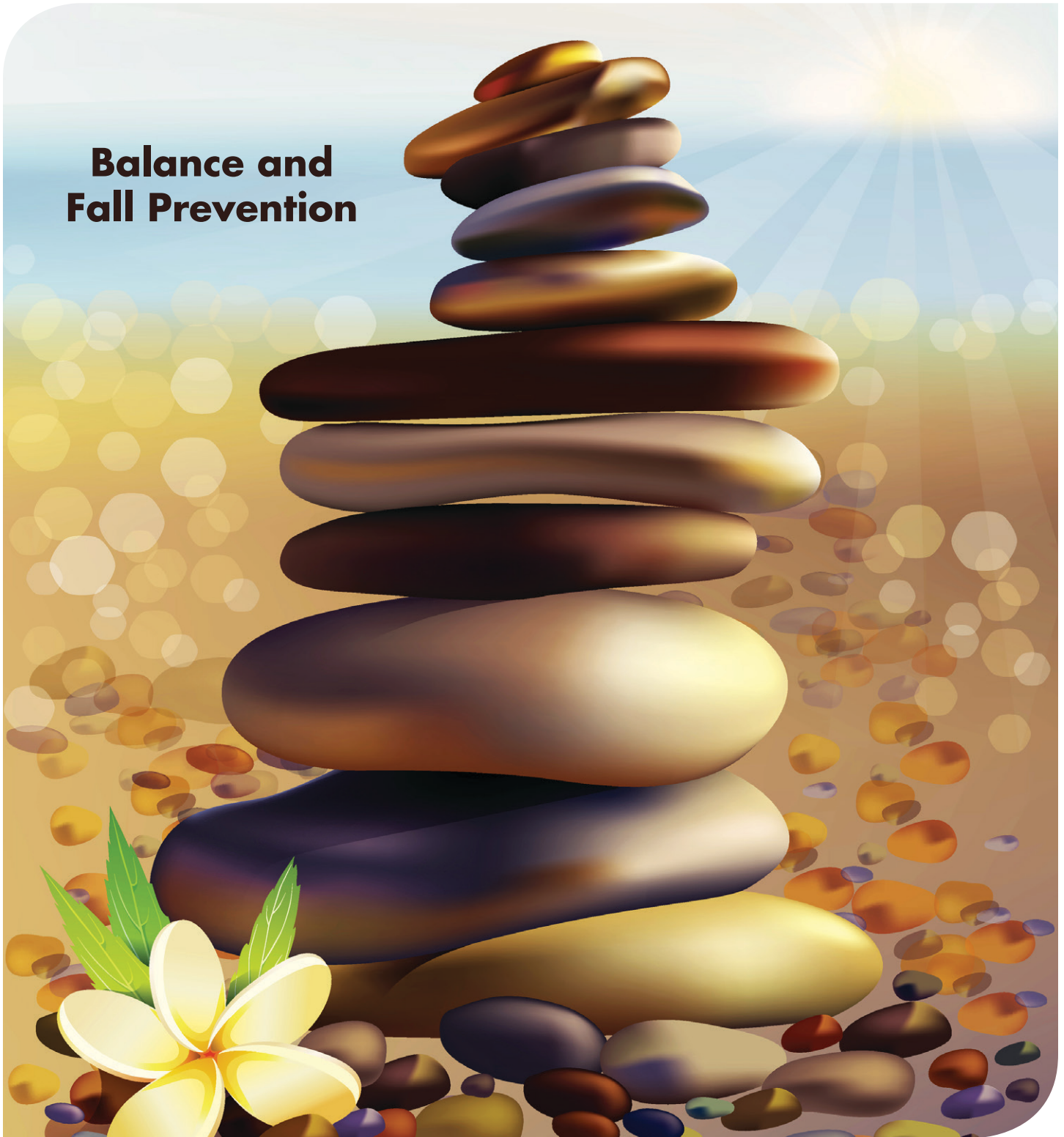


NARCOMS NOW

www.narcoms.org

Vol. 7, Issue 2, 2018

Balance and Fall Prevention



A Publication of the North American Research Committee on Multiple Sclerosis

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INFOCORNER



What is the Goal of NARCOMS?

The NARCOMS Global MS Patient Registry is a registry database that helps to facilitate research about multiple sclerosis for research centers across North America. Collaboration between MS centers of excellence throughout the world helps to increase knowledge, improve clinical care, and enhance the quality of life for persons with MS.



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Reminder When Completing Paper Surveys

Please use a **pen** rather than a pencil when filling out the NARCOMS paper surveys.



Tell Us Your Thoughts!

Have an idea? We would love to hear from you! Send us your questions, comments and suggestions.

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DIRECTOR’S LETTER

Dear *NARCOMS Now* Readers:

This issue of *NARCOMS Now* spotlights some current research on falls and fall prevention in people with multiple sclerosis (MS). While we focus on a study of falls among people using wheeled devices, fall prevention is relevant to anyone, especially people with health issues that affect mobility and balance. We hope you will find some of the tips and information useful.

We heard your feedback! The last *NARCOMS Now* (Issue 1, 2018) included a reply card and online survey asking for your opinions about this magazine. As always, NARCOMS registry members responded with an abundance of helpful input. So far we have received more than 500 responses. Here is a summary of what we learned:

- Of those who responded, *NARCOMS Now* readers find the publication “very relevant” (60%) or “somewhat relevant” (38%) to their interests.
- Nearly all (85%) find *NARCOMS Now* easy to read.
- Favorite Sections: (in order of preference)
 1. Summaries of key news/research in MS
 2. Feature articles/interviews with experts
 3. Updates on how NARCOMS data are used in MS research
 4. Word search puzzle
 5. Q&A/tips for completing NARCOMS surveys

Some of you commented about the redesign of the magazine, and liked the “theme” approach to the issue. Many *NARCOMS Now* readers also provided specific suggestions for topics they would like to see in the future. Some of these included:

- Exercise
- Natural and alternative treatments
- Effects of stress
- Sleep issues
- MS symptoms such as bowel, bladder, swallowing
- Issues relating to aging and employment
- Secondary progressive MS

Thank you for your continued input, and for helping to improve this publication and the NARCOMS program in general. The goal of NARCOMS is to support research that improves the lives of people with MS. Having real-world input from people affected by MS is key to achieving that goal.

Sincerely,

Ruth Ann Marrie, MD, PhD
Scientific Director, NARCOMS



Ruth Ann Marrie, MD, PhD



FALLS

How to Prevent, Recover, and Move On



"Our greatest glory is not in never falling, but in rising every time we fall."

— Ralph Waldo Emerson

It's always better to prevent a fall than to have to recover from one. A recent study used preventive measures to help cut back on the number of falls among people with multiple sclerosis (MS) who use wheeled mobility devices.

A University of Illinois research team led by Laura A. Rice, PhD, MPT, ATP, recruited 16 study participants from the NARCOMS Registry. Dr. Rice's team taught the group several techniques to improve transfers to and from the chair or cart. They were also taught exercises to improve posture and core stability. "There are no other fall intervention programs for people with MS who use wheeled mobility devices," Dr. Rice said in an interview with *NARCOMS Now*. Although her study focused on wheeled devices, many of the concepts can apply to other people who have impaired gait or balance.

How Common Are Falls?

Falls occur more often than many people realize. Before starting the training program, participants in Dr. Rice's study said they had

about 1 to 2 falls per month. Most of the previous research on falls in MS has focused on people who are ambulatory. For example, in a research study from Portland, Oregon, people with MS reported an average of 2 to 3 falls over a 6-month period, compared with about 1 fall for control subjects without MS.

In the Oregon study, loss of balance was the main cause of falls for both the MS and non-MS groups. The control group fell mostly outside the house, usually when stepping on a slippery surface, but people with MS had falls both inside and outside. Those with MS said their falls were caused by other factors such as fatigue, heat, or distractions. People who use wheeled devices have a high risk of falls during transfers to a chair, bed, or toilet. Another cause of falls for this group is poor balance control when sitting.

Other than the obvious risk of injury from a fall, there are other negative consequences. Over 60% of people with MS report that they worry about falling, Dr. Rice explained. "These worries tend to reduce their confidence and self-esteem, which may lead a person to cut back on activities for fear of falling again." Often people who fall do not report it, because they don't want to worry family members or become a loss of independence.

Improving Transfer Techniques

In Dr. Rice's study, participants learned one of two types of transfer skills: either independent transfers (to do alone) or assisted transfers (with a helper). In both types of transfers there are 3 main steps:

1. Setup Phase. Correct placement of your chair/scooter and the body can make it safer to transfer.
2. Flight Phase. Your body is lifted toward the new surface.
3. End Phase. You have landed safely on your target surface, with the body positioned to prevent slipping.

Details on how to do these transfers are shown in Table 1 and Table 2.

Exercises to Help Seated Posture

A core-strengthening exercise program is shown on Page 7. These should be performed while seated on a chair or other firm, stable surface (ideally without using back support). You can start with your hands on the surface to aid with balance, but try to work toward

Table 1. Tips for Independent Transfers

1. Place chair as close to the transfer surface as possible to decrease the risk of a fall.
2. Place feet in a stable position on the floor to provide support.
3. Place the hand used for pushing off close to you and grip a nearby stable object.
4. Place the other hand on the surface close to where you want to land. Try to use a handgrip, but if this is not possible, place the hand flat on the surface facing forward.
5. Pick yourself up and transfer to your intended surface. Try to angle your head in the opposite direction of your hips, to reduce risk of falling.

Source: Rice LA, et al. Investigation of the feasibility of an intervention to manage fall risk in wheeled mobility device users with multiple sclerosis. *International Journal of MS Care*. Online First, May/June 2018;20(3):121-128.

Table 2. Tips for Assisted Transfers

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Place chair as close to the transfer surface as possible, to decrease fall risk. 2. Place feet in a stable position on the floor, regardless of whether you have full control of them. 3. Scoot forward to the edge of the chair. 4. Place one hand on a stable surface to help with pushing off. If a hand grip is not available, place the hand flat on the surface. | <ol style="list-style-type: none"> 5. Place the other hand flat on surface close to where you will be transferring. 6. Your helper should place his/her feet on either side of your feet, squat down, securely hold the gait belt, and lift you using the legs, keeping back straight. Communicate with your helper about when flight will begin and how to maintain control. 7. Ask your helper to position you properly on the new surface before releasing you. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Source: Rice LA, et al. Investigation of the feasibility of an intervention to manage fall risk in wheeled mobility device users with multiple sclerosis. *International Journal of MS Care*. Online First, May/June 2018;20(3):121-128.

placing your hands on your lap as you get stronger. Be sure to have a helper standing next to you to prevent falling during the exercises, Dr. Rice advised. Begin with 5 repetitions of each exercise and increase the number of reps by 5 per week. If you don't find them difficult, you can increase the number of reps or the number of times you exercise each day (maximum 3 times per day).

After exercising you should feel some muscle soreness, but not pain or extreme fatigue. "Listen to your body!" Dr. Rice stressed. "If you feel extreme fatigue, decrease the number of repetitions or the number of days per week that you exercise."

Recovering From a Fall

If you have recently had a fall, you are not

alone. In a Canadian survey of people with MS aged 55 and older in the NARCOMS registry, 354 responded and described a recent fall. Almost all had some sort of post-fall recovery story to tell. Many (about 27%) said they remained on the floor or ground for more than 10 minutes after falling, and some said they lay on the floor for more than an hour. Long post-fall wait times worsen fears of falling and lead to decreased participation in activities. "If you fall, there are do's and don'ts for recovering," Dr. Rice said. Some tips for recovering from falls are provided in Table 3.

Falling can create an emotional and vulnerable state for a person with MS, she noted. If you do fall, forgive yourself. Then focus on what you can do to increase your safety and prevent a future fall.

Table 3. Tips for Recovering From a Fall

These fall-recovery tips are provided by the National Multiple Sclerosis Society as part of its 8-module Free from Falls Program. See the full article for pictures of these steps.

1. Relax and breathe before trying to get up. You don't want to worsen any injuries by attempting to get up too fast.
2. If you feel you may be hurt, ask someone to call 911 or use your phone to do so. If you are alone and can't reach or crawl to a phone, try calling out for help.
3. If you are not injured, allow another person to help you up. Communicate how they can best assist you.

If you are not injured and intend to get up on your own, follow these steps:

1. Roll onto your stronger side and place your hands on the floor or ground.

2. Continue to roll, push yourself up to a position on your hands and knees.

Another way to recover:

1. Pull yourself to a stable surface (such as a chair or bed). Sit with your legs stacked toward the side.
2. Place hand and forearm on the chair and push up into a kneeling position with your forearm resting on the surface.
3. Shift your weight to one knee; bring the other knee up so your foot is resting on the floor. You are now half-kneeling.
4. Keeping your weight on the standing foot, push with both hands on the stable surface to bring yourself up to a standing position.
5. Turn your body around and sit on the stable surface.

Adapted from: Free From Falls: A Comprehensive Fall Prevention Program for People With MS. Week 7, Recovering Safely from a Fall. National Multiple Sclerosis Society, 2014. Available online at NMSS/Resources & Support/Library/Free From Falls/Module 7.

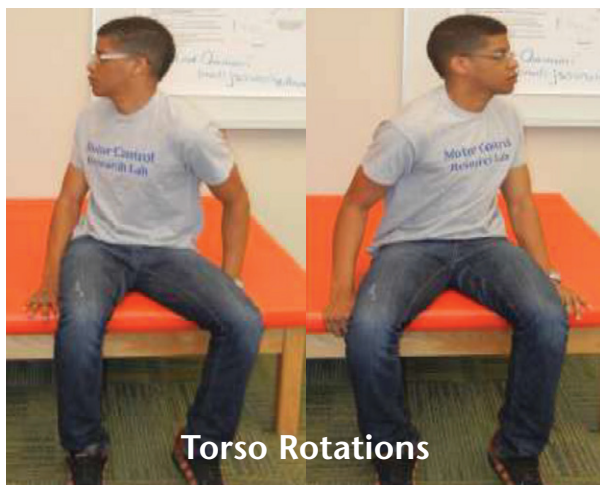
Exercises to Improve Seated Posture

WARM UP

- 1. Round and Arch Spine:** Start by rounding shoulders forward, then arch your back. Try to increase range of motion as your muscles warm up.
- 2. Torso Rotations:** Gently twist torso to the right, then to the left. (If you have had back surgery, clear this exercise with your doctor first.)

ROUTINE

- 3. Pelvic Tilt:** Start in neutral position, then tilt your pelvis by leaning forward. Squeeze abdominal muscles as you return to neutral.
- 4. Marching:** Lift one foot as high as possible, then return foot to floor. Switch feet.
 - *Challenge:* touch elbow to opposite lifted knee. (For example, touch your left elbow to your lifted right knee, then reverse.)
 - *Challenge:* lift both feet at the same time.
- 5. Lateral Spine Flexion:** Bend your body toward the right side, then to the left. (Challenge: lift your arms over your head as you bend sideways.)
- 6. Seated Torso Twists:** Reach your hand behind your back to the right, then to the left. (Check with your doctor if you have had back surgery).
- 7. Lean Backs:** With arms at your side, lean backward as far as possible, then sit up again.



Exercises to Improve Seated Posture *(Continued)*

8. **Scapular Retraction:** Hold your arms at 90 degrees and slightly away from your sides. Now squeeze your back muscles, moving shoulder blades together. Hold 5 seconds, then release.
9. **Forward/Lateral Reach:** Starting with right arm, reach forward, then out to the right side then back to neutral. Repeat with left arm. (For a challenge, don't hold onto the chair with your opposite arm.)
10. **Scout:** Scoot your bottom to the right 2 inches, then backward 2 inches, to the left 2 inches, then forward 2 inches.
11. **Toe Touches:** Bend forward and touch your toes (or as close as possible), alternating hands.

COOL DOWN

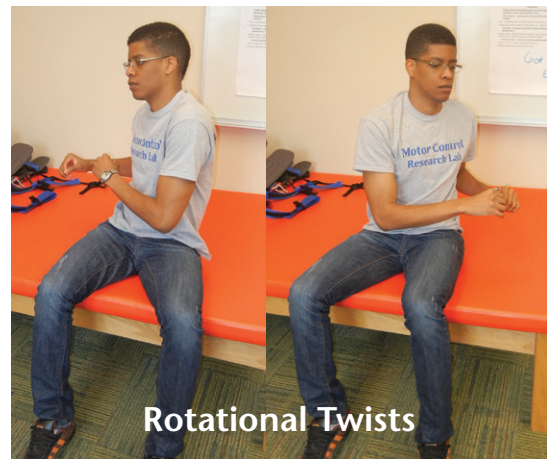
12. **Rotational Twists:** Gently twist your torso to the right, hold 5 seconds, then to the left and hold 5 seconds.
13. **Side Stretch:** Lean sideways toward the right and hold 5 seconds, then to the left and hold 5 seconds.



Forward/Lateral Reach



Toe Touches



Rotational Twists

For further description and more illustrations, see Rice LA, et al. Investigation of the feasibility of an intervention to manage fall risk in wheeled mobility device users with multiple sclerosis. *International Journal of MS Care*. Online First, May/June 2018;20(3):121-128.



SmartPhone App Targets Fatigue for People with MS

Many people with multiple sclerosis (MS) say fatigue is one of their most debilitating symptoms. A study at 16 medical centers in Belgium measured whether an “app”—a software application for smartphones—called MS TeleCoach could help to reduce feelings of fatigue. The MS TeleCoach app was developed by neurologists, occupational therapists, and other specialists. It uses “tele-monitoring” to measure a person’s physical activity remotely, and “tele-coaching,”—motivational messages that encourage the person to be more physically active. A neurologist monitored the data from the devices daily.

Over a 12-week study period, 57 people with relapsing-remitting MS between ages 18 and 60 participated, most with mild disability and mild-to-moderate fatigue. About a third of the participants had lower fatigue scores after the study, and many said they were satisfied with the intervention. The researchers suggested that, following further research, apps like this could be used to aid self-management among people MS to address their fatigue symptoms. The app is not yet available to upload, but the study suggested that programs like this could be helpful in managing fatigue.

Reference: D’hooghe M, Van Gassen G, Kos D, et al. Improving fatigue in multiple sclerosis by smartphone-supported energy management: The MS TeleCoach feasibility study. *Mult Scler Relat Disord.* 2018 May;22:90-96.

Long Periods of Sitting Linked to Gait Impairment in MS

Sitting has been called the “new smoking” because of the detrimental effects of excessive sitting on health. Most North American adults spend at least 4 to 5 hours per day sitting down. Researchers from the University of Alabama at Birmingham calculated average sitting times among a sample of 6,483 people with multiple sclerosis (MS) based on the North American Research Committee on MS (NARCOMS) registry Spring 2015 survey. The study showed that NARCOMS respondents had a median sitting time of 480 minutes (7.8 hours) per day. Factors associated with higher sitting times (between 9 and 11 hours) included male gender, unmarried, lower income, longer disease duration, and presence of progressive MS. Not surprisingly, gait impairment was a major indicator of longer sitting times. The researchers found that there seems to be a critical point—with PDDS 3 or gait disability—when sitting times rise dramatically among people with MS. The authors suggested that “reducing sitting time before or at the stage of gait disability may be fundamental for interrupting and/or decelerating the possible vicious cycle of sedentary behavior and functional limitations in MS.”

Reference: Sasaki JE, Motl RW, Cutter G, et al. National estimates of self-reported sitting time in adults with multiple sclerosis. *Mult Scler J Exp Transl Clin.* 2018 Jan 19;4(1).

*Patient-Determined Disease Steps

Pilates Improves Mobility and Walking in People with MS

Pilates, a series of exercises to improve strength, flexibility, posture, and mental awareness, may have added benefits for people with multiple sclerosis (MS). A study from Canadian researchers at the University of Saskatchewan explored the effects of pilates on walking performance in people with MS. The study assessed 30 ambulatory individuals with MS, separated into two groups. One group did a 50-minute pilates workout twice a week along with once-weekly massage therapy, while the other group received only massage. At the end of 12 weeks, the pilates group achieved substantially longer distance during a timed 6-minute walk, compared to the massage-only group. The pilates routine included exercises to improve core strength, shoulder mobility, breathing, and body alignment. Pilates can be part of a safe and effective exercise regimen for people with MS, the researchers noted.

Reference: Duff WRD, Andrushko JW, Renshaw DW, et al. Impact of pilates exercise in multiple sclerosis: A randomized controlled trial. *Int J MS Care*. 2018 Mar-Apr;20(2):92-100.



Wearable Technology Helps Pinpoint How People with MS Compensate for Gait Impairment

How multiple sclerosis (MS) affects a person’s gait and mobility varies for each person. “Wearable technology” might provide clues to where a person struggles most in terms of declining coordination, flexibility, and muscle strength. A study conducted in Australia used tri-axial accelerometers—devices that measure motion and vibration—to compare head and pelvis movements of 12 people with MS and 12 people without

“Earlier detection of gait abnormalities may help identify people who are at risk of falling.”

MS during 6-minute walk tests. Compared to the non-MS group, people with MS had asymmetrical head and pelvis movements. These are “movements that a person uses to try to counteract problems with gait. Examples might be hiking the hip, or swinging the leg out to the side.

“Earlier detection of gait abnormalities may help clinicians to identify people with MS who are at risk of falling, and facilitate targeted rehabilitation interventions to address the underlying gait restrictions,” the researchers noted. For example, treating ankle contractures (stiffness) and improving ankle range of motion may prevent the person from having abnormal movements in their gait.

Reference: Psarakis M, Greene D, Cole MH, et al. Wearable technology reveals gait compensations, unstable walking patterns and fatigue in people with multiple sclerosis. *Physiol Meas*. 2018 Apr 27. E-pub ahead of print.

Tai Chi Can Improve Balance and Quality of Life in People with MS

Tai chi (pronounced “tie-chee”) was developed in China as a martial art to improve balance, strength, flexibility, speed, coordination, and agility. Over time, Tai chi has evolved into an exercise that also enhances gracefulness and mindfulness. It can be practiced by people of any age and has been studied in older adults and in many disease states. Researchers in the United States and China have examined the evidence to see whether Tai chi helps to improve balance, fatigue, well being, and other issues in people with MS.

The article’s conclusions were based on 10 well-designed studies of Tai chi in people with MS. The major benefits were related to quality of life and functional balance. The evidence also showed that Tai chi can help with flexibility, leg strength, gait, and reducing pain among people with MS. Some studies showed that practicing Tai chi could improve fatigue. Tai chi could be considered as a low-cost, long-term approach to help improve MS symptoms and quality of life, the authors said. To find out about adaptive Tai chi classes, contact the American Tai Chi and Qigong Association (email TC@AmericanTaiChi.net or use the online class locator) or the IDEA Health and Fitness Association (800-999-4332).

Source: Zou L, Wang H, Xiao Z, et al. Tai chi for health benefits in patients with multiple sclerosis: A systematic review. *PLoS One*. 2017;12:e0170212.

How Well Does Yoga Improve Symptoms In People with MS?

Yoga is one of the most popular forms of exercise chosen by people with multiple sclerosis (MS) for symptom management. A study from Rutgers University in New Jersey sought to find out how well yoga could improve quality of life, physical performance, and mental performance in people with MS. Participants included 14 people with moderate disability, an average MS duration of 14 years, aged between 34 and 64 years.

The yoga course was taught for 90 minutes, 2 times per week, for 8 weeks. Participants said they noticed improvements in symptoms such as fatigue, bladder control, mental health, and some measures of walking and coordination. Although this was a small study, it suggests that a specially designed yoga course can be an effective way to improve some symptoms of MS.

Source: Cohen ET, Kietrys D, Fogerite SG, et al. Feasibility and impact of an 8-week integrative yoga program in people with moderate multiple sclerosis-related disability: a pilot study. *Int J MS Care*. 2017;19:30-39.





SNAPSHOT

HOW WE'RE USING YOUR NARCOMS FEEDBACK

Self-Reported Falls in the NARCOMS Registry

A fall can happen to anyone. Falls are more common in people with MS than in the general population, but older adults who do not have MS also have a high risk of falls. As discussed in the Feature Focus, pages 4–7, finding ways to prevent falls has emerged as an important goal for public health research. NARCOMS registry participants have contributed to several fall-related studies over the years. We will continue our collaborations in this important field of study. Thank you very much for your assistance!

In the Spring 2015 update survey we asked the 7,908 responders the following question: In the past 12 months, have you had an

accidental fall? Those responders who reported a fall were then asked: 1) to report the number of falls in 12 months, 2) whether they were injured in any of the falls, and 3) whether they had broken or fractured any bones.

Overall, one out of two (50%) responders reported at least one fall in the past 12 months. Falls were more common among responders who were walking with difficulty (Figure 1). However, even at the lowest Patient Determined Disease Steps (PDDS) level, one out of five (20%) responders reported a fall. Falls also took place at PDDS levels 7 and 8, underlining the need for safe transfer techniques.

Half of NARCOMS respondents who reported an accidental fall had fallen less than 3 times in the past year. Overall, the number of reported falls ranged from 1 to as high as 30.

Figure 1. Proportion of responders reporting a fall at each PDDS level

This chart shows the number of falls occurring among NARCOMS respondents, according to PDDS level. About 30% to 40% of people with normal or mild (level 1) PDDS said they had a fall in the past 12 months, while about 70% of people with PDDS levels of 5 or 6 had a recent fall.

*PDDS=Patient-Determined Disease Steps

Did you have an accidental fall in the past 12 months? (n=7,908)

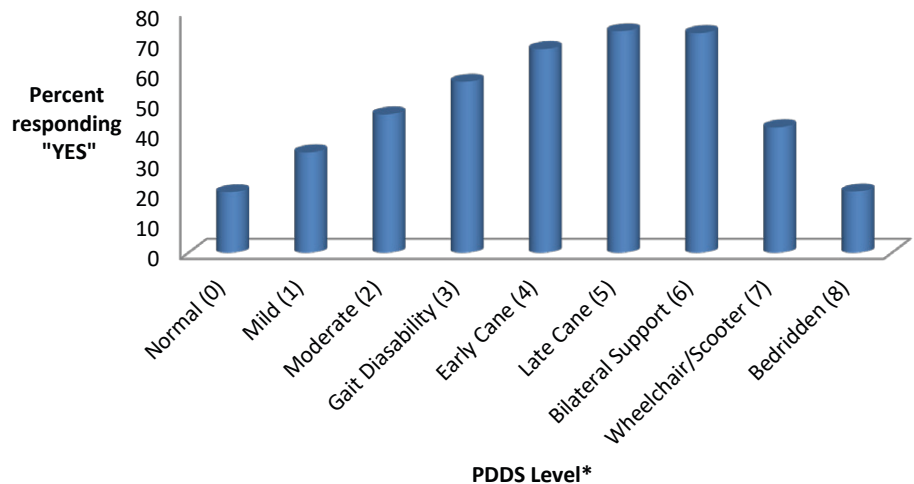
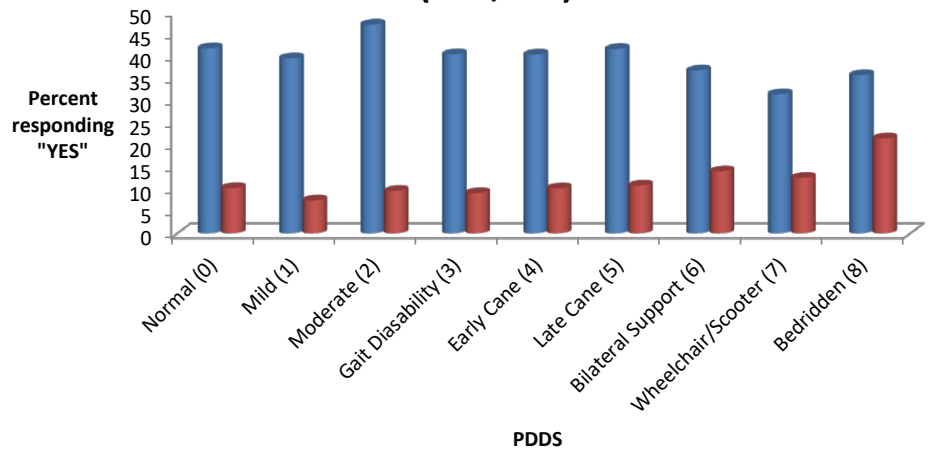


Figure 2. Proportion of responders reporting falls who indicated an injury (blue bars) or broken/fractured bones (red bars) at each PDDS level

Blue bars show the percentage of responders who were injured in one or more of the falls reported. The red bars reflect the increasing likelihood of broken or fractured bones at higher PDDS levels, which may be associated with older age. (Note that PDDS level 8 had fewer responders than the other levels.)

BLUE: Were you injured in any of the falls?
RED: Did you break or fracture any bones?
(n=3,929)



As expected, PDDS levels of 3 or higher were associated with higher number of falls (data not shown).

Figure 2 illustrates the breakdown of serious falls according to PDDS level. The proportion of falls that resulted in injury ranged from 31% to 47%, but was relatively stable across the different PDDS levels.

Among people with MS, there is a substantial risk of falls, even for those who do not have

significant gait difficulties. The risk of falls increases as gait dysfunction becomes more severe. The overall likelihood of injuries resulting from a fall appears to be similar across all disability levels. However, the risk for broken or fractured bones may be higher at the highest disability levels. Adopting measures to prevent falls is highly relevant to everybody. However, the prevention strategies may be different, depending on disability level.

FREE FROM FALLS:
 THE NATIONAL MS SOCIETY'S COMPREHENSIVE FALL PREVENTION PROGRAM

More Fall Prevention Resources from NMSS

The "Free From Falls" program from the National Multiple Sclerosis Society (NMSS) is a great way to assess your risk of falls and find ways to increase confidence. Do an online search for "Free From Falls," or find it on the NMSS website under Library & Education Programs. If you're not a computer user, you can get printed material from NMSS by calling **1-800-344-4867**. The program consists of 8 online modules, including webinars and downloadable materials.

FREE FROM FALLS


What contributes to fears of falling?

- Prior falls (and injuries)
- Balance confidence
- Changes in ability
- Embarrassment
- Personal expectations
- Family expectations



NARCOMS Q&A

Why does it sometimes take a long time before we hear about the survey results?

 Research results tend to have the biggest impact when they are shared with a specific target audience. Usually the best way to reach researchers and clinicians on a large scale is to present the main findings at a scientific conference and then publish the results in more detail in a peer-reviewed journal. The main content of conference presentations and published papers will often get cited in other manuscripts, which serves to spread the results even further. For instance, the main findings of the NARCOMS diet paper published last year

have already been cited in dozens of other journal articles.

The most interesting content from the professional journals also tends to find its way to blogs and magazines—sometimes with a bit of a delay. But, why is this news delayed? Many scientific journals have strict rules. They accept new material only if it has not been previously published elsewhere, including in *NARCOMS Now*. Even with careful preparation, the manuscript submission, peer-review and

Continued on page 15

Want to Help Promote NARCOMS? Introducing Our New Ambassador Program

NARCOMS is looking for approximately 50 people across the U.S. and Canada to serve as NARCOMS Ambassadors in their own area. You could be one of them! The goal of this new program is to encourage more people with MS to join the registry. NARCOMS Ambassadors will receive information and tools to spread the word about NARCOMS participation.

Over the years, registry participants have often told us about how they share their NARCOMS experiences with other people with MS, either in person or in online conversations. We appreciate your spreading

the message, and would like to offer our support to those who enjoy doing so. As a NARCOMS Ambassador, you would serve as a volunteer, but we will provide you with promotional materials, information and telephone support to assist you as needed.

If you are interested, please contact Michele at MSregistry@NARCOMS.org or 1-800-253-7884 by the end of August 2018 to learn more about the program. The selection process will include a phone interview. We are aiming to finish selections by the end of September. We look forward to brainstorming with you on activities in your area and online!

revision process can be prolonged – sometimes up to 18 months for certain medical journals. While NARCOMS and our collaborators are eager to share survey results with you as soon as possible, we need to follow the publications’ rules—although a brief sneak peek in *NARCOMS Now* is sometimes possible.

On a practical level, the process of large-scale survey collection, data entry, and validation often takes several weeks. We have recently streamlined the process to make new data available for analysis sooner. Your timely completion of each survey greatly helps with the process!

Play WORDSEARCH

Find the following hidden words relating to *mobility and balance*.

- BACKWARD
- ENERGY
- EXERCISE
- FLEXION
- FORWARD
- LATERAL
- MARCHING
- PREVENTION
- RECREATION
- RELAXATION
- RETRACTION
- ROTATION
- SIDEWAYS
- STRETCH
- SWIMMING
- TWIST

T	N	N	Y	A	U	S	N	E	L	M	X	L	S	J
G	V	O	Y	G	T	F	X	Y	N	A	W	A	Y	F
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P	Y	S	Y	R	E	L	A	X	A	T	I	O	N	W
J	V	T	Y	N	R	G	N	I	M	M	I	W	S	T
I	L	F	Q	Q	C	F	D	R	A	W	R	O	F	J
C	J	S	T	L	E	D	G	E	K	U	T	I	N	H
P	L	D	N	C	R	N	M	U	L	G	F	Z	B	F

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IN THIS ISSUE

- **Feature Focus on fall prevention:** A study with NARCOMS participants looks at fall risk in people who use seated mobility devices. Includes tips for safer transfers and exercises to improve seated posture.
- **MS News:** Focuses on balance-improving exercises such as yoga, Tai chi, and pilates, plus use of technology to monitor and address MS symptoms.
- **Survey results** on frequency of falls in the NARCOMS population
- **NARCOMS Ambassador program:** See page 14 for more information



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