- Do you need to modify anything?
- Think about why you fell.
 - Focus on lessons learned: Based on the recent fall experience, what steps can you take to prevent future falls occurring in similar situations?
 - Are there any skills (e.g., wheelchair skills) you can work on?

Putting it all together – Decision tree:

If a fall occurs, please use this **decision tree** to help plan for the next steps.



Module #3 Journal Entry

To do:

You will be asked to make a journal entry every week. Please try to complete your journal entry prior to the online discussion session.

Why:

The journal entries will help you to think about the information that was presented during the education session and to help you integrate what you have learned into your everyday life.

Prompt:

Please think about your most recent or most memorable fall in the past year. What happened after the fall occurred?

For example:

- How long were you on the ground?
- How did you get up?
 - Was someone right there to help or did you have to take steps to get help?
 - If someone was involved in helping you after the fall, did you work well together- why or why not?
- How did you get up?
- Were you injured?
- Did you seek medical attention? Why or why not?

Based on your reflections, list 2 specific fall management lessons learned that you will apply in the future.

Response:

Fall Management Worksheet

In the previous sections, you learned many strategies to decrease negative outcomes of falling. Now, it is time to develop a *specific plan* to prepare for future falls. Once you have completed this plan, you may want to post the plan in a prominent location in your home (example: on the refrigerator) so that you can frequently refer back to the plan.

Before a fall occurs:

- Development of a “check in” system.

Who will you check in with at least once per day?	Name:	Phone number/e-mail address:	Method of communication (circle all that apply): Call: Text: E-mail: Other, please describe:
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When will you talk to the person named above to set up the check in plan?

Date:	Time:	How will you remind yourself to do this? (please circle all that apply) Set reminder in phone Write on calendar Other, please describe:
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- Select a communication device.

You must be able to communicate with your family/friends if you need help after falling. Please complete the table below to select a communication device.

<p>What type of communication device will be your <u>primary</u> way to communicate?</p>	<p>Please circle one:</p> <p>Cell Phone</p> <p>Medical Alert System</p> <p>Unsure at the current time – preliminary ideas:</p>
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Please answer the following questions about your primary communication device:

<p>When will you investigate what type of technology you want to use?</p>	<p>Date:</p> <p>Time:</p> <p>How will you remind yourself to do this?</p> <ul style="list-style-type: none"> • Set reminder in phone • Write on calendar • Other, please describe: <p>Type of technology selected:</p> <div data-bbox="646 1318 1377 1455" style="border: 1px solid black; height: 65px; width: 450px;"></div>
<p>Once you have decided on the technology, please make a list of tasks that will need to be done.</p> <p>We have started the list of common items. Please circle the items that apply to you and add additional items:</p>	<p>To-Do:</p> <ul style="list-style-type: none"> • Set up emergency features on SmartPhone • Order a medical alert device • Determine a method of wear or carry your communication device • Talk with care partner about your communication device • Other items: • •

	<ul style="list-style-type: none"> • • • • •
<p>How will you wear the device or make sure that it is with you at all time (including nighttime)?</p>	<p>Please describe in detail:</p>

- Practice fall recovery.

To reduce stress after a fall occurs, identify who will assist you, if necessary. Practicing how you will get off the floor is also helpful. **To avoid unnecessary injury, please DO NOT get on the floor yourself!** To practice, talk through the plan with your care partner or physical and/or occupational therapist and then practice the movements with another family member/friend who can easily get off the floor.

<p>Who will help you recover in the event of a fall?</p>	<p>Primary person:</p> <ul style="list-style-type: none"> • Name: • Phone number: <p>Backup #1:</p> <ul style="list-style-type: none"> • Name: • Phone number: <p>Backup #2:</p> <ul style="list-style-type: none"> • Name: • Phone number:
<p>What fall recovery strategy do you think is best for you?</p>	<p>Please circle what you think is best:</p> <ul style="list-style-type: none"> • Independent floor to chair, weight bearing* • Independent floor to chair, non-weight bearing* • Assisted floor to chair

***Note:** If you usually transfer independently, please also practice assisted transfers. This would be helpful if you were hurt during a fall and needed help with the transfer.

<p>How will you practice fall recovery?</p>	<p>Please circle all that apply and add additional information:</p> <ul style="list-style-type: none">• Watch videos on iROLL website• Discuss techniques with care partner/friend/family members• Buy assistive technology that can help with recovery.<ul style="list-style-type: none">○ What assistive technology will you buy? Please describe: <div data-bbox="824 753 1395 1037" style="border: 1px solid black; height: 135px; margin: 10px 0;"></div> <ul style="list-style-type: none">• Practice recovery plan with care partners /friends/family members• Other, please describe in detail: <div data-bbox="824 1171 1395 1738" style="border: 1px solid black; height: 270px; margin: 10px 0;"></div>
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When will you practice fall recovery?	Date: Time: Where: How will you remind yourself to do this? <ul style="list-style-type: none">• Set reminder in phone• Write on calendar• Other, please describe:
--	--

Intermediate Wheelchair/Scooter Skills Introduction

In the next section we will cover intermediate wheelchair and scooter skills. In Module #2 we discussed how to perform basic wheelchair/scooter skills. In this module we will continue to talk about wheelchair and scooter skills and learn new skills related to pushing on soft surfaces, doing a wheelie pop-up (for manual wheelchair users), getting over obstacles and getting over a gap.

Having good wheelchair/scooter skills is important to allow you to get out into the community and do the activities that you enjoy doing. These skills will help to increase your confidence in performing skills and get you out and about in the community.

In the next sections we will show you how to properly and safely perform intermediate wheelchair and scooter skills. We have **two different** versions of the education materials – one is designed for people who use manual wheelchairs, the other for people use power wheelchairs or scooters. Please pick the version that is most appropriate for you. **You do not need to review both versions!**

Options:

If you are a **manual wheelchair user**, please turn to page 120 of your manual and watch the video: Manual Wheelchair Skills Education (Intermediate).

If you are a **power wheelchair or scooter user**, please turn to page 123 of your manual and watch the video: Power Wheelchair and Scooter Skills Education (Intermediate).

Reminder! Please have a care partner with you while practicing these skills. In addition, if you would like more help learning these skills, please ask your doctor for a referral to a physical or occupational therapist to further practice these skills.

Manual Wheelchair Skills Education (Intermediate)

Get WISE Section: Wheelchair Management

Today, we will discuss and review intermediate wheelchair skills. These skills will help you safely and successfully go to a variety of places within your home and community. **Please note: this section is for individuals who use manual wheelchairs.**

For additional videos of these wheelchair skills, please visit the SCI Empowerment Project: <http://sci.washington.edu/empowerment/videos.asp#wc>. The content is also applicable to individuals living with MS!

Pushing on a soft surface

There are many soft surfaces (e.g. carpet, dirt, grass, gravel, or sand) that make pushing your wheelchair more difficult. This is because the wheelchair wheels tend to sink into the soft surface.

General tips to reduce the frequency of falls and injury:

- When approaching a soft surface, look ahead and plan a route that will minimize the amount of time you must push on a soft surface.
 - If an alternate route is available that will avoid the soft surface, consider using that route.
- When pushing from a smooth level surface onto a soft surface, be aware that your wheelchair can suddenly slow down or stop because of the increased rolling resistance. It is a good idea to slow down when approaching a soft surface for a smooth transition.
- Continue to use good propulsion techniques (e.g. use long, smooth strokes)(see page 58). Good technique is important because you will need to push hard and more efficiently on soft surfaces.
- Only move in a forward direction when pushing over soft surfaces so that you can see any unexpected hazards in your path.
- Keep as much weight as possible over the rear wheels without leaning backwards. This technique prevents the front casters from digging into the soft surface. To keep the weight on the back wheels, sit in a neutral position (avoid leaning forward).

- If possible, perform a wheelie to lift the front wheels (casters) off the ground. If this is not possible, consider popping up the front wheels (casters) off the surface before each push. This keeps the front wheels (casters) free from sinking or dragging into the soft surface. Lift front wheels (casters) off the surface during each push letting them touch the surface as the hands recover for next push. Please review the points below to perform a wheelchair pop-up.
- Note: A wheelchair diagram is available in Appendix A to help you to identify the parts of a wheelchair.



Performing a wheelie to manage a soft surface

Wheelie Pop-up

General tips to reduce the frequency of falls and injury:

- A wheelchair pop-up involves lifting your front wheels (casters) off the ground briefly.
- Push the wheelchair forward to do a pop-up by positioning your hands on the upper back of your hand rims and applying a rapid short push forward to lift your front wheels (casters) off the ground. Then allow your front wheels (casters) to return to the ground.



Pushing for a wheelie

NOTE: As with all the skills, make sure you have a spotter with you when learning and practicing. This skill is particularly challenging so please make sure you have assistance when practicing.

Getting over an obstacle

You will often encounter obstacles (e.g. door thresholds) that you may not be able to simply roll over. Alternative strategies may be needed. For example, you might need to pop the casters over the obstacle.

General tips to reduce the frequency of falls and injury:

- Search for an alternate route when you approach obstacles. The best method is to avoid them, steering around them or straddling them if possible.

- Approach obstacles at a slow speed. It is easier to pop the front wheels (casters) when moving.
- Don't lean forward when you approach the obstacle, it can increase the weight on the front wheels (casters) and make it difficult to pop the casters. Keep your body in a neutral position.
- Approach an obstacle straight forward. Approaching the obstacle to the side can make it more difficult to get over the obstacle.
- Pop the front wheels (casters) up off the floor once you are close to the obstacle you wish to overtake. Be sure to lift the front wheels (casters) just high enough to clear the obstacle.
- Use both of your hands to propel yourself forward. Apply a moderate amount of force to the hand-rims to push yourself forward in order to pop up the front wheels (casters).
- Lean forward slightly when the front wheels (casters) have landed beyond the obstacle and the rear wheels strike the obstacle.



ting over an obsta

Getting over a gap

A gap in a surface is a common barrier (e.g. potholes on the road). A gap can cause a wheel to become stuck or tip your wheelchair as you pass over, both of which can result in falling. Even if no tip or no fall occurs, it can still be challenging to get your wheelchair out of a gap if a wheel becomes stuck. Therefore, it is important to learn the proper technique to avoid these situations.

General tips to reduce the frequency of falls and injury:

- Search for an alternate route when you approach gaps. The best method is to avoid them, steering around them or straddling them, if possible.
- Use the same techniques that you use when getting over an obstacle to get over a gap (See the “getting over an obstacle” skill).
- If the front wheels (casters) drop into the gap, try to avoid moving the wheelchair forwards and backwards repeatedly, as this can make the front wheels (casters) turn sideways. Once this happens to the front wheels (casters), it can be very difficult or impossible to proceed without assistance
- Consider using the full wheelie technique to cross over a larger gap, if this skill is available to you. Instructions on how to perform a wheelie will be provided in Module #4.

Power Wheelchair and Scooter Skills Education (Intermediate)
Get WISE Section: Wheelchair Management

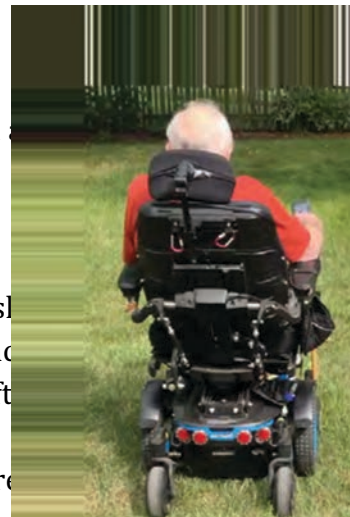
Today, we will learn and review intermediate wheelchair skills. These skills will help you safely and successfully go to a variety of places within your home and community. **Please note: this section is for people who use power wheelchairs and scooters.**

Driving on a soft surface

There are many soft surfaces (e.g. carpet, dirt, grass, gravel, or sand) that make driving your wheelchair or scooter more difficult. This is because the wheelchair or scooter wheels tend to sink into the soft surface.

General tips to reduce the frequency of falls and injury:

- When approaching a soft surface, look ahead and plan a route that will minimize the amount of time you must drive on a soft surface.
- When driving from a smooth level surface onto a soft surface, be aware that your wheelchair can suddenly slow down or stop because of the increased rolling resistance.
- It is a good idea to slow down when approaching a soft surface for a smooth transition.
- If possible, select the driving option that provides more power. Sometimes a chair has an “outdoor” mode that provides more power.
- Only move in a forward direction when driving over soft surfaces so that you can see any unexpected hazards in front of you.
- On a soft surface, drive fast enough to maintain forward movement but not so fast that you lose control.
- Be aware that your wheelchair can get stuck on a soft surface (e.g. sand, gravel, or mud). As much as possible, avoid these surfaces. If avoidance is not possible, maintaining a moderate speed can help you from getting stuck.



Driving on a soft surface

Scooter Considerations

- Use the same techniques as described above.
- Do your best to avoid these surfaces. Most scooters are not designed to maneuver over these surfaces.

Getting over an obstacle

You will often encounter obstacles (e.g. door thresholds) that you may not be able to simply go over.

General tips to reduce the frequency of falls and injury:

- Search for an alternate route when you approach obstacles. The best method is to avoid them, steering around them or straddling (one wheel on either side of the obstacle) them, if possible.
- If possible, elevate your foot/leg rests to give you more clearance.
- Approach an obstacle at a slow speed and drive forward. Smooth continuous forward movement is the most successful method of going over an obstacle.



Getting over an obstacle

Scooter Considerations

- Use the same techniques as described above
- Do your best to avoid these surfaces. Most scooters are not designed to maneuver over rough terrain.
- Very carefully consider the height of the obstacle before attempting to go over it. Scooters are very low the ground and often get caught on obstacles.

Getting over a gap

A gap in a surface (e.g., a pothole, a wide crack in a sidewalk) is a common barrier. A gap can cause a wheel to become stuck, which can cause a fall. Even if you don't fall, it can be challenging to get your wheelchair/scooter out of a gap if a wheel becomes stuck. Therefore, it is important to learn the proper technique to avoid these situations.

General tips to reduce the frequency of falls and injury:

- Be on the lookout for gaps.
- Search for an alternate route when you approach gaps. The best method is to avoid them, steering around them or straddling them, if possible.

- If avoidance is not possible, use the same techniques as described in the “getting over an obstacle” section. Maintaining a controlled, forward motion will give you the necessary momentum to get over the obstacle.
- If the small front wheels (casters) get stuck sideways in the gap (a common problem), try to avoid moving your wheelchair forwards and backwards repeatedly to get the casters out of the gap as this can cause them to get stuck.
- Ask for assistance to get out of the gap if the wheelchair gets stuck and you cannot manage it.

Scooter Considerations

- Use the same techniques as described above.
- When possible, avoid going over a gap in your scooter. Due to the low clearance and instability of a scooter, you are at high risk of falling.

Module #3 Goal on Wheelchair Skills

Please write a goal, using the SMART goal framework, describing how you will practice the wheelchair or scooter skills learned during module #3. For a refresher on the SMART goal format, please review the information on page 38.

S	Specific.
M	Measurable.
A	Achievable.
R	Relevant.
T	Time bound.

Example: I will practice pushing on a soft surface three days for 10 minutes each in the upcoming week.

Goal:

Module #3 Skill Building Activities

Please complete the following items in the week between Module #3 and Module #4.

Please complete the * items prior to the Module #3 online discussion.

- Continue doing the home exercise program a minimum of 3x/week (Page 22).
- Use your exercise log to track your exercises (folder).
- Complete your journal entry (Page 113). *
- Work toward completion of fall management plan (Page 114). *
- Goal form: wheelchair or scooter skills practice (Page 126). *

References:

1. Somers M. *Spinal Cord Injury: Functional Rehabilitation*. Second Edition ed. Upper Saddle River, New Jersey: Prentice Hall; 2001.
2. Bisson EJ, Peterson EW, Finlayson M. Delayed initial recovery and long lie after a fall among middle-aged and older people with multiple sclerosis. *Arch Phys Med Rehabil*. 2015;96(8):1499-1505.
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4. Rice LA, Sung J, Peters J, Bartlo WD, Sosnoff JJ. Perceptions of fall circumstances, injuries and recovery techniques among power wheelchair users: a qualitative study. *Clin Rehabil*. 2018;32(7):985-993.
5. Rice LA, Sung J, Peters J, Bartlo WD, Sosnoff JJ. Perceptions of fall circumstances, injuries and recovery techniques among power wheelchair users: a qualitative study. *Clinical rehabilitation*. 2018:269215518768385.
6. Boswell-Ruys CL, Harvey LA, Delbaere K, Lord SR. A Falls Concern Scale for people with spinal cord injury (SCI-FCS). *Spinal Cord*. 2010;48(9):704-709.
7. Singh H, Scovil CY, Yoshida K, et al. Capturing the psychosocial impacts of falls from the perspectives of wheelchair users with spinal cord injury through photo-elicitation. *Disabil Rehabil*. 2020:1-10.
8. Bloch F. Critical falls: why remaining on the ground after a fall can be dangerous, whatever the fall. *J Am Geriatr Soc*. 2012;60(7):1375-1376.
9. Tinetti ME, Liu WL, Claus EB. Predictors and prognosis of inability to get up after falls among elderly persons. *JAMA*. 1993;269(1):65-70.

Module 4

Welcome back! For this module, we will be discussing:

- The influence of symptoms on falls
- Complex transfer skills
- Advanced wheelchair and scooter skills
- Importance of home and community participation

Some of the videos and education this week are specific to people who perform transfers independently and those who transfer with assistance. Also, some videos and education are specific to manual wheelchair users and some for power wheelchair and scooter users. Please watch the videos and review the education materials that apply to you and the devices you use.

The home and community participation components of this module are very important! The overall goal of this program is to increase participation in activities you enjoy doing! During the live session a focus will be placed on supporting the activities that you enjoy doing and making use of the skills learned in this program to help you perform those activities.

Influence of Muscle Weakness, Spasticity and Fatigue on Fall Risk
GET WISE Section: Symptom Management

This session highlights how muscle weakness, spasticity and fatigue increase your fall risk. This is especially important information for people living with SCI or MS.

If you have questions about how additional symptoms associated with MS or SCI (e.g., bladder control and sensory deficits) can increase your risk for a fall, talk to your trainer as well as your occupational /physical therapist.

Reflection

Which of the following most increases your fall risk: muscle weakness, spasticity, or fatigue?

List two things you are doing to manage this influence on your fall risk.

The most important thing to remember is that you should **LISTEN TO YOUR BODY!**

You are the expert on how your body reacts to various medications, experiences, etc. Only you know how you feel at any given time of the day. Be aware of how your body feels, especially when you plan on participating in activities that are not a part of your daily routine. You may want to consider reorganizing your activities or ask for help when you do not feel at your best. Learning how to check in with your body and manage your activities is an important part of living well with a disability.

Also, understanding how symptoms affect your body and your fall risk may help to decrease your fear of falling and increase your participation in desired activities. Having a good understanding of what your body can do and when you feel your best may help to increase your confidence in your ability to perform desired activities both in your home and the community.

Below is a listing of how muscle weakness, spasticity and fatigue contribute to fall risk.

For participants living with MS, to read more about the influence of other symptoms, please look at the National Multiple Sclerosis Society’s website:

<https://www.nationalmssociety.org/Symptoms-Diagnosis/MS-Symptoms>

For participants living with SCI, to read more about the influence of other symptoms, please look at the United Spinal Association’s website:

<https://askus-resource-center.unitedspinal.org/index.php?pg=kb.page&id=253>

Symptom	Influence on Fall Risk	Strategies to Manage
Muscle Weakness	<ul style="list-style-type: none"> • Muscle weakness is common in people living with SCI and MS and can cause joint instability. This, in turn, can cause a fall while standing, sitting, or transferring. • Researchers have found that wheelchair/scooter users living with SCI and MS fell during daily activities, such as transfers, because their arms were weak.¹ • Researchers have also found that many wheelchair/scooter users with SCI and MS could not get up from a fall or move to reach a communication device to seek help (e.g. an alarm button or using a phone) due to muscle weakness. 	<ul style="list-style-type: none"> • The good news is that exercise can help you improve and maintain muscle strength. • Further, research has found that exercise can help manage falls by improving muscle strength. • Doing your home exercise plan at least 3 times a week can help you get stronger, which can prevent future falls.
Spasticity	<ul style="list-style-type: none"> • Spasticity is a common symptom of both SCI and MS. • The term <i>spasticity</i> refers to feelings of stiffness and a reduced ability to maintain smooth, controlled movements of a limb. It may be as mild as a feeling of tight muscles, or may be so severe as to produce painful, uncontrollable spasms. • In falls related to spasticity, wheelchair/scooter users often 	<ul style="list-style-type: none"> • If you need to carry out a strenuous task (e.g. performing a transfer or complex wheelchair skill), think about other ways that you can do the activity. • Also consider using assistive technology like a transfer board or reacher.

	<p>reported that they were unable to control the movement in the part of the body with spasticity. This inability to control movements resulted in a loss of balance.</p>	<ul style="list-style-type: none"> • Additionally, stretching (range of motion exercises) can help reduce spasticity². • If your spasticity is not improving with stretching, reach out to your doctor. There are medications that may be appropriate for you².
<p>Fatigue</p>	<ul style="list-style-type: none"> • <i>Fatigue</i> is commonly described as a feeling of exhaustion that is unrelated to how much work an individual is doing. This is different from muscle fatigue that results from physical activity. • Fatigue is a very common MS-related symptom. About 80% of individuals with MS experience fatigue. • On the other hand, approximately 37-53% of individuals living with spinal cord injury experience fatigue^{3,4}. • Fatigue has been found to be a common factor associated with falls among wheelchair/scooter users. Wheelchair/scooter users with MS often reported that while performing a transfer or attempting to walk short distances they felt very tired and simply did not have the energy to complete the activity. • Individuals living with SCI similarly report that fatigue contributes to fall risk⁵. 	<ul style="list-style-type: none"> • Take a brief “time out” before engaging in an activity that you know you will need a lot of energy for. Think about if you have enough energy to do this activity. Is there another way it could get done? Consider waiting, using assistive technology, or asking for help. • <i>Example:</i> if you were planning to transfer to a tub bench to take a shower, consider taking a sponge bath in the short term and getting into the shower later when you have more energy. Alternatively, you may want to ask a care partner for additional assistance when doing energy-demanding activities.

You might want to consider seeking additional help from a physical or occupational therapist if any of these symptoms are causing significant problems for you. Examples of

problems caused by these symptoms include an increase in the number of falls or difficulty participating in your daily activities of living as well as your desired activities.

As you know, muscle weakness, spasticity and fatigue are not the only secondary symptoms associated with SCI and MS. Please see Appendix C for information on additional symptoms associated with SCI and MS.

Complex Transfers

GET WISE Section: Transfers

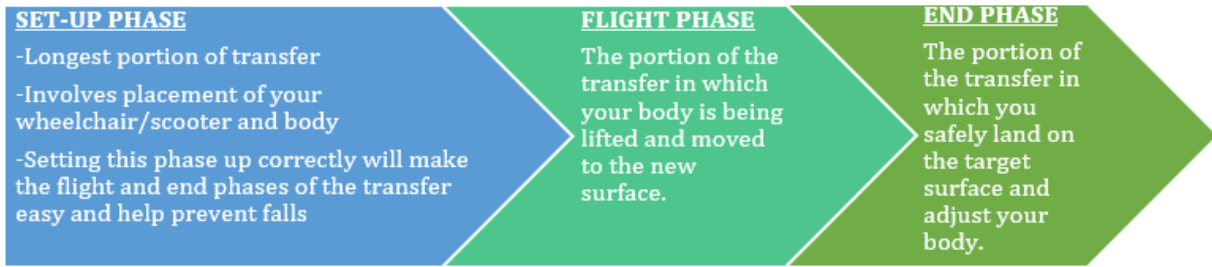
In this module we will discuss how to perform more complex transfers making use of the basic skills you've already learned. During Module #2 you learned basic transfer skills. Please feel free to refer back to page 50 (independent)/56 (assisted) of the education material to review these skills as often as necessary.

The focus of this module is performing transfers to and from the toilet, a vehicle, and a bed. These are some of the most common transfers you will encounter. In addition, being able to perform these transfers will help you to navigate not only your own home, but also increase your confidence in your ability to perform transfers necessary to participate in activities that you enjoy doing (such as getting into a car to go to your favorite restaurant or using the bathroom at the movies). Because these types of transfers will be performed in a variety of environments, please make sure to practice these transfers in a variety of different ways. For example, please think about approaching the surfaces from various directions and what you would do if you don't have all your assistive technology available (such as a bar around the toilet), etc.

The goal of this session is to help you refine your ability do these transfers as safely as possible. If you would like more practice or have a particularly difficult environment in which these transfers must be performed, you might want more practice time. Please tell your doctor you are having difficulty performing these essential transfer skills and ask for a referral for physical or occupational therapy services.

If you need assistance to transfer, please refer to the **basic assisted transfer** education materials on *page 56* of the manual. You can use the same general techniques described in this section while performing complex transfers. During the online discussion, you can ask your trainer specific questions on how assistance can be provided in your unique environment.

Before you move onto the next section, please take a moment to review the three phases of a transfer. These phases are applicable to both simple and complex transfers.



Reflection

- What type of transfer are you most skilled at: Toilet, bed, or vehicle transfer?
- What type of transfer needs the most improvement: toilet, bed, or vehicle? Why?

Toilet Transfers

Setting up your environment:

Toilet transfers are often difficult due to space limitations. Because toilet transfers are performed frequently, modify your bathroom at home, if possible, to give you enough space to perform a transfer using your preferred method. The US Access Board has detailed information on ideal bathroom set ups at www.access-board.gov. If you are doing major reconstruction, it is best to work with a contractor who has experience modifying homes for wheelchair or scooter users. You should also take some time to determine if you have any unique space requirements above and beyond the standard guidelines.

Any transfer in the bathroom (toilet, shower stall, bathtub) can become more dangerous due to wet and slippery surfaces. Please take care to make sure that your shower has a good drainage system that prevents water from pooling on the floor. If you notice water on the floor, please wipe it up as soon as possible or ask your care partner to assist you. Even a little bit of water can be very dangerous!

When you are away from your home, transfers can be more challenging because the area hasn't been set up specifically for your needs. After reviewing the tips for success, your trainer can help you problem solve through unique challenges you might face.

Tips for success

- **Seat height:**

- Investigate assistive technology that allows for performance of a level transfer. Take measurements of your chair and compare to the toilet. Items such as elevated toilet seats or padded seats can help make the transfer level.
- Measure before you buy! Standard toilet seats are often fairly level with wheelchairs for people performing sitting pivot transfers. However, if you perform a stand pivot transfer, an elevated seat will be very helpful.



- **Grab bars:**

- Grab bars can make the transfer easier and provide a good handgrip.
- **Caution:** You should not have to lean excessively forward or to the side to grab the bar. The bar should be close to where your hand naturally falls when you transfer. Reaching for a grab bar far away from you might make things worse.
- Use of grab bars that can be adjusted to your needs and lowered down next to the toilet allows you to modify the environment to your specific needs.



Grab bar around toilet (Source: Wikimedia Commons)

Note: **DO NOT** use towel bars as a grab bar. Towel bars cannot support more than about five pounds and will break if you put your weight on the device. This could result in a serious fall with substantial injuries. If you choose to use a grab bar on the wall, it should be installed by a professional contractor familiar with the process. For example, they have to be secured to the studs within the walls or they will pull out from the wall at first stress.

- **Space:**
 - Make sure you have enough clear floor space so that you can approach the toilet in your preferred manner. According to the US access board, you should have a 60” diameter circle of clear floor space in front of the toilet.

- **Clothing management:**
 - Depending on your specific toilet routine, clothing management can make toilet transfers more difficult.
 - If you pull down your pants, make sure that you are on a stable surface that you can safely shift your weight on.
 - If you perform the transfer after pulling down your pants, make sure that your pants are positioned so that they won’t get caught on your wheelchair/scooter or the toilet. It is important that you should be able to move freely.
 - If clothing is difficult to reach from the floor after using the bathroom, you can consider a reaching aide (e.g. reacher or dressing stick) placed in close proximity to the toilet.
 - You can also consider the use of drawstring pants, pajamas with an elastic waist, use of Velcro or hooks (instead of buttons or zippers) to make clothing management easier.
 - If you are facing additional challenges with the toilet, ask for a referral to an occupational therapist.

Performing the transfer

You can use many of the same techniques learned during Module #2 (Page 50/56), especially if you are able to set up the transfer to be level. Generic suggestions are provided below for a sitting pivot transfer. Please talk with the trainer if you have questions about your own environment.

Key points:

1. Approach the toilet by angling your wheelchair/scooter so that the front corner of your chair is next to the front of the toilet. If you can't get beside the toilet, try to get as close as possible.
2. If possible, remove the armrest and/or sideguard that is closest to the toilet.
3. Lock your wheel locks (brakes).
4. Put your feet on the floor.
5. Scoot forward to the front of your chair.
6. Place one hand on the far side of the toilet seat. Place the other hand on your cushion/armrest/wheelchair frame as described during Session #2. Don't forget to use the correct handgrip!
 - a. *Individuals living with SCI that use a tenodesis grasp:*
 - i. Use your tenodesis grasp and put your weight through your palm when transferring.
 - ii. Do not open your hand all the way and place it flat on the transfer surface.
7. Once you feel the set-up is stable, use the head-hips relationship to pivot yourself onto the toilet.
8. If the transfer is uneven, the head-hips relationship can help you to get your hips positioned for the higher surface.
9. To get back into your chair, use the reverse sequence to transfer back to your wheelchair or scooter.

If you perform a standing pivot transfer to the toilet:

- Many of the same techniques will apply, however you may need additional space depending on if you take a step during your pivot transfer.
 - If you don't have a raised toilet seat, grab bars can be very helpful.
 - Make sure you either feel the toilet on the back of your legs (or see that you are in close proximity) before lowering down.

Vehicle Transfers

Performing a transfer to/from a vehicle can be one of the most challenging transfers. This transfer is also very important for going out in your community. Because there are so many different vehicle types, specific techniques will vary. However, we will give you general tips for ways to make the transfer safe and easy. If you would like more practice, please ask your doctor to order occupational therapy services for you.

Setting up your environment:

- When parking your vehicle, check that there is enough space around for you to safely make the transfer.
 - *If you use a ramp:* When you are parking, make sure there is enough room for the ramp (when lowered) and your wheelchair/scooter to perform a transfer. Some parking lots designate space on either side of the parking spot, while others may not.
- Vehicle transfers are challenging due to space limitations, a large gap between your chair and the seat, and height changes. When possible, attempt to perform a level transfer into your vehicle.

If you are able to buy a new vehicle, you should consider the following items:

Scooter users:

- Consider a ramp, hoist, or lift to easily get your scooter into your vehicle.
- Please talk to your scooter vender about resources to modify a vehicle.

Wheelchair users:

- Modified vehicle: The safest option is to buy a vehicle with a ramp in which you can push/drive your chair into the vehicle.
 - You can either stay in your chair (either to drive or ride as a passenger) or transfer to a seat in the vehicle.
 - Please talk to your wheelchair vendor about resources to modify a vehicle.

General:

- In general, larger vehicles that are lower to the ground make transfers easier. The optimal set-up would be a car seat that is at the same height (or slightly lower) than your wheelchair seat.
 - Transferring into a sports utility vehicle (SUV) or truck can be very challenging and puts you at a high risk for falling and arm/shoulder injuries.
 - Station Wagons or crossover utility vehicles can give you the needed space but are also low to the ground.
 - Mini-vans also work fairly well.
- Also consider these features in your next car to make your transfers easier:
 - High or wide doors
 - Support handles to assist with entry and exit
 - Seat adjustors that can move the seat in all directions (raise/lower, closer to/further from steering wheel, and tilt forwards/backwards)
 - You can check out more tips for the National Highway Traffic Safety Administration here: <https://www.nhtsa.gov/road-safety/adapted-vehicles#right-vehicle-1611>

- If you would like additional help with modifications or driving assistance, consider contacting a Certified Driving Rehabilitation Specialist (CDRS). A CDRS can help provide training and recommendations for specific vehicle modifications that meet your individual needs. You will need a referral from your doctor to see a CDRS.

Tips for success:

- Create a solid base of support. Consider different foot placements and hand holds to create a solid foundation to perform your transfer to/from. Using the car seat or dashboard are good options. You might have to try out a few different options to figure out what is best.
- Consider how you will load your chair into your vehicle. Working with a therapist can help you to problem solve through different methods to load your chair independently to reduce your dependence on a care partner. Please ask your doctor for a referral to physical or occupational therapy to help you work through the specifics of loading your chair into your vehicle.



Performing a vehicle transfer

Performing the vehicle transfer:

Key points:

- Angle your chair to get as close to the vehicle as possible.
- Move the seat back as far as possible to give you more leg room. You may also want to recline the seat to open up the space.
- Align the backrest of your wheelchair with the back of the vehicle seat.
- Lock your brakes.
- Scoot forward in your chair.
- Place your feet in a position that will be stable through the course of the transfer. You may need to put one foot on the ground and one in the vehicle so that you can maintain a solid foundation. You may have to try this a few times to figure out the optimal placement. As you are trying out different foot placements, please have a care partner with you to prevent a fall.
- Place your hands on a solid surface that will not move during the course of the transfer. **Avoid using the car door and steering wheel as support surfaces.**
 - These surfaces are unstable which could lead to a fall. In addition, use of these surfaces may lead to shoulder injuries over time.

- *Individuals living with SCI that use a tenodesis grasp:*
 - Use your tenodesis grasp and put your weight through your palm when transferring.
 - Do not open your hand all the way and place it flat on the transfer surface.
- Using the head-hips relationship, pivot yourself into the vehicle.

If you perform a stand pivot transfer:

- The same principles will apply. However, you will leave both feet outside of the car during the transfer.
- The dashboard and back of the seat are good locations to place your hands to slow your descent.

Note: The MS society has a nice resource for vehicle modification needs. Many of these suggestions are also applicable to individuals living with SCI.

<https://www.nationalmssociety.org/nationalmssociety/media/msnationalfiles/brochures/brochure-driving-with-multiple-sclerosis.pdf>

Note: There are many great resources for vehicle modification needs. Review the links below:

Funding/Loans

- The National Disability Institute: <https://www.nationaldisabilityinstitute.org/wp-content/uploads/2019/01/AlternativeFinancingProgramListing.pdf>

Vehicle Modification General Information

- National Highway Traffic Safety Administration (NHTSA): <https://www.nhtsa.gov/road-safety/adapted-vehicles#right-vehicle-1611>
- National Multiple Sclerosis Society (NMSS): <https://www.nationalmssociety.org/nationalmssociety/media/msnationalfiles/brochures/brochure-driving-with-multiple-sclerosis.pdf>
- United Spinal Association: <https://askus-resource-center.unitedspinal.org/index.php?pg=kb.book&id=25>

Bed Transfers:

Transferring from your bed to and from your chair is a critical skill that you will perform multiple times. Many of the same techniques learned during the basic transfer skills session (Page 50/56) will be applied here.

Setting up your environment:

1. When possible, give yourself enough space to allow you to position your wheelchair/scooter in your desired position.
2. Attempt to set up your bed so that you can perform a level transfer. You may need to remove part of the bed frame or simply put your box spring and mattress directly on the floor. You can also purchase a platform bed which are often low to the ground (see picture below).



Platform Bed

3. Choose a mattress that will provide sufficient support and pressure management (if necessary) but isn't so soft that it makes the transfer difficult. You might want to go to a store and feel the mattress yourself to help make a decision.
4. Consider the use of a motion activated light so that if you need to use the bathroom in the middle of the night you can easily turn on a light and won't need to reach for a light switch.
 - If you need to use the bathroom frequently, you might want to consider the use of a bedside commode that can sit next to your bed. A urinal can also be a convenient option. If you need some additional advice on assistive technology, you can ask the trainer during the online discussion.
 - Make sure that you have enough space to park your wheelchair or scooter next to your bed. Prior to performing the transfer, make sure the brakes are locked/power turned off to enhance safety during your transfer and the device is ready to go when you get out of bed.

- You may also want to consider the use of a grab bar that can be attached to the edge of your bed. One can be purchased from Amazon, Walmart, Target or Rehab Mart <https://www.rehabmart.com/>

Tips for success:

- Immediately after waking, take care when getting out of bed. People are often disoriented and unsteady if they quickly move from a lying to sitting position. After sitting up, take a moment to orient yourself before transferring into your wheelchair/scooter.
- If your space allows, try to alternate which side of the bed you get into to help preserve the health of your shoulder and arms.

Performing a transfer to and from a bed:

Many of the same techniques described in the “basic transfer skills section” are used here. Please refer back to the more detailed instructions on page (Page 35/39). Remember to consider the different components of the transfer: set-up, flight and end phases.

- Set up your wheelchair/scooter at about a 45 degree angle to the bed.
- Lock your brakes.
- Scoot forward.
- Put your feet on the floor.
- Place one hand on the mattress and the other on a secure part of your wheelchair/scooter. Remember to use a stable handgrip! (e.g. arm rest of wheelchair, push rim)
 - *Individuals living with SCI that use a tenodesis grasp:*
 - Use your tenodesis grasp and put your weight through your palm when transferring.
 - Do not open your hand all the way and place it flat on the transfer surface.
- Use the head-hips relationship to help you pivot onto the bed.
- When you land, remember that the surface will be soft. Be careful when repositioning.

If you perform a stand pivot transfer:

- Many of the same principles will apply.
- Before sitting, make sure you can feel the bed on the back of your legs. If you have limited sensation, look to make sure the bed is behind you.

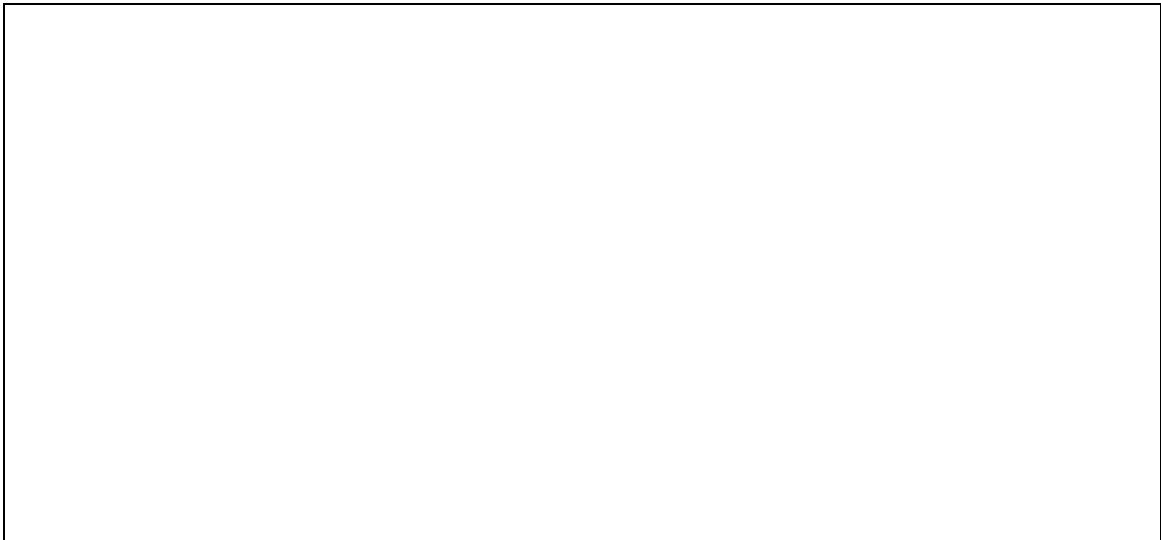
If you use a transfer board:

- Place (or ask your care partner to place) the transfer board under the leg that is closer to the bed. The transfer board should be in between your buttock and your knee.
- Move along the transfer board performing a series of small transfers in which you lift your sitting surface up and towards the direction you would like to move. If you perform an assisted transfer, your care partner can also perform a series of small transfers. Please do not slide across the board – this can damage the skin on your sitting surface, especially if you have a pressure sore.
- Once you are in stable position, the transfer board can be removed, either by yourself or a care partner.

Reflection

Now that we have learned the “ideal” way to perform complex transfers, take a minute to think about how you are performing these transfers.

- How do you typically perform a transfer to the toilet, a vehicle, and your bed?
- What part of the transfer is most difficult for you?
- How is your transfer different from the “ideal” method?
- What are some things you can change with your current transfer method in order to make it safer?



Module #4 Journal Entry

To Do:

You will be asked to make a journal entry every week. Please try to complete your journal entry prior to the online discussion session. Your journal entry will be tied to items discussed during the previous session. You will typically be asked to respond to a specific question regarding the content of the program from the previous session.

Why:

The journal entries will help you to think about the information that was presented during the education session and to help you integrate what you have learned into your everyday life.

Prompt:

Please complete the table below to review how you are applying iROLL information to improve your skills in toilet, bed or vehicle transfers.

Type of transfer (circle one):	Toilet	Bed	Vehicle
1 new skill or lesson learned applied:			
Outcome: (Please comment on your experience with the transfer, e.g., increased ease or safety with the transfer, improved coordination with care partner, etc.)			

Advanced Wheelchair/Scooter Skills Introduction

In the next section we will cover advanced wheelchair and scooter skills. In Module #3 we discussed how to perform intermediate wheelchair/scooter skills. In this module we will continue to talk about wheelchair and scooter skills and learn new skills related to going up/down a curb, going up/down a slope, traversing a slide slope and performing a wheelie (for manual wheelchair users).

Having good wheelchair/scooter skills is important to allow you to get out into the community and do the activities that you enjoy doing. These skills will help to increase your confidence in performing skills to help you get out and about in the community.

In the next sections we will show you how to properly and safely perform advanced wheelchair skills. We have **two different** versions of the education materials – one is designed for people who use manual wheelchairs, the other for people use power wheelchairs or scooters. Please pick the version that is most appropriate for you. **You do not need to review both versions!**

If you are a **manual wheelchair user**, please turn to page 146 of your manual and watch the video: Manual Wheelchair Skills Education (Advanced)

If you are a **power wheelchair or scooter user**, please turn to page 152 of your manual and watch the video: Power Wheelchair and Scooter Skills Education (Advanced).

Reminder! Please have a care partner with you while practicing these skills. In addition, if you would like more help learning these skills, please ask your doctor for a referral to a physical or occupational therapist to further practice these skills.

Please remember that you can reference the various parts of the wheelchair discussed in this section in Appendix B.

Manual Wheelchair Skills Education (Advanced)
Get WISE Section: Wheelchair Management

Please note: this section is for people who use manual wheelchairs.

This is the final wheelchair education session. Today, we will learn and review some advanced wheelchair skills. These skills will help you safely and successfully navigate a variety of obstacles in your home and community.

For additional videos of these wheelchair skills, please visit the SCI Empowerment Project: <http://sci.washington.edu/empowerment/videos.asp#wc>. The content is also applicable to individuals living with MS!

Going up/down a curb

Level changes include curbs, steps, home entries, and uneven sidewalk changes. These are all common obstacles that can be challenging to navigate. Using proper techniques can help prevent you from falling as you navigate a level change.

General tips to reduce the frequency of falls and injury:

When going **up** a curb

- Reposition or remove the rear anti-tippers, if necessary. You may need the assistance of a care partner to remove/reposition anti-tippers.
- Approach the curb at a slow but consistent speed. It is easier to pop the front wheels (casters) when moving.
- Don't lean forward when you approach the curb, it can increase the weight on the front wheels (casters) and make popping them up more difficult.
- Approach the curb with your front wheels (casters) pointing straight forward. Approaching the curb at an angle can make the skill more difficult.
 - Pop the front wheels (casters) up from the ground, just high enough to clear the curb. It may take a few tries to get your timing down. Please see the instructions on how to "pop-up" the front wheels (casters) in module #3 (Page 99).
 - Lean forward slightly once your rear wheels have made contact with the curb. This will bring your front wheels (casters) back down.
 - Continue to push with a moderate amount of force to help your wheelchair climb up the curb.



Approaching a curb

When going **down** a curb

- Approach the curb while facing forward, as this allows you to watch for traffic while you complete the movement.
- When descending a curb, ideally you should perform the skill in a wheelie position to keep your body level and avoid falling forward. To perform the skill, put your chair in a wheelie position (as described below) and slowly roll forward, down the curb. You should **ONLY** attempt this skill if you feel confident in your ability to perform a wheelie on a level surface.
- If you are not comfortable performing a wheelie, push your wheelchair forward over the curb, shifting your weight slightly backwards to avoid falling forward.



Going up/down a slope (ramp)

Pushing a wheelchair up ramps or hills are common obstacles found in everyday life. Although common, they can be difficult to navigate. Appropriate techniques are needed to avoid a fall.

General tips to reduce the frequency of falls and injury:

When going **up** a slope (ramp)

- If you have a backpack or other gear on the back of your wheelchair, give it to a friend to carry (preferred), or if you are alone, put it on your lap. This will help prevent tipping backwards. Make sure the backpack/other gear is secured to your lap by using strap. If the backpack or other gear falls off, it could get caught in your wheels, causing you to fall.
- Push forward onto the slope.
- Lean forward while going up the slope and use shorter, more frequent strokes. This will help keep your forward momentum going as you move up the incline.
- Place your feet on the footrest to avoid catching your foot on the ground when navigating the ground-slope transition at the start of the incline. Catching your foot on the ground could lead to a leg or foot injury or a fall.



Going up a slope

- If you get tired on the way up the incline, hold onto a handrail (if applicable) or ask for assistance.
- Consider using a “hill holders” device. This device allows rear wheels to roll forward, but not backwards. If you are interested in this technology, please reach out to your wheelchair vendor.
- When you find a steep ramp that you can't go up independently, ask for assistance.
 - Have your care partner walk behind you and ask him/her to push your wheelchair using the push handles or the back of your wheelchair.
 - Push forward on your hand rims at the same time.



Hill Holder (Source: Invacare)

When going **down** a slope

- Always check the slope for obstacles, such as cracks, before going down.
- Push your wheelchair forward onto the slope, shifting your weight slightly backwards to avoid falling forward.
- Proceed slowly to maintain control. Be prepared to stop at any time.
- If you are able, go down the slope in a wheelie position to avoid falling forward.
- Apply light but consistent pressure on the hand rims to control your speed. Gloves are helpful to avoid injuries.
- Place your feet on the footrest to avoid catching your foot on the ground when navigating the slope-ground transition at the bottom of the ramp.
- Use handrails if available.
- When you find a steep ramp that you can't go down independently, ask for assistance.
 - Have your care partner step behind you and hold onto the push handles.
 - Have your care partner roll the wheelchair down backward.
 - Apply pressure on the hand rims to help reduce your speed.
 - If possible, lean forward.



Navigating a side-slope

Side-slopes or cross-slopes are common obstacles found in everyday life and can be challenging to navigate. For example, many sidewalks are sloped toward the street to allow water to run off. Side-slopes are also often found where sidewalks cross driveways. It is important to use the correct technique when managing a side-slope in order to prevent a fall from occurring.

General tips to reduce the frequency of falls and injury:

- Push your wheelchair forward across the slope.
- Shift your weight slightly to the uphill-side to avoid falling sideways on steep cross-slopes.
- To avoid your wheelchair turning down hill, push harder on the downhill wheel.
- Different push frequencies may be required for each hand to keep the wheelchair moving straight. For example, when moving across a side-slope with the right side downhill, the right hand may push 2-3 times for every 1 push on the left.



Performing a wheelie

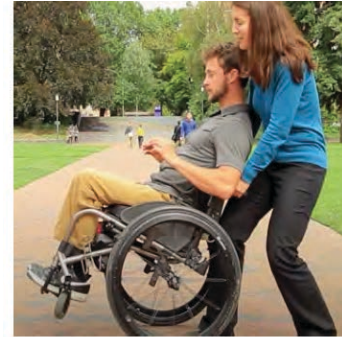
A wheelie is a method of lifting your front wheels (casters) off the ground. It is an important skill for being able to independently navigate different surfaces and environments in a manual wheelchair. Performing a wheelie requires a lot of practice. If you are unable to master this skill during this session, please consider asking your doctor to order occupational and/or physical therapy services

General tips to reduce the frequency of falls and injury:

Note: You MUST have a friend or care partner spot you during practice.

Finding your balance point

- The key to doing a wheelie in place is finding your balance point.
- To find your balance point, please follow these steps:
 - Lock your brakes and have a spotter tilt you and your wheelchair back to the point where you feel balanced between tipping forward and tipping backward. This may be farther back than you expect.
 - Do not lean forward.
 - Try to relax your neck and shoulders and avoid controlling your balance by leaning with your head and shoulders.
 - Look at how high your front wheels are off the ground to get a sense of your balance point.
 - Repeat this exercise with your brakes unlocked.
 - Once a spotter tilts back to the balance point with your brakes unlocked, gently rock forward and back around your balance point by pushing and pulling on your hand rims.



Wheelie Balance Point (Source: SCI Empowerment Project)

After you've experienced your balance point

- Apply the wheelchair pop-up techniques discussed previously to tilt your wheelchair back into a wheelie position (see page 99).
- If you are having difficulty getting tipped far enough backwards to reach the balance point, push forward more forcefully.
- Try to maintain your balance in the wheelie position.
- To land, pull back on the wheels to gently bring the front wheels (casters) to the ground.

Care partner(s) spotting during wheelie practice

- Your care partner's (spotter) role is to prevent you from falling while performing this skill. Care partners and wheelchair users must communicate clearly before and during the practice.
- Make sure both you and your care partner are ready before starting a wheelie and talk through each step as you go.



Care partner position during wheelie practice (Source: SCI Empowerment Project)

- Have your care partner place a sturdy strap (such as a strap you would use to secure an item to the roof of your car) on the bar behind your wheelchair backrest and grasp firmly with one hand.
- If your wheelchair has anti-tippers that prevent wheelies, your care partner will need to remove them during wheelie practice.
- Your care partner should stand close in a slight lunge position behind the wheelchair, so that they can block the wheelchair from tipping back with their body as well as the strap.
- Your care partner should keep a hand free to grasp your shoulder if it looks like you might fall forward.

Power Wheelchair and Scooter Skills Education (Advanced)
Get WISE Section: Wheelchair Management

Please note: this section is for people who use power wheelchairs or scooters.

This is the final wheelchair education session. Today, we will learn and review some advanced wheelchair skills. These skills will help you safely, confidently and successfully navigate a variety of obstacles in your home and community.

Going up/down a curb

Level changes include curbs, steps, home entries, and uneven sidewalk changes. These are all common obstacles that can be challenging to navigate. Using proper techniques can help prevent you from falling as you navigate a level change.

General tips to reduce the frequency of falls and injury:

When going **up** a curb

- Search for an alternate route or a curb cut when you approach curbs.
- Elevate your footrest (if able) to increase ground clearance. If you have power elevating leg rests, you can perform this action through your joystick. If you have manual leg rests, you will need to bend forward to lift up the leg rest or ask a care partner to lift them up for you.
- Approach the curb at a slow speed and drive forward. Smooth, continuous forward movement is the most successful method of traversing an obstacle (As you see in the video, when the participant goes too slow, he cannot get up the curb).
- Lean forward slightly to maintain your balance.



ing up a curb

When going **down** a curb

- Approach the curb while facing forward, as this allows you to watch for traffic while you complete the movement.
- Drive your wheelchair forward over the curb, shifting your weight slightly backwards to avoid falling



ing down a curb

forward. Avoid performing a sharp turn while going down a curb as this could make your chair unstable and lead to a fall.

Scooter Considerations

- Use the same techniques as described above.
- Scooters have smaller wheels compared to power wheelchairs and are not able to traverse high curbs. Very carefully consider the height of the curb before attempting to go up/down. Have a care partner stand close to you when attempting a new curb.

Going up/down a slope (ramp)

Ramps or hills are common obstacles found in everyday life. Although common, they can be difficult to navigate. Appropriate techniques are needed to avoid a fall.

General tips to reduce the frequency of falls and injury:

Going **up** a slope (ramp)

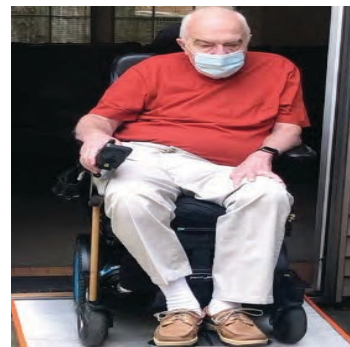
- Use the tilt and/or leg-elevation functions (if they are available to you) to avoid scraping the footrests at the bottom of the ramp.
- Drive fast enough to maintain forward movement, but not too fast that you lose control.
- Place your feet on the footrest to avoid catching your foot on the ground when navigating the ground-slope transition at the start of the ramp. Catching your foot on the ground could lead to a leg or foot injury or a fall.



Going up a slope

Going **down** a slope (ramp)

- Always check the slope for obstacles, such as cracks, before going down.
- Drive your wheelchair forward onto the slope, shifting your weight slightly backwards to avoid falling forward. If you have the power tilt in space feature on your chair, tilt your body slight backwards. This will help keep your body level when going down the ramp.
- Control your speed. Be prepared to stop at any time.
- Place your feet on the footrest to avoid catching your foot on the ground when navigating the slope-ground transition at the bottom of the ramp.



Going down a slope

Scooter Considerations

- Scooters can tip over very easily, especially on ramps.
- You should only attempt minimal ramps in a scooter and have a care partner with you when attempting a new ramp.
- Do not make a sharp turn while going up/down a ramp.

Navigating a side-slope

Side-slopes or cross-slopes are common obstacles found in everyday life and can be challenging to navigate. For example, many sidewalks are usually sloped toward the street to allow water to run off. Side-slopes are also often found where sidewalks cross driveways. It is important to use the correct technique when managing a side-slope in order to prevent a fall from occurring

General tips to reduce the frequency of falls and injury:

- Before traversing a slide-slope, check for wet or slippery surfaces (such as wet leaves) that might cause you to slip. If these items are noted, take extreme caution and avoid the area if possible.
- Drive your chair at a moderate speed. You should use enough speed to keep you moving but not so much that you lose control.
- Drive slightly up-hill, if space allows.
- Shift your weight slightly to the uphill-side to avoid falling sideways on steep cross-slopes.



Scooter Considerations

- Use the same techniques as described above.
- Try to avoid steep side slopes. Scooters can tip very easily, especially on steeper side-slopes since they are narrow and have a high center of gravity.

Home and Community Participation

Get WISE Section: Individualized Activity in the Home and Community

Active participation in the home and community is important to the health and well-being of wheelchair and scooter users. This section will help you think about activities you enjoy doing that you may have stopped doing or cut back on and how to develop the skills to resume those activities.

Previous research clearly states that engaging in activities is important to your:

- identity
- fulfillment of roles and responsibilities
- health and well-being⁶
- quality of life⁷

Overall, being an active member of society is a key factor in sustaining health.⁸

The overall goal of the iROLL program is to improve quality of life and community participation of the people who engage in the program. We have spent the last three weeks discussing ways to improve physical strength through the home exercise program, refine transfer and wheelchair skills, understanding the influence of the environment on fall risk and developing a fall management plan to help increase confidence. All of these activities are important pieces of the puzzle to help support you to perform activities you are interested in doing. During the final three weeks of the program we will help to support you to develop a plan to engage in the activities that you enjoy doing using the skills you learned in iROLL as the foundation.

On the next page we have created a worksheet to help you work through identifying activities that you are interested in performing, developing activity goals and laying out a plan to help you to achieve those goals.

If you find that you are having trouble either developing a plan to achieve your goals or have trouble overcoming the barriers that you have identified to achieve your goals, please talk to the trainer during the online discussion. The trainer can help you work through the challenges you have identified. In addition, if you feel you need more assistance, please reach out to your physician and ask for a referral to physical or occupational therapy. The physical or occupational therapist can give you hands on support to help you achieve your participation goal.

Module #4 Goal

Step 1: Reflection:

1. Please identify one activity that is meaningful to you and that you would like to resume or do more often. Some examples include, but are not limited to, going out to dinner with a friend/family member, attending sporting events or going to the library. If you are having trouble identifying an activity, you can use this assessment to help you identify an interest:

<https://www.moho.uic.edu/resources/files/Modified%20Interest%20Checklist.pdf>

2. Please list 1-2 reasons why you do not perform this activity as often as you would like.

3. Are there any environmental barriers in your community or home that prevent you from doing this activity? If so, please list them out. Some examples include, but are not limited to, a steep ramp to access my favorite restaurant, rough terrain to navigate to attend a sporting event, steps to enter the library.

Step 2: Setting the goal

Please look back at the items you listed out in step 1 (reflection). Please now set a goal to engage in the activity that you have identified that is meaningful to you and that you would like to resume or do more often.

Please use the SMART goal format when writing your goal. For a refresher on the SMART goal format, please review the information on page 38. This is a skill that takes practice; let's give it a try.

S	Specific.
M	Measurable.
A	Achievable.
R	Relevant.
T	Time bound.

Here is an example: *During the next week, I will ask my friend, Mary Smith, to go out to lunch at Applebee's, my favorite restaurant.*

Step 3: Develop a plan to achieve your goal

Please now look back at the reasons you identified in step 1 (reflection) as to why you do not perform the activity as often as you would like and the environmental barriers that get in your way of performing the activity.

Please pick one item you would like to begin to work on to help you to achieve your goal you identified in step 2 (setting the goal). If you are having trouble thinking of this first step, you can talk with the trainer about your goal during the online discussion.

In Session 2, we introduced a strategy called action planning. I'm sure you remember, but as a refresher, an action plan is a way to break down a large goal into smaller, more manageable steps. This is a strategy or a tool to support you in achieving your goals.

Let's review again the key points to an action plan:

- The action plan helps you to break down a bigger task into manageable, achievable steps.
- Be sure your goal is manageable, and you are confident of accomplishing it in a week.
- Your level of confidence should be an 8 or higher or you should possibly reconsider the goal.
- Please use the action plan form to help you break down your large goal.

ACTION PLANNING FORM

Think about the goal you have in mind related to how you will get started or progress participating in an activity that is meaningful to you in the home or community.

Step 1: What is your participation goal?

Step 2: What is one small step you could take towards your goal this week?

What will you do?

When will you do it?

Step 3: Identify what will help you succeed:

Step 4: How confident are you that you can succeed in this step in the next 2 weeks?

1 2 3 4 5 6 7 8 9 10
 (Not sure) (very sure)

*You should be an 8 or higher on this step. If you're not higher than an 8, let's take a closer look at the goal you have set.

=====

Step 5: Assess your progress on step #1

Step 6: Identify specific, manageable next steps (then repeat Steps 2 thru 5 until complete).

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Please take a moment to start the process of developing an action plan related to your identified goal. Please try to complete this activity prior to the online discussion. You can talk with the trainer about your goal and the initial steps you are working on to achieve your goal. Your trainer will check back with you on your overall goal during the rest of the iROLL program.

Module #4 Skill Building Activities

Please complete the following items in the week between Module #4 and Module #5.

Please complete the * items prior to the Module #4 online discussion.

- Continue doing the home exercise program 3x/week (Page 16).
- Use your exercise log to track your exercises (folder)
- Complete your journal entry reflecting on transfer skills (Page 144)*.
- Goal form: Development of a plan for participation in desired activities (Page 156)*.

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Module 5

Welcome back! For this module, we will be discussing:

- Wheelchair Set-Up
- Funding of Fall Prevention Equipment
- Wheelchair and Scooter Maintenance

The education provided this week will help you get the most out of your assistive technology and assure your safety while engaging in the activities you enjoy.

Some of the videos and education this week are specific to manual wheelchair users and some for power wheelchair and scooter users. Please watch the videos and review the education materials that apply to you and the devices you use.

Wheelchair Set-Up

GET WISE Section: Wheelchair Management

The way your wheelchair is set up can increase or decrease your risk of falling. Today, we will discuss ways to set up your wheelchair as safely as possible. When you are selecting a new wheelchair, if possible, work with a physical or occupational therapist who is a certified Assistive Technology Professional (ATP). You can find an ATP in your region using the following website: <https://www.resna.org/Certified-Professionals-Directory>. You will need a referral from your physician to see a therapist for a wheelchair evaluation.

Due to limited adjustability of scooters, most of the education in this section will focus on manual and power wheelchairs.

Information specific to manual wheelchairs starts on page 162 (below), information about power wheelchairs starts on page 164.

Please see Appendix B for a diagram of the wheelchair parts described in this section.

Manual Wheelchair Set-Up:

Manual wheelchair rear axle position:

On some manual wheelchairs, the axle (bar) connecting the large rear wheels can be moved closer or further away from the front caster wheels. Getting this set up correct can influence how easily your chair can tip over:

- When the axle is moved forward (towards the front caster wheels) the chair is less stable.
- Moving the axle backwards (further away from the front caster wheels) makes the chair more stable.

It is very important to strike a balanced position. It may be tempting to put the wheel in the most stable position to prevent a fall, however this can make the chair more difficult to push.

When the rear axle is moved forward, your shoulder will be in a better position to push the chair. This will prevent you from developing arm and shoulder injuries in the future. A rear axle that is more forward also makes it easier for you to do many of the wheelchair skills you learned in this course.

Therefore, you want to move the rear axle as far forward as you feel comfortable. At the same time, you should make sure that your chair is stable enough, so it doesn't easily tip

over backwards. As you improve your wheelchair skills, you can work to move the axle position further forward with help from your wheelchair vendor.

In addition, adding heavy items on the back of your manual wheelchair, such as a heavy backpack, can make it easier for the chair to tip over backwards.

Manual wheelchair caster size:

The size of the wheelchair's front wheels (casters) can also have an influence on falls. Smaller casters allow for more mobility. They make it easier to do quick, small turns and are useful in tight locations. However, small casters can get caught in the sidewalks more easily which can lead to a fall and make navigating your community difficult. Larger casters don't get caught as easily but can be more difficult to maneuver. This can limit your mobility within your home during tasks such as toileting. Again, reaching a balance between functionality and stability is necessary! There are plenty of "mid-sized" options available. Reaching a good balance can help you prevent falls and also be able to effectively navigate your home and community.



*Mid-size caster**

Wheel locks:

Wheel locks (i.e. brakes) are an important component of a manual wheelchair to provide a stable foundation for you to perform transfers from, reach for items, and perform necessary activities in your home and community. Wheel locks are used as "brakes" on a manual wheelchair to stop the wheels from rolling when you are in a stationary position. When performing a transfer or other functional activities, it is important that your wheelchair does not move.



*Push to lock with wheel lock extender**

You can find a wide variety of wheel locks to fit your specific needs. For example, some wheel locks are pushed to engage while others are pulled to engage. You can also get an extended piece of plastic on the wheel lock to make it easier to push or pull the wheel lock. Please talk with your therapist and/or wheelchair vendor to find the device that can work best for you.



*Pull to lock**

For a wheel lock to provide stability, it must be engaged! Before performing a transfer or any other activities that require your chair to be stable, take a moment to check if your wheel locks are engaged.

Power Wheelchair Set-Up:

Power wheelchair seat functions:

Seat Elevator:

The use of a device that elevates the seat of a power wheelchair can be helpful in preventing falls. The seat elevator allows a user to raise the height of the chair. This can make performing a transfer easier by allowing a user to transfer in a downward direction. A wheelchair user can also use the elevation feature to more easily reach for items above shoulder level.



*Seat Elevator**

Anterior Tilt:

Some power wheelchairs also have the ability to tilt the seat of the chair in an anterior (forward) direction. This further helps a wheelchair user to safely reach necessary items such as groceries and perform critical activities such as hygiene and dressing.



*Anterior Tilt**

A note about scooters:

While a scooter can be very convenient and can be broken down to fit into a car, it may not always be stable. When using a scooter be very careful when making sharp turns or reaching for items. Even small shifts in body weight can cause the device to fall over. If you are getting a new device, please consider the use of a power wheelchair. We recognize that there are a lot of changes that will need to be made, especially with transportation. If you use a scooter, please talk with the trainer further about the benefits of a power wheelchair and how to make the transition as easy as possible.

* Photos courtesy of Permobil, AB

Wheelchair/Scooter Set Up Assessment

After learning more about how wheelchair/scooter set up can influence a fall, take a few minutes to think about your wheelchair or scooter. Please answer the following questions below:

Has any aspect of your wheelchair/scooter set-up been associated with a fall?

Circle one: Yes No

What aspect(s) of your wheelchair/scooter set-up has been associated with a fall?

Please circle from the list below or write your response under "other" if it is not included:

- Rear axle position
 - Heavy items on back of wheelchair (i.e., backpack)
 - Wheelchair caster (small wheels) size
 - Too small
 - Too large
 - Wheel locks not providing stability
 - Lack of a seat elevator on a power wheelchair (extreme reaching required)
 - Other (please describe): _____
- _____
- _____

What aspect(s) of your wheelchair/scooter set-up would you like to change to help prevent a fall?

Please circle from the list below or write your response under "other" if it is not included:

- Rear axle position
 - Heavy items on back of wheelchair (i.e., backpack)
 - Wheelchair caster (wheel) size
 - Too small
 - Too large
 - Wheel locks (i.e., not locking w/c before a transfer)
 - Addition of power seat functions
 - Other (please describe): _____
- _____

How will you go about making this change?

Please use the **Action Planning Form** on the next page to make a plan to carry out this change.

ACTION PLANNING FORM
iROLL Falls Prevention Program

Think about what you could change with your wheelchair set-up to help increase safety and reduce falls.

Step 1: What is your wheelchair set-up goal?

Example: Move wheelchair rear axle position backwards to improve overall balance

Step 2: What is one small step you could work on towards completing your goal this week?

Example: Ask a friend or caregiver to help move my wheelchair rear axle position

What will you do?

Example: Make a telephone call to my friend to ask for assistance with wheelchair setup

When will you do it?

Example: By the end of the week

Step 3: Identify what will help you succeed:

Example: Set phone timer to go off at noon tomorrow as a reminder to get this done

Funding of Fall Prevention Equipment
GET WISE Section: Environment

Throughout this program, the role of equipment in fall prevention has been emphasized. Wheelchairs, reachers, and tub benches are just a few examples of equipment that can make it safer for you to get around and do the activities you need and want to do in your home and community. Paying for this equipment, however, can be expensive, and limitations in what insurance companies cover adds a further challenge.

To increase your chance of getting the equipment you need, you must work with an experienced clinician. This clinician must have experience writing letters of justification for equipment. The table below provides a good overview of ways to find an experienced clinician.

Organization	Description	Website/Contact Information
Assistive Technology Professional (ATP)	A good place to start is to work with a therapist who is a certified Assistive Technology Professional (ATP).	You can find an ATP in your region using the following website : https://www.resna.org/Certified-Professionals-Directory
The National Multiple Sclerosis Society (NMSS)	The National Multiple Sclerosis Society has a database of healthcare professionals that are familiar with providing care to individuals with MS .	Website: www.nationalmssociety.org/Treating-MS/Find-an-MS-Care-Provider
Christopher and Dana Reeve Foundation	This foundation works to improve the quality of life for people living with spinal cord injury and other neurological disorders . It provides free resources such as peer mentoring and a search option for local resources.	Website: https://www.christopherreeve.org/get-support
United Spinal Association	The United Spinal Association provides resources and support for all people living with spinal cord injuries and disorders. Membership is free and includes information on how to get involved in your local chapter.	Website: https://unitedspinal.org/

Even when therapists try to work with insurance companies, these companies sometimes still do not provide funding for equipment. This is true even if this equipment can help prevent falls. For example, it is often very difficult to get funding for a seat elevator. Here is a listing of some resources that can help you get the equipment that you need.

Organization	Description	Website/Contact Information
The National Disability Institute	The National Disability Institute supports an <u>Assistive Technology Loan program</u> in which loans are provided for Assistive Technology with very low or no interest.	Website: www.realeconomicimpact.org/asset-development/assistive-technology-loan-program
Byron Riesch Paralysis Foundation	The Byron Riesch Paralysis Foundation provides charitable grants on a quarterly basis (January, March, June & September). Grants are limited to \$10,000 (maximum). Grant requests from Wisconsin residence are given precedence but <u>are not limited</u> to the state. Applicants must have a neurological disorder with preference going to <u>spinal cord injuries</u> .	Website for grant application: https://brpf.org/charitable-grant-application/
Centers for Independent Living	The Administration for Community Living oversees a nationwide program to promote independent living for individuals with disabilities. These Centers for Independent Living (CIL) are nationwide and provide a variety of resources including durable medical equipment, care partners, etc. free of charge or at very reasonable rates. They can also help you to navigate insurance benefits.	Website(s): www.acl.gov/programs/aging-and-disability-networks/centers-independent-living You can find a Center for Independent Living near you at: www.ilru.org/projects/cil-net/cil-center-and-association-directory
GoFundMe	You can also choose to fundraise to help finance your equipment. GoFundMe helps you create a personal fundraising page for any	Website: https://www.gofundme.com/ How to Raise Money:

	<p>person, cause, or non-profit. GoFundMe also includes a helpful resource for how to fundraise if you are not familiar with the process.</p>	<p>https://www.gofundme.com/c/blog/how-to-raise-money</p>
<p>National Multiple Sclerosis Society</p>	<p>The National Multiple Sclerosis Society has some resources for equipment loan programs in which an individual can borrow a piece of durable medical equipment.</p>	<p>Main phone #: 1-800-344-4867 OR contact your local chapter directly.</p> <p>Information on local chapters (and other support resources) can be found on their website here:</p> <p>www.nationalmssociety.org/Resources-Support/Find-Support</p>
<p>Spinal Cord Opportunities for Rehabilitation Endowment (SCORE)</p>	<p>Score’s grant program aims to relieve some of the initial financial burden experienced by families dealing with a spinal cord injury. SCORE confers grant preference to young people who are injured while participating in athletics.</p>	<p>Website: https://scorefund.org/applyin-g-for-a-grant/</p> <p>Email: Questions@scorefund.org</p>
<p>Travis Roy Foundation</p>	<p>Provides grants specific to individuals paralyzed from a spinal cord injury. Provides a “Quality of Life Grant” to help fund adaptive equipment and technology as well as home modifications for quadriplegics and paraplegics. The average grant request is \$3,500, and the maximum grant awarded is \$5,000.</p>	<p>Website: https://www.travisroyfoundation.org/sci/grants/grants-to-survivors/</p>

If you need a piece of equipment, **don’t give up!** While the process can be long, there are several resources available to support living well. It can be very common to be denied a piece of equipment, especially the first time it is requested. On the next page we have provided a listing of some advocacy and support networks to help you get through the process:

Advocacy & Support Networks for Assistive Technology (AT)

Organization	Description	Website/Contact Information
Association for Driving Rehabilitation Specialists (ADED)	Provides a member directory where you can search for a Certified Driver Rehabilitation Specialist, Driver Rehabilitation Specialist, Mobility Equipment Dealers, or Mobility Equipment Manufacturers.	Website: https://www.aded.net/page/725/Member-Directory.htm Phone #: (866) 672-9466 Email: info@aded.net
Closing the Gap	Provides assistive technology resources for individuals with disabilities, parents, and professionals.	Website: https://www.closingthegap.com/ Phone #: (507) 248-3294
Fall Prevention Center of Excellence	Provides information and resources specific to fall prevention such as balance, mobility, environment management, and technical assistance for families, organizations, and individuals.	Website: http://stopfalls.org/
Great Lakes ADA Center: Great Lakes Accessible Information Technology (AIT) Initiative	Provides individuals and organizations with information, materials, technical assistance and training on the Americans with Disabilities Act of 1990 (ADA).	Website: http://www.adagreatlakes.org/# Phone #: (800) 949-4243
Illinois Assistive Technology Program (IATP)	IATP provides information about assistive technology to individuals with disabilities and caretakers. Information includes but is not limited to: AT devices and/or services; where/how to see and try AT devices before purchasing; AT assessments and evaluations; costs of AT and funding resources; AT Manufacturers and Vendors; Donating or obtaining gently used AT devices; and disability services/organizations.	Website: https://www.iltech.org/ Phone #: (800) 852-5110 Email: iatp@iltech.org
Illinois Protection &	This organization works at the state level to protect individuals with disabilities by advocating on their behalf. Protection &	Website: www.equipforequality.org

Advocacy System	Advocacy Systems provide legal support to unserved or underserved populations to help navigate the legal system.	Phone #: (312) 341-0022 Toll-free #: (800) 537-2632 Email: contactus@equipforequality.org
UCP Infnitec (Greater Chicagoland Area)	Infnitec provides information about assistive technology as well as training, equipment, and access to specialists and resources. Infnitec’s website provides information on mobility devices, home and bathroom modifications, kitchen remodeling, and funding for AT.	Website: http://www.infnitec.org/home Phone #: (708) 444-8460

Please now take a moment to think about a piece of equipment that might be useful to you and what resources you would use to get that equipment. If you can, also utilize the action planning forms that are in your supplemental folder.

What piece/pieces of equipment would be helpful to you to prevent falls?	Equipment (circle one or add in your own section): <ul style="list-style-type: none"> • Seat elevator • Anterior tilt • Wheel locks • Medium size casters • Other: <hr/>
What steps will you take to get this equipment?	Therapist: Alternative Resources:
When will you start this process?	Specific date and time:

Module #5 Journal Entry

What will be done:

You will be asked to make a journal entry every week after completion of the session. Your journal entry will be tied to items discussed during the previous session. You will typically be asked to respond to a specific question regarding the content of the program from the previous session.

Why:

The journal entries will help you to think about the information that was presented during the education session and help you integrate what you have learned into your everyday life.

Prompt: Please complete the tables below to identify problems you are having with your wheelchair or scooter and make a plan to begin to address 1 wheelchair or scooter-related problem.

STEP 1: Identify wheelchair or scooter related problems that contributed to a past or recent fall.

Wheelchair or scooter problems:
1.
2.
3.
4.
5.

STEP 2: Decide which problem to address. Please select 1 problem from the list above. You may decide to focus on a problem that is easy to fix or a problem that is a major safety concern.

--

STEP 3: Complete the table to outline your actions, deadlines and outcomes.

Problem	Actions to be taken <i>(Begin with an action or actions you are confident you can accomplish within 2 weeks)</i>	Deadline for action	Outcome <i>(what will be completed on deadline date)</i>	Comments
1.				
2.				
3.				

Add comment here about what to do if action was not accomplished (e.g., revise goal, seek assistance, etc.)

Response:

Wheelchair/Scooter Maintenance

Get WISE Section: Wheelchair/Scooter Management

Maintaining your wheelchair/scooter is an important part of fall prevention. A recent study of power wheelchair/scooter users found that wheelchair/scooter malfunctions were often associated with falls. Taking an active role in maintaining your wheelchair/scooter will help you prevent falls. It will also make pushing/driving your wheelchair/scooter easier. Below is a listing of items you should examine to make sure your wheelchair is in good working order. To get more information about wheelchair maintenance, please visit the website: <http://www.upmc-sci.pitt.edu/node/924>.

Note: Wheelchair and scooter maintenance is often difficult to perform independently. Part of your wheelchair/scooter vendor's job is to assist you with maintenance activities. Your vendor can also bill your insurance company for their work so they will get paid for the work they perform. Thus, you don't need to worry that you are bothering them with your requests! Reach out to your vendor early and often for maintenance assistance.

Manual Wheelchairs:

Wheel locks

- Wheel locks are used as “brakes” on a manual wheelchair to stop the wheels from rolling when you are in a stationary position. When performing functional activities, it is important that your wheelchair does not move.
- **How:** Engage your wheel locks and try to spin your rear wheel. If more than a little movement is noted, you need to make an adjustment. First, check to make sure your tires are fully inflated (described below). If they are, you will need to adjust the lock mechanism. Please talk with your wheelchair vendor to learn how to adjust the wheel locks. Depending on the design, the adjustment may be complicated—feel free to reach out to a care partner or the vendor to help you do the actual adjustments.
- **Why?** Wheel locks will provide a stable foundation for you to perform transfers from, reach for items and perform necessary activities in your home. If your chair is constantly sliding around, it will not only be difficult for you to perform these activities, but it also puts you at a high risk of falling.



Tire pressure:

- Check tire pressure on a weekly basis to assure tires are properly inflated.

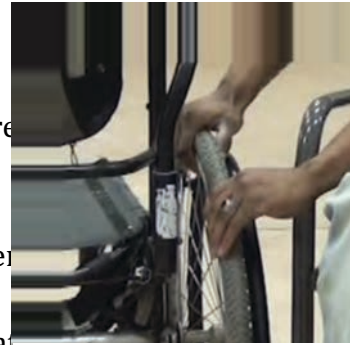
Note: Many power wheelchairs and scooters have solid tires that do not need to be inflated. Also, manual wheelchair casters (front wheels), often do not need to be inflated. Please talk with your wheelchair vendor or the trainer to determine what tires need to be inflated.

- **How:** Press down on the tire with your thumb or hand. If the tire presses down more than 5 mm (about the width of your pinkie finger), add additional air with an air compressor. The recommended tire pressure is often printed right on the rim of the tire. Use an air compressor to fill the tire to the specified level.

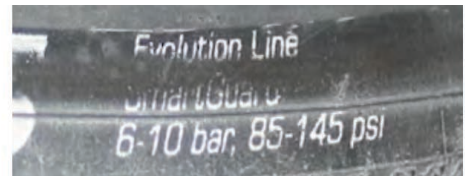
- **Why?** Low tire pressure can make:
 - Pushing a manual wheelchair more difficult.
 - Maneuvering a manual or power wheelchair or scooter more difficult.
 - Engaging the wheel locks of a manual wheelchair difficult and limit their ability to stabilize the chair when you transfer. This lack of stability can lead to a fall during transfers or other activities of daily living.

Casters (small wheels):

- Check to make sure your small wheels (casters) are able to spin freely and don't "flutter" while your wheelchair/scooter is moving. Think about a shopping cart at the grocery store that is difficult to push. This is often due to problems with the small caster wheels. These problems will have a similar effect on your wheelchair/scooter. Hair, dirt and/or debris can easily get caught in these small wheels and affect their movement.
- **How:**
 - Have a care partner watch you push or drive your chair on a smooth, flat surface. The casters should roll smoothly and not "flutter," or quickly move side to side.
 - If you notice some caster flutter, remove hair or dirt from the casters with scissors, a damp rag or tweezers.



*Pressing down on the tire to check tire pressure
(Source: University of Pittsburgh Wheelchair Maintenance Training Program)*



- You can also apply lubricant to keep them moving smoothly.
- If the casters are really dirty, you may need to remove them. Please work with your wheelchair vendor the first time you remove the casters to learn the specifics of your wheelchair or scooter and to assure they are reassembled correctly.
- **Why?** A caster that does not spin freely or flutters will make maneuvering the wheelchair/scooter more difficult and decrease the grip of the tire on the ground. In a worst-case scenario, a caster wheel can abruptly lock up and quickly stop your wheelchair/scooter. If you are not using your seat belt, you might fall out of the chair.



Positioning belt (seatbelt)

- A positioning belt, or seatbelt, will help keep you secure if your chair unexpectedly hits an obstacle.
- **How:** Visually inspect the seatbelt to assure there are no rips in the fabric, cracks in the plastic or other damage. Also, check to make sure the buckle engages and stays secure when you pull on it. If you note a problem, call your wheelchair vendor immediately to get it fixed.
- **Remember:** A positioning belt will only work if it is engaged! Don't forget to buckle up!



Checking positioning belt (Source: University of Pittsburgh Wheelchair Maintenance Training Program)

Footplate attachment:

- Check on a monthly basis that the bolts holding the footplate are secure and no excessive movement is noted when weight is put on the footplate.
- **How:** Pull/push on various points of the footplate and watch for excessive motion. If the footplate moves more than ~1 inch, the footplate needs to be tightened.
- **Why?** A loose footplate can:



Checking footplate attachment (Source: University of Pittsburgh Wheelchair Maintenance Training Program)

- Limit foot support and stability in your chair. This makes it more difficult to maintain your balance if you hit an unexpected object.
- Scrape on the floor or ground which can make maneuvering the chair more difficult.
- Quickly stop the chair if the footplate abruptly falls down while you are moving. This can potentially cause you to fall.

In addition to the items noted above, check **monthly** for any loose nuts and bolts or cracks in the wheelchair or scooter frame.

In appendix D (manual wheelchair) and E (power wheelchair) and F (scooter), a maintenance checklist has been provided to visualize what activities should be done on weekly, monthly and yearly basis. Please take a look at these activities and consider different ways to help you remember to perform these activities. You might want to print out the list and put it in a prominent place in your home (such as the refrigerator). You might also consider setting a reminder in your phone to perform these various activities. In the space provided below, please indicate how you will remind yourself to perform these key maintenance activities.

How will you remind yourself to perform maintenance activities? (please circle all that apply)

- Enter maintenance activities into calendar
- Post checklist in prominent location in home
- Have a friend/family member remind you of activities
- Other (Please write out plan):

If you notice any problems with your wheelchair or scooter, it is **VERY** important to notify the wheelchair vendor who sold you your wheelchair/scooter as soon as possible. Your wheelchair vendor can perform repairs. At times, a loaner wheelchair or scooter can be provided to keep you going while your chair is being repaired. The vendor can also help you submit the cost of the repairs to your insurance company.

Module #5 Goals

During today's session, the importance of wheelchair and scooter maintenance was discussed.

It is important to know the contact information of your wheelchair or scooter vendor in case any repairs need to be done to the chair. Please take a few minutes to locate the name and phone number of your vendor. Often, the vendor will place a sticker directly on your wheelchair/scooter with the company's phone number. If you need help, please ask the trainer to look over your wheelchair/scooter to see if they can help you locate the phone number.

During the next week, set a goal to find out or confirm the name and phone number of your vendor. Please complete the table below. After completing, you might want to print or tear out this section and post it in a prominent location in your home to make sure you always have this information close by.

Name of Wheelchair/Scooter Vendor Company	
Name of Wheelchair/Scooter Vendor	
Phone number of the Wheelchair/Scooter Vendor (if you have the vendor's cell phone number or direct office number, you may be able to speed up the process)	
E-mail address of the Wheelchair/Scooter Vendor	
Other important information	

If you don't have regular contact with the vendor, please call the vendor to introduce yourself and make sure your vendor is able to do repairs on your chair/scooter. If not, ask him/her to give you information of who can do the repairs.

NOTE: If you received the wheelchair or scooter from a friend or family member or cannot find the information of the vendor, you can also contact the manufacturer. Below are the customer service numbers of some of the major wheelchair/scooter manufactures. If you are having trouble, please talk to the trainer. Please circle the number of the manufacturer of your wheelchair or scooter.

Permobil/TiLite: 1-800-736-0925

Pride Mobility (Jazzy, Go-Go Scooters, Quantum Rehab): 1-800-800-4258

Invacare (TopEnd, Kuschall): 1-800-333-6900

Sunrise Medical (Quickie, Sterling Scooters): 1-800-333-4000

Hoveround: 1-800-96-HOVER

Other:

Name:

Phone number:

Module #5 Skill Building Activities

Please complete the following items in the week between Module #4 and Module #5.

Please complete the * items prior to the Module #4 online discussion.

- Continue doing the home exercise program 3x/week (Page 22).
- Use your exercise log to track your exercises (folder).
- Continue to work on your fall management plan (Page 114). *
- Continue to work toward developing a plan to do a desired activity in your home or community (Page 156). *
- Complete your journal entry reflecting your plan to address 1 problem with your wheelchair or scooter (Page 173). *
- Goal form: Identify the name of a person to contact if wheelchair/scooter maintenance is needed (Page 179). *

Reference:

1. Rice LA, Sung J, Peters J, Bartlo WD, Sosnoff JJ. Perceptions of fall circumstances, injuries and recovery techniques among power wheelchair users: a qualitative study. *Clinical rehabilitation*. 2018:269215518768385.

Module 6

Welcome back to the final module! This module will help to tie up all the work that you did in this program and help you develop strategies to maintain the skills that you learned during the program. While reviewing this module, please think about any final questions you might have for your trainer during the final online discussion session.

Maintaining Your Skills

Congratulations! You have worked your way through the iROLL program and have learned a lot of new information on ways to manage falls.

We have discussed:

- The importance of preventing falls and managing fear of falling
- Risk factors related to the environment, your body, or the activity you are doing that often work together to cause a fall
- Strategies to both prevent falls from occurring and manage a fall if it does occur

You also:

- Examined your own risk factors of falls
- Set up your own goals to manage a fall
- Integrated skills into your daily routine

Remember! This process does not stop at the end of the program. The process of managing fall risks is on-going.

For you to maintain the benefits of this program in the long term, it is necessary for you to work to sustain your newly learned skills and continue to engage in the exercise program.

You've already taken action to manage falls and fall risk through participating in this program. Here are a few tips to help you maintain your skills:

- **You are not alone!**

Talk to your peers, friends, family, and care partners about the program and discuss the ways that they can help you maintain your skills. These people can give you feedback on how you are performing your wheelchair skills. They can also encourage you to use those skills to get into the community and do things you want to do.
- **Be open to change!**
 - Your supporters can help you change, but they cannot change you. The most important thing is your willingness to change.

- **Set goals!**
 - Continue to set both short-term and long-term goals. These goals can help you become motivated to make changes or maintain a newly developed skill or habit. A blank SMART goal form is included in your supplemental folder.

- **Start it again!**
 - Often, it takes energy to maintain new skills and safety habits. If you find yourself getting off track and forgetting about the skills you've learned, do not worry. Pick up your program manual and look back over the items discussed:
 - Think of the issues and problems.
 - Discuss them with your peers, friends, family, care partners, and members of your health care team including occupational therapists and physical therapists.
 - Start slowly re-integrating the items you learned and soon you will be back on track!



Maintaining Exercise Habits



During this program, you learned exercises to improve your core and arm muscles, and we discussed how exercise helps manage MS and SCI related symptoms and fall risks. To review this information, turn to page 22.

There are a variety of ways you can use your body to engage in exercise to experience health benefits. Exercise can also help you manage your symptoms, strengthen your muscles, and prevent falls.

Here are tips to maintain exercise habits:




- **Exercise with a friend(s).**
 - Ask your friends or family members to exercise with you. Your exercise partner can help keep you on track and motivate you to get moving.
- **Make it fun.**
 - Start with an activity you enjoy and go at your own pace. It's easier to stay motivated if you enjoy what you are doing, so find ways to make exercise fun. One way to do this is to look into fitness classes offered at a local gym or a community center (e.g. YMCA). Even if there aren't specific wheelchair/scooter user classes offered, many exercises can be modified. Fitness instructors are often willing to modify exercises for you. It may be beneficial to discuss your specific needs with them before the class starts.
 - Review the table below for a variety of online exercise resources.

Organization	Website	Description
National Center on Health, Physical Activity and Disability (NCHPAD) 	https://www.nchpad.org/1672/6768/How~to~Choose~a~Fitness~Center	It is important that the gym you go to is a good fit for you. NCHPAD has a great video on things to look for and questions to ask when touring a gym.
National Center on Health, Physical Activity and Disability (NCHPAD) 	https://www.youtube.com/watch?v=kH4VljUsp5o&list=PLwMObYmlSHaPIArTOC4jBZfeuU7LN7KVj	NCHPAD also has a YouTube channel with exercise videos for wheelchair users. The link provided is for a playlist of home workouts.

<p>National Multiple Sclerosis Society (NMSS)</p> 	<p>https://www.youtube.com/playlist?list=PLnPWMdCPZiBYKgMLDthzMq1IqZXA7E_zN</p>	<p>NMSS has a YouTube page with exercise tips for people living with MS. These videos include stretching, exercising, and breathing exercise tips.</p>
<p>Spinal Cord Injury Research Evidence (SCIRE)</p> 	<p>https://www.youtube.com/watch?v=k7vTIHzYoug&list=PLi2Dc1h0G7-vn6X1ROpMEMXJK6nmzinWu&index=4</p>	<p>SCIRE has a YouTube page with exercise tips including how to adapt exercise equipment to fit your needs. The link provided contains a playlist of exercise tips.</p>



- **Try something new:**

You can play sports and exercise in your wheelchair/scooter with adaptations and modifications. Include a variety of exercises in your routine and change it up from time to time.

Organization	Website	Description
<p>National Center on Health, Physical Activity and Disability (NCHPAD)</p> 	<p>https://www.nchpad.org/discover/fitness/index.html</p>	<p>This free e-book is a wheelchair user's guide to using fitness equipment. It includes information on adaptive equipment and exercises.</p>
<p>National Multiple Sclerosis Society (NMSS)</p> 	<p>https://www.nationalmssociety.org/Living-Well-With-MS/Work-and-Home/Recreation/Finding-Another-Sport-to-Love</p>	<p>This link provides a list of sports and hobbies that are accessible for through adaptations or modifications. These activities include golf, horseback riding, and skiing.</p>
<p>United Spinal Association</p> 	<p>https://askus-resource-center.unitedspinal.org/index.php?pg=kb.book&id=1</p>	<p>This link provides a list of adaptive sports and recreation that range from cycling to SCUBA diving. It also provides resources for people with a wide range of abilities.</p>

- **Set realistic goals!**

- Exercise is not magic, and you can't expect immediate, dramatic change. Listen to your body and do what you can. Start slow and gradually increase your activity level while keeping your goals manageable. Success is accomplished by achieving a series of small goals. Accomplishing even the smallest fitness goals will help you gain confidence and keep you motivated. If you push yourself too hard, you may end of hurting yourself. Please talk with the trainer and/or a physical or occupational therapist about ways to safely increase your activity level.
- Consider tracking your goals on paper or using a goal tracking app to help you set and meet your goals.

Name	Description
<p><u>HabitBull (IOS)*</u></p>  <p>-Free</p>	<p>This app allows you to choose a goal and choose when/how often you want to work on the goal. The day that you will have met your goal will be marked on the app's calendar. This way, you can see how often you are reaching your goal and track your progress from month to month.</p> <p><i>*Note: This app has a different name and thumbnail depending on the operating system, but the content is the same.</i></p>
<p><u>Habit Tracker (Android)*</u></p>  <p>-Free</p>	

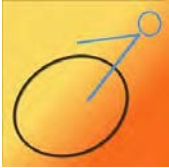


- **Expect ups and downs.**

- Don't be discouraged if you get off track. Pick up your program manual, review the exercise program and slowly build up your routine.



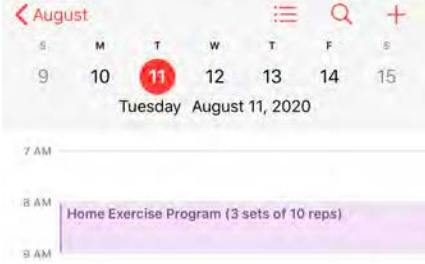
- **Reward yourself.**

- When you achieve your goals, reward yourself for achieving them. Think about something you like to do, write it down, and do it after you have achieved your goal. Also, a friendly competition with your exercise partner can further motivate you to maintain your exercise routine.

- **Make exercise a part of your daily life.**
 - Plan to exercise on a set schedule and stick with it. Life can be complicated, and schedules vary. However, even if you can't get a full workout, try to do a few reps of all your exercises or do some type of alternative activity.
 - It takes time for a new activity to become a habit. To help you keep going, write down your reasons for exercising and a list of goals. Post them somewhere visible to keep you driven.
 - There are several options for movement-tracking smartphone applications (apps). Below are some apps that may be helpful for manual wheelchair users.

Name	Description
<p data-bbox="402 716 735 747"><u>Wheelchair Calorimeter</u></p>  <p data-bbox="402 930 532 1003">-IOS only -\$0.99</p>	<p data-bbox="823 716 1456 961">This app uses GPS to track the distance you are travel. It can also be customized to include your weight and the weight of your chair. The app uses this information to track how many calories you burned while pushing your wheelchair.</p>
<p data-bbox="402 1058 483 1089"><u>Fitbit</u></p>  <p data-bbox="402 1272 699 1346">-IOS and Android -Free (requires Fitbit)</p>	<p data-bbox="823 1058 1456 1388">Fitbit Flex isn't designed for wheelchair users; however, many wheelchair users report being happy with how this device tracks their fitness. The Fitbit Flex can track wheelchair pushes similar to steps, so it can be a good way to track how much movement you are getting each day. It is also more affordable than an Apple Watch.</p>
<p data-bbox="402 1400 516 1432"><u>Activity</u></p>  <p data-bbox="402 1614 797 1688">-IOS Only -Free (requires Apple Watch)</p>	<p data-bbox="823 1400 1456 1730">The new update for this app is now accessible for wheelchair users. The prompts on the app include Roll, Exercise, and Move. You can set personal fitness goals and also have your watch remind you when it's time to get moving. The downside is that this app requires an Apple Watch, which can be very expensive.</p>

- There are also smartphone applications where the user can manually input their physical activity each day. These applications may be helpful for manual or power wheelchair users and scooter users.

Name	Description
<p><u>Fitlist</u></p>  <p>-IOS and Android -Free</p>	<p>This app enables you to manually input your physical activity. You can create your own workout routines or add activities individually. This application also allows you to look at a monthly calendar. This can be helpful when tracking how frequently you exercise.</p>
<p><u>Health</u></p>  <p>-IOS only -Free</p>	<p>This app allows you to manually input your physical activity. It recognizes Wheelchair Run and Walk Paces. The app also recognizes cardio and functional strength training. Finally, this app includes a daily, weekly, monthly, and yearly breakdown so that you can keep track of how often you are exercising.</p>
<p><u>Low-Tech Option</u></p> <p>-Free</p> 	<p>If you do not have a smartphone or if you prefer a low-tech option, you can track your activity by:</p> <ul style="list-style-type: none"> -Inputting your data for physical activity into your phone or computer calendar -Creating an exercise log or a paper calendar to keep track of your physical activity

Closing Activity

As we approach the end of the program, we would like you to think a bit about the activities you have learned and how you will maintain these skills. Please take a few minutes to think about your favorite skill learned during the iROLL education sessions. Please write down 1-2 of your favorite new skills or something that has made a big impact on you. After you have made a list of your favorites, please think about how you will maintain these skills and integrate them into your daily life.

Favorite Skills	Methods to Integrate Skills into Daily Life
<p><i>Example: One of my favorite skills was refining my vehicle transfer techniques. While I was familiar with this skill before, iROLL helped break down the transfer and practice in a way that made me feel safe. Now I am much more confident using a car to get out into my community!</i></p>	<p><i>Example: I will work on practicing my vehicle transfer skills by being mindful of all the tips I learned. This includes proper positioning of my body and wheelchair. I will also make sure to think about each phase of the transfer (i.e. set-up, flight, and end phases) before making any type of vehicle transfer.</i></p>
1.	1.
2.	2.
3.	3.

Module #6 Goal

GET WISE Section: Goals

During module 6, a discussion was held on maintaining the skills you developed during the program over the long term. Please pick one of your favorite skills you have identified on page 190 and write a goal using the SMART goal framework. This goal should focus on how you will maintain the skills you have learned during the iROLL program.

S	Specific.
M	Measurable.
A	Achievable.
R	Relevant.
T	Time bound.

Example: I will review one section of my program manual each week for 15 minutes to keep the concepts discussed during this program fresh in my mind.

Goal:

Session #6 Journal Entry
GET WISE Section: Goals

To Do:

You will be asked to make a journal entry every week after completion of the session. Your journal entry will be tied to items discussed during the session.

Why:

The journal entries will help you to think about the information that was presented during the education session and to help you integrate what you have learned into your everyday life.

Prompt:

Please write about:

- Your overall experience of the program
- Positives and negatives of the program
- What skills you want to continue to work on in the future

In addition to this journal entry, you will receive a follow up phone call in the next 48 hours to get your feedback on the program. Your trainer will give you additional details.

Response:

Overall experience:

Things I liked about the iROLL Program:

Things I didn't like about the iROLL Program:

Skills I want to keep working on:

Closing Remarks

Thank you so much for your participation in this program! We appreciate your commitment to the program and hope that it has been helpful to you. Even though the program is over, our research team is still available to support you and answer any questions you may have.

Please feel free to reach out to us if you have any questions! The contact information is provided below:

Laura A. Rice, PhD, MPT, ATP
219 Freer Hall
906 S. Goodwin Ave.,
Urbana, IL 61801
217-333-4650
ricela@illinois.edu




Please remember that to progress your skills, you should always have a goal that you are working on. We have provided additional SMART Goal and Action Planning worksheets in your folder for you to use. Also, please feel free to review the iROLL resources as often as you need. You can find a downloadable pdf of the iROLL manual as well as the videos at this website: <http://iroll.kch.illinois.edu>

Thank you again for your time and effort, we really appreciate it and we wish you all the best. Take care!

-The iROLL Team

Appendix A: iROLL Exercise Summary Sheet

GET WISE Exercise Summary Sheet

Warm-Up	Instruction	Intensify (more challenging)	Simplify (less challenging)
<p>Starting Position:</p>  <p>Ending Position:</p> 	<p>Round and Arch Spine: Round your shoulders forward and then arch your back. Each time you arch your back counts as one repetition. Start with a small movement and then try to go through a greater range of motion as your muscles warm up.</p>	<ul style="list-style-type: none"> • Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Close your eyes • Hold your hands together and lift them off of your lap, elevating them near your stomach/chest • Increase the size of the movements (make a greater range of motion) • Increase the amount of reps (i.e., do more) or spend more time warming up 	<ul style="list-style-type: none"> • Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa) • Hold on to your surface for support (i.e., mat table, w/c armrests) • Decrease the size of the movements (a lesser range of motion) • Decrease the amount of reps (i.e., do less) or spend less time warming up
<p>Lateral Spinal Flexion</p> <p>Starting Position:</p> 	<p>While you are sitting, bend your body to the right side, pause, then to the left. Each time you bend to the left counts as one repetition.</p>	<ul style="list-style-type: none"> • Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Lift your arms over head • With arms lifted overhead, add a weight (or a small, household item—water bottle, canned good, candle, bag of coffee) 	<ul style="list-style-type: none"> • Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)

Ending Position:



***Modified Position:** For an extra challenge, lift your arms over your head while performing the exercise.



- Bend further to both the left and right sides
- Increase the amount of reps (i.e., do more) or spend more time completing this exercise

- Hold on to your surface for support (i.e., mat table, w/c armrests)
- Bend less to both the left and right sides
- Decrease the amount of reps (i.e., do less) or spend less time completing this exercise

Lean Backs

Instruction

Intensify (more challenging)




Simplify (less challenging)

Starting Position:

Lean your body as far back as possible. Hold this position for approximately five seconds, and then return to an upright seated position. Try not

- Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Hold this position for longer than 5 seconds; continue to increase the amount of time you hold this position for (the longer

- Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Use your hands to support your body
- Lean against the surface behind you for short breaks between reps

 <p>Ending Position:</p> 	<p>to use your hands to support your body.</p>	<p>you hold this position, the more challenging the exercise)</p> <ul style="list-style-type: none"> • Elevate your hands/arms from the surface you're holding on to; continue to lift your hands/arms to a height that is challenging for you (the closer you hold your hands/arms to the ceiling, the more challenging the exercise) • Increase the amount of reps (i.e., do more) or spend more time completing this exercise 	<ul style="list-style-type: none"> • Hold this position for less than 5 seconds (the less time you hold this position, the less challenging the exercise) • Decrease the amount of reps (i.e., do less) or spend less time completing this exercise
<p>Scapular Retraction</p>	<p>Instruction</p>	<p>Intensify (more challenging)</p>	<p>Simplify (less challenging)</p>
<p>Starting Position:</p>  <p>Ending Position:</p>	<p>Lie on your back while holding a hand weight. If you don't have weights, you can use water bottles. Keeping your elbow straight, push your hand up towards the ceiling, hold, and</p>	<ul style="list-style-type: none"> • Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Close your eyes • Slightly elevate your feet from the surface they're resting upon (floor, power chair, w/c) • Hold this position for longer than 5 seconds; continue to increase the amount of time you hold this position for (the longer 	<ul style="list-style-type: none"> • Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Slightly support part of your lower or mid-back against the nearest surface (i.e., w/c, wall, sofa) • Hold this position for less than 5 seconds (the less time you hold this position, the less challenging the exercise)



***Modified Position:**



If you are uncomfortable on your back, you can also perform this exercise in a seated position.

return to starting position. Perform this exercise one arm at a time.

you hold this position, the more challenging the exercise)

- Increase the amount of reps (i.e., do more) or spend more time completing this exercise

- Decrease the amount of reps (i.e., do less) or spend less time completing this exercise

Scapular Protraction

Instruction

Intensify (more challenging)

Simplify (less challenging)



Starting Position:



Lie on your back while holding a hand weight. If you don't have weights, you can use water bottles. Keeping your elbow straight, push your hand up

- Complete this exercise in a seated position
- If seated, scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Perform this exercise using both arms at the same time
- Increase the weight that you're holding (or use a heavier, small,

- If seated, scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- If seated, slightly support part of your lower or mid-back against the nearest surface (i.e., w/c, wall, sofa)

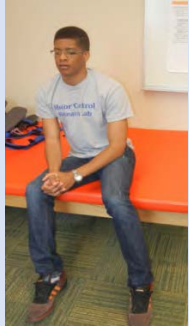
<p>Ending Position:</p>  <p>*Modified Position:</p> 	<p>towards the ceiling, hold, and return to starting position. Perform this exercise one arm at a time.</p>	<p>household item—water bottle, canned good, candle, bag of coffee)</p> <ul style="list-style-type: none"> • Increase the amount of reps (i.e., do more) or spend more time completing this exercise 	<ul style="list-style-type: none"> • With your resting arm, hold on to your surface for support (i.e., mat table, w/c armrests) • Avoid using a weight, or decrease the weight that you're holding (or use a lighter, small, household item—water bottle, canned good, candle, bag of coffee) • Decrease the amount of reps (i.e., do less) or spend less time completing this exercise
<p>Forward/Lateral Reach</p>	<p>Instruction</p>	<p>Intensify (more challenging)</p>	<p>Simplify (less challenging)</p>
<p>Reaching Forward:</p>  <p>Reach Left:</p>	<p>Reach forward, then reach to the right, and then reach to the left (in a clockwise motion). Each time you reach forward counts as one repetition.</p>	<ul style="list-style-type: none"> • Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Close your eyes • Add a weight (or a small, household item—water bottle, canned good, candle, bag of coffee) • Elevate your resting arm (the closer you hold your resting arm to the ceiling, the more challenging the exercise) 	<ul style="list-style-type: none"> • Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa) • Hold on to your surface for support (i.e., mat table, w/c armrests) • Complete this exercise while laying on your back



Reach Right:



Scooting
Scout Right: **Scout Backward:**



Scout Left: **Scout Forward:**

Instruction

Use your abdominal and hip muscles to scoot your bottom to the right two inches, backwards two inches, to the left two inches, and forward two inches. Please-try not to use your hands unless absolutely necessary.

Intensify (more challenging)

- Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Close your eyes
- While being safe and mindful of your space, scoot >2inches (space permitting) in each direction
- Elevate your hands/arms from the surface you're holding on to; continue to lift your hands/arms to a height that is challenging for you (the closer you hold your hands/arms to the ceiling, the more challenging the exercise)

Simplify (less challenging)

- Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)
- Hold on to your surface for support (i.e., mat table, w/c armrests)
- Scoot <2inches in each direction
- Decrease the amount of reps (i.e., do less) or spend less time completing this exercise

- Increase the amount of reps (i.e., do more) or spend more time completing this exercise

- Decrease the amount of reps (i.e., do less) or spend less time completing this exercise

	<p>You will end in the same position you started. Each time you scoot forward counts as one repetition.</p>	<ul style="list-style-type: none"> • With arms lifted overhead, add a weight (or a small, household item—water bottle, canned good, candle, bag of coffee) • Increase the amount of reps (i.e., do more) or spend more time completing this exercise 	
<p>Press Up</p>	<p>Instruction</p>	<p>Intensify (more challenging)</p>	<p>Simplify (less challenging)</p>
<p>Starting Position:</p>  <p>Ending Position:</p> 	<p>With your hands on a firm surface, push yourself up using your arms and shoulders and hold for a few seconds. Slowly lower your body back into the seated position.</p>	<ul style="list-style-type: none"> • Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • While being safe and mindful of your space, push yourself up higher • Slightly elevate your feet from the surface they're resting upon (floor, power chair, w/c) • Hold this position for longer than a few seconds; continue to increase the amount of time you hold this position for (the longer you hold this position, the more challenging the exercise) • Increase the amount of reps (i.e., do more) or spend more time completing this exercise 	<ul style="list-style-type: none"> • Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Slightly support part of your lower back against the nearest surface (i.e., w/c, wall, sofa) • Hold this position for less time (the less time you hold this position, the less challenging the exercise) • Decrease the amount of reps (i.e., do less) or spend less time completing this exercise
<p>Shoulder Press</p>	<p>Instruction</p>	<p>Intensify (more challenging)</p>	<p>Simplify (less challenging)</p>

Starting Position:



Ending Position:



***Modification:** If you have trouble raising both arms at the same time, you can modify this exercise by raising only one arm at a time.

Bend your elbows and raise your arms to a 90 degree position. Grasp the weights so your palms are facing forward with your hands slightly wider than your shoulders. Slowly straighten your elbows and raise the weights above you. Then, slowly lower the weights back down to starting position.

- Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Close your eyes
- Increase the weight that you're holding (or use a heavier, small, household item—water bottle, canned good, candle, bag of coffee)
- Increase the amount of reps (i.e., do more) or spend more time completing this exercise

- Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)
- Complete this exercise raising one arm at a time. With your other arm, hold on to your surface for support (i.e., mat table, w/c armrests)
- Complete this exercise while laying on your back
- Decrease the amount of reps (i.e., do less) or spend less time completing this exercise

Shoulder Flexion & Abduction

Instruction

Intensify (more challenging)

Simplify (less challenging)

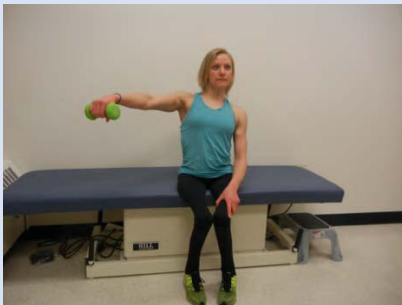
Flexion:



Abduction:



***Modification:** This exercise can be done using only one arm at a time.

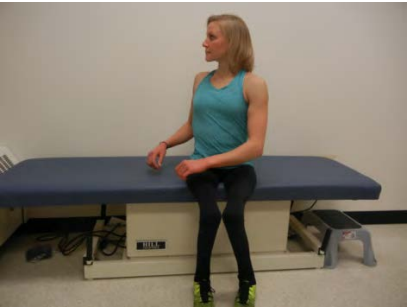
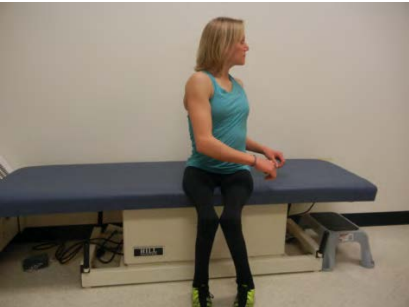


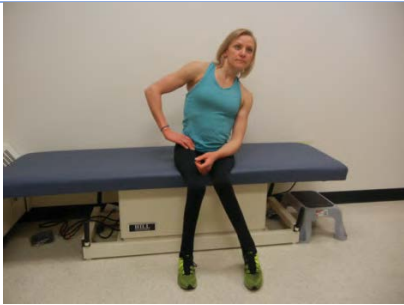
Raise your arms in front of you at shoulder level and slowly lower your arms back down to starting position. Then, raise your arms out from your sides to shoulder level and lower your arms.

- Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Close your eyes
- Increase the weight that you're holding (or use a heavier, small, household item—water bottle, canned good, candle, bag of coffee)
- While keeping your arms straight, continue to lift them higher (above shoulder height) and bring your hands to touch overhead (like making snow angel or completing a jumping jack)
- Increase the amount of reps (i.e., do more) or spend more time completing this exercise

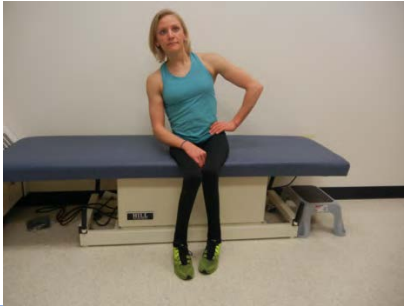
- Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa)
- Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)
- Complete this exercise raising one arm at a time. With your other arm, hold on to your surface for support (i.e., mat table, w/c armrests)
- Complete this exercise while laying on your back
- Decrease the amount of reps (i.e., do less) or spend less time completing this exercise

***Cool Down: To help you recover faster, finish up your exercise routine with a few stretches.**

Rotational Twist (lower back stretch):	Instruction	Intensify (more challenging)	Simplify (less challenging)
<p>Right:</p>  <p>Left:</p> 	<p>Gently twist your upper body to the right and hold for 20 to 30 seconds, then twist to the left and hold for 20 to 30 seconds.</p>	<ul style="list-style-type: none"> • Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Close your eyes • Hold your hands together and lift them off of your lap, elevating them near your stomach/chest • Hold each twist for longer than 30 seconds; continue to increase the amount of time you hold this position for (the longer you hold this position, the more challenging the cool down) • Increase the amount of reps (i.e., do more) or spend more time cooling down 	<ul style="list-style-type: none"> • Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa) • Hold on to your surface for support (i.e., mat table, w/c armrests) • Hold each twist for less than 20 seconds; continue to decrease the amount of time you hold this position for (the less you hold this position, the less challenging the cool down) • Decrease the amount of reps (i.e., do less) or spend less time cooling down
Side Stretch:	Instruction	Intensify (more challenging)	Simplify (less challenging)
<p>Right:</p>	<p>Gently lean to your right side and hold that position for 20 to 30 seconds. Repeat on the left side.</p>	<ul style="list-style-type: none"> • Scoot your hips and buttocks closer to the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Close your eyes • Hold each side stretch for longer than 30 seconds; continue to 	<ul style="list-style-type: none"> • Scoot your hips and buttocks backwards, farther away from the edge of the surface you're sitting upon (i.e., w/c, mat table, sofa) • Slightly support part of your back against the nearest surface (i.e., w/c, wall, sofa)



Left:



increase the amount of time you hold this position for (the longer you hold this position, the more challenging the cool down)

- Increase the amount of reps (i.e., do more) or spend more time cooling down

- Hold on to your surface for support (i.e., mat table, w/c armrests)

- Hold each side stretch for less than 20 seconds; continue to decrease the amount of time you hold this position for (the less you hold this position, the less challenging the cool down)

- Decrease the amount of reps (i.e., do less) or spend less time cooling down

Appendix B
Wheelchair/Scooter Set-Up: Wheelchair/Scooter Parts

Mobility Scooter:

Note: Your mobility scooter may appear different than the image below. Please check with your manufacturer for questions regarding your scooter's parts.



Image credit: <https://mobility247.com/scooters/models/>

Manual Wheelchair:

Note: Your manual wheelchair may appear different than the image below. Please check with your manufacturer for questions regarding your manual wheelchair's parts.



Image credit: <https://www.healthproductsforyou.com/p-karman-healthcare-lightweight-manual-wheelchair.html>

Power Wheelchair:

Note: Your power wheelchair may appear different than the image below. Please check with your manufacturer for questions regarding your power wheelchair's parts.



*Photos courtesy of: <https://www.medicalexpo.com/prod/permobil/product-71082-821109.html>

Appendix C

Influence of Symptoms on Fall Risk and Strategies to Manage

Below is a table of additional symptoms that may increase your fall risk and strategies to manage them. To review primary symptoms that increase fall risk (e.g. muscle weakness, spasticity, and fatigue) please see Session 4, beginning on page 128.

Symptom	Influence on Fall Risk	Strategies to Manage
Sensory Deficits	<ul style="list-style-type: none"> • Sensory deficits include numbness and can make it hard to be aware of where your body parts are positioned. • Numbness or tingling are often the first symptoms of MS. • People living with SCI also experience sensory deficits, and have reported that reduced sensation contributes to falls¹. • Additionally, it is reported that wheelchair/scooter users often fell when they reached forward to grab an object. <ul style="list-style-type: none"> ○ This happened because numbness made it difficult to detect their body positions. ○ As a result, they reached further than were able to and experienced a fall. 	<p>If you need to reach for an object but you don't feel confident in your balance, you may want to:</p> <ul style="list-style-type: none"> ○ Use an assistive device, such as a reacher ○ Ask a care partner to grab it for you ○ <u>Power wheelchair users</u>: use the anterior tilt or seat elevator functions (if possible) <p>If you would like to practice reaching for objects:</p> <ul style="list-style-type: none"> ○ Please review module 2, and the corresponding videos. Once you have reviewed these, practice with a care partner. ○ If picking things off the floor is still difficult after practicing, make an appointment with your doctor. Your doctor can refer you for occupational therapy or physical therapy services.
Bowel and Bladder Dysfunction	<ul style="list-style-type: none"> • Bladder and bowel dysfunction do not directly affect mobility. <ul style="list-style-type: none"> ○ However, these difficulties may cause an individual who has issues with urgency and/or frequency to rush to the bathroom. • Individuals with MS often reported that they fell while rushing to the bathroom as a result of bladder and bowel dysfunction. They were in a hurry and less attentive to fall hazards. These hazards include a slippery floor in the bathroom or clutter along the pathway to the bathroom.² • Research has also found that many individuals living with SCI commonly fall during transfers. This includes transfers to the toilet and commode.³ • Many individuals living with SCI also experience falls in the bathroom.⁴ 	<p>If you have urgency or frequency issues that cause you to frequently rush to the bathroom, especially at night, be aware that this increases your risk of falling. Here are some tips that you can try:</p> <ul style="list-style-type: none"> ○ Develop a habit of cleaning out the pathway from your bed to bathroom before you go to bed. ○ Consider the use of a portable commode to keep beside your bed or in an area you are frequently in during the day. ○ Turn on the light first when getting out of bed or install a motion activated light. ○ Reduce your fluid intake (~1 hour) before bed. ○ Consider the use of a protective pad (such as Depends)

		<p>If you would like additional help managing your bladder/bowel, make an appointment with your doctor to discuss these challenges. Your doctor can help to address these challenges and/or refer you to specialized healthcare professionals that can help.</p> <ul style="list-style-type: none"> ○ It may feel uncomfortable to talk about these changes with a health care professional. However, it is important that you do so in order to manage these symptoms and keep you safe.
Cognitive Changes	<ul style="list-style-type: none"> • The term <i>cognition</i> refers to a range of brain functions. • <i>Cognitive changes</i> may include difficulty in: <ul style="list-style-type: none"> ○ Focusing or paying attention ○ Processing information quickly ○ Learning/remembering new information. ○ Organization ○ Planning and problem-solving skills ○ Accurately perceiving one's environment. • Approximately 50% of people with MS may experience some difficulty with their cognition over the course of their disease. • Although cognitive changes may be less common in individuals living with SCI, individuals may begin to notice cognitive changes associated with aging. • In falls related to cognitive changes, wheelchair/scooter users with MS often reported that they were distracted during transfers, and that this resulted in falls.⁴ • Many individuals living with SCI say they have fallen while distracted.⁴ • In addition, cognitive challenges can make it difficult to focus while pushing/driving a wheelchair/scooter. <ul style="list-style-type: none"> ○ This can increase the risk of falling. ○ <i>For example:</i> in previous studies it was found that participants often reported that they misjudged road conditions. They were also unable to detect obstacles on the street such as curbs, cracks or bumps.⁴ 	<p>If you or your care partner notices cognitive changes, make an appointment with your doctor to discuss these changes. Your doctor can help to address these changes and/or refer you to specialized healthcare professionals that can help.</p> <ul style="list-style-type: none"> ○ It may feel uncomfortable to talk about these changes with a health care professional. However, it is important that you do so in order to manage these symptoms and keep you safe. <p>It is important to focus on the activities that you are doing to reduce fall risks.</p> <ul style="list-style-type: none"> ○ <i>For example:</i> if your cell phone is ringing during a transfer, try not to answer the phone while transferring. ○ <i>For example:</i> when you are driving your wheelchair/scooter on the street, especially in an unfamiliar environment, focus on the road conditions.

<p>Orthostatic Hypotension⁵</p>	<ul style="list-style-type: none"> • <i>Orthostatic hypotension</i> is defined as a drop in blood pressure. • <u>Symptoms</u> include: dizziness, nausea, and loss of consciousness <ul style="list-style-type: none"> ○ These symptoms can cause an individual to fall, especially if the individual is transferring or near the edge of a surface. ○ It is important to minimize the risk of orthostatic hypotension to reduce the risk of falling. • <u>Risk factors</u> include: prolonged bed rest, quick changes in position, dehydration, and eating heavy meals. • Both individuals living with SCI or MS can experience orthostatic hypotension or other symptoms while changing positions. 	<p>If you are experiencing orthostatic hypotension, either direct your care partner to help you or independently:</p> <ul style="list-style-type: none"> ○ <u>Scooter users</u>: recline backwards/lay down quickly on a stable surface (e.g. bed, couch) until symptoms subside ○ <u>Manual wheelchair users</u>: tip backwards with legs up or use the tilt-in-space feature until symptoms subside ○ <u>Power wheelchair users</u>: tilt/recline backwards using wheelchair controls ○ Move (pump) arms and legs (if possible) to help circulate blood <p>To prevent orthostatic hypotension or reduce symptoms, talk with your doctor about using:</p> <ul style="list-style-type: none"> ○ Abdominal binders ○ Compression garments ○ Compression stockings ○ Medications <p>Other things you can do to try to reduce the risk of orthostatic hypotension</p> <ul style="list-style-type: none"> ○ Change positions slowly, especially if it is your first time doing so in a while or if you experience orthostatic hypotension often ○ Try to change positions at least a few times throughout the day ○ Avoid laying down for a long time (if possible) ○ Stay hydrated
<p>Autonomic Dysreflexia⁵ (specific to individuals living with SCI)</p>	<ul style="list-style-type: none"> • <i>Autonomic dysreflexia</i> is as an abnormal response to a problem in the body below the level of SCI. It typically affects individuals living with a SCI of T6 and above. • Autonomic dysreflexia is a medical emergency and can be life threatening! • <u>Causes</u> of autonomic dysreflexia include: bowel/bladder irritation, skin irritation, or some kind of infection. • <u>Symptoms</u> include: <ul style="list-style-type: none"> ○ Increased blood pressure ○ Decreased heart rate ○ Immediate pounding headache ○ Sweating, flushing, and/or goosebumps • While there is not a direct link between autonomic dysreflexia and falls in the literature, these symptoms may cause an individual to lose focus and fall. 	<p>If you are experiencing symptoms associated with autonomic dysreflexia either direct your care partner to help you or independently:</p> <ul style="list-style-type: none"> ○ Sit up ○ Remove tight/restrictive items from body (e.g. abdominal binders, compression stockings, tight clothing) ○ Drain bladder or check leg bag tubing for bends or blockages ○ Monitor blood pressure (if possible) <p>Consider carrying an emergency card describing autonomic dysreflexia and treatment.</p> <ul style="list-style-type: none"> ○ This can be helpful, since not all health care professionals or other individuals are familiar with the condition and how to treat it. ○ The Christopher & Dana Reeve Foundation has an emergency card pdf on their website: https://www.christopherreeve.org/living-with-paralysis/free-resources-and-downloads/wallet-cards

1. Khan A, Pujol C, Laylor M, et al. Falls after spinal cord injury: a systematic review and meta-analysis of incidence proportion and contributing factors. *Spinal Cord*. 2019;57(7):526-539.
2. Sung J, Shen S, Motl RW, Sosnoff JJ. Bladder function and falls in individuals with multiple sclerosis. *Disabil Rehabil*. 2016;38(22):2193-2197.
3. Forslund EB, Jorgensen V, Franzen E, et al. High incidence of falls and fall-related injuries in wheelchair users with spinal cord injury: A prospective study of risk indicators. *J Rehabil Med*. 2017;49(2):144-151.
4. Sung J, Trace Y, Peterson EW, Sosnoff JJ, Rice LA. Falls among full-time wheelchair users with spinal cord injury and multiple sclerosis: a comparison of characteristics of fallers and circumstances of falls. *Disabil Rehabil*. 2019;41(4):389-395.
5. Pendleton HM, Schultz-Krohn W. *Pedretti's occupational therapy: Practice skills for physical dysfunction* 8th ed: Elsevier; 2018.

Appendix D
Manual Wheelchair Maintenance Checklist

Weekly:

- Inspect rear wheel tire pressure
- Fill rear wheel tires with air if low pressure
- Inspect wheelchair cushion and cover (i.e., for bottoming out or other problems)
- Wipe down your chair
- Check wheel locks and tighten as needed

Monthly:

- Check for loose nuts and bolts and tighten as needed
- Inspect rear wheel tires
- Check rear wheel alignment
- Inspect rear wheels for loose or bent spokes
- Inspect quick-release axle on rear wheel
- Wipe down and lubricate rear wheel axle
- Inspect locks
- Inspect hand rim
- Wipe down wheelchair cushion and cover
- Inspect and clean caster (wheel) bearings
- Inspect anti-tip on casters (wheels)
- Inspect footrests or footplate for excessive movement and adjust as needed
- Inspect arm/leg/back support
- Wipe down upholstery and supports
- Inspect positioning belt (seatbelt) for rips, cracks, or other damage
- Wipe down wheelchair frame
- Inspect welds/cross-brace/suspension on wheelchair frame

Yearly:

- Have your manual wheelchair inspected and serviced by an authorized wheelchair vendor. Check with your insurance company or the wheelchair manufacturer to see how often this is covered. Some vendors may not cover this on a yearly basis. Below is a list of customer service numbers for common wheelchair vendors. If you are unsure who your vendor is, you can contact the wheelchair manufacturer for help.

Common wheelchair vendors:

- **Permobil/TiLite:** 1-800-736-0925
- **Pride Mobility** (Jazzy, Go-Go Scooters, Quantum Rehab): 1-800-800-4258
- **Invacare** (TopEnd, Kuschall): 1-800-333-6900
- **Sunrise Medical** (Quickie, Sterling Scooters): 1-800-333-4000
- **Hoveround:** 1-800-96-HOVER

Source: University of Pittsburgh Wheelchair Maintenance Training Program

Manual Wheelchair Maintenance Checklist

Weekly Basis					
Item	Date Completed				
Inspect tire pressure & fill to recommended pressure					
Inspect cushion and cover					
Wipe down your chair					
Check wheel locks & tighten as needed					
Monthly Basis					
Item	Date Completed				
Check for loose nuts and bolts and tighten as needed					
Inspect rear wheel tires					
Check rear wheel alignment					
Inspect rear wheels for loose or bent spokes					
Inspect quick-release axle on rear wheel					
Wipe down and lubricate rear wheel axle					
Inspect locks					
Inspect hand rim					
Wipe down wheelchair cushion and cover					
Inspect and clean caster (wheel) bearings					
Inspect anti-tip on casters (wheels)					
Inspect footrests or footplate and adjust as needed					
Inspect arm/leg/back support					
Wipe down upholstery and supports					
Inspect positioning belt (seatbelt)					
Wipe down wheelchair frame					
Inspect welds/cross-brace/suspension on wheelchair frame					
Yearly Basis					
Item	Date Completed				
Wheelchair <u>serviced</u> and <u>inspected</u> by wheelchair vendor					

Appendix E
Power Wheelchair Maintenance Checklist

Daily:

- Charge the battery
- Monitor for any issues with motor noise
- Monitor for any issues with driving and braking
- Monitor for any issues with power seat functions
- Monitor for any issues with controller, joystick, controls, indicators, and horn

Weekly:

- Inspect tires
- Inspect tire pressure (for pneumatic tires)
- Inspect wheelchair cushion and cover (i.e., for bottoming out or other problems)

Monthly:

- Check for loose nuts and bolts and tighten as needed
- Inspect and clean caster (wheel) bearings
- Inspect anti-tip on casters (wheels)
- Wipe down wheelchair cushion and cover
- Inspect footrests or footplate for excessive movement and adjust as needed
- Inspect arm/leg/thigh/trunk/back support
- Inspect positioning belt (seatbelt) for rips, cracks, or other damage
- Wipe down upholstery and supports
- Inspect welds/shrouds/suspension on wheelchair frame
- Wipe down wheelchair frame
- Clean power seat functions mechanism and track
- Make sure all wiring and electrical connections are clean and intact
- Inspect battery and charger

Yearly:

- Have your power wheelchair inspected and serviced by an authorized wheelchair vendor. Check with your insurance company or the wheelchair manufacturer to see how often this is covered. Some vendors may not cover this on a yearly basis. Below is a list of customer service numbers for common wheelchair vendors. If you are unsure who your vendor is, you can contact the wheelchair manufacturer for help.

Common wheelchair vendors:

- **Permobil/TiLite:** 1-800-736-0925
- **Pride Mobility** (Jazzy, Go-Go Scooters, Quantum Rehab): 1-800-800-4258
- **Invacare** (TopEnd, Kuschall): 1-800-333-6900
- **Sunrise Medical** (Quickie, Sterling Scooters): 1-800-333-4000
- **Hoveround:** 1-800-96-HOVER

Source: University of Pittsburgh Wheelchair Maintenance Training Program

Power Wheelchair Maintenance Checklist

Daily Basis					
Item					
Charge the battery					
Monitor for any issues with motor noise					
Monitor for any issues with driving and braking					
Monitor for any issues with power seat functions					
Monitor for any issues with controller, joystick, controls, indicators, and horn					
Weekly Basis					
Item			Date Completed		
Inspect tires					
Inspect tire pressure (for pneumatic tires)					
Inspect wheelchair cushion and cover					
Monthly Basis					
Item			Date Completed		
Check/tighten loose nuts and bolts					
Inspect and clean caster (wheel) bearings					
Inspect anti-tip on casters (wheels)					
Wipe down wheelchair cushion and cover					
Inspect/adjust footrests or footplate					
Inspect arm/leg/thigh/trunk/back support					
Inspect positioning belts (seatbelt)					
Wipe down upholstery and supports					
Inspect welds/shrouds/suspension on wheelchair frame					
Wipe down wheelchair frame					
Clean power seat functions mechanism and track					
Make sure all wiring and electrical connections are clean and intact					
Inspect battery and charger					
Yearly Basis					
Item			Date Completed		
Wheelchair <u>serviced</u> and <u>inspected</u> by wheelchair vendor					

Appendix F

Scooter Maintenance Checklist

Daily:

- Charge the battery
- Monitor for any issues with motor noise
- Monitor for any issues with driving and braking
- Monitor for any issues with controller, joystick, controls, indicators, and horn

Weekly:

- Check tire pressure
- Do a quick surface clean of your scooter

Monthly:

- Check for loose nuts and bolts and tighten as needed
- Inspect and clean caster (wheel) bearings
- Inspect positioning belt (seatbelt) for rips, cracks, or other damage
- Inspect footrests or footplate for excessive movement and adjust as needed
- Inspect battery and charger

Yearly:

- Have your scooter inspected and serviced by an authorized scooter vendor. Check with your insurance company or the scooter manufacturer to see how often this is covered. Some vendors may not cover this on a yearly basis. Below is a list of customer service numbers for common scooter vendors. If you are unsure who your vendor is, you can contact the scooter manufacturer for help.

Common scooter vendors:

- **Permobil/TiLite:** 1-800-736-0925
- **Pride Mobility** (Jazzy, Go-Go Scooters, Quantum Rehab): 1-800-800-4258
- **Invacare** (TopEnd, Kuschall): 1-800-333-6900
- **Sunrise Medical** (Quickie, Sterling Scooters): 1-800-333-4000
- **Hoveround:** 1-800-96-HOVER

Source: Utah Assistive Technology Program

Scooter Maintenance Checklist

Daily Basis					
Item					
Charge the battery					
Monitor for any issues with motor noise					
Monitor for any issues with driving and braking					
Monitor for any issues with controller, joystick, controls, indicators, and horn					
Weekly Basis					
Item			Date Completed		
Check tire pressure					
Do a quick surface clean of your scooter					
Monthly Basis					
Item			Date Completed		
Check for loose nuts and bolts and tighten as needed					
Inspect and clean caster (wheel) bearings					
Inspect positioning belts (seatbelt) for rips, cracks, or other damage					
Inspect footrests or footplate for excessive movement and adjust as needed					
Inspect battery and charger					
Yearly Basis					
Item			Date Completed		
Wheelchair <u>serviced</u> and <u>inspected</u> by wheelchair vendor					