

WEBINAR & TELELEARNING SERIES



Spasticity in MS



July 12, 2016

Presented by:



Teva Pharmaceuticals | Acorda Therapeutics

Mallinckrodt Pharmaceuticals Autoimmune and Rare Diseases | US Bank



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**National
Multiple Sclerosis
Society**



How to Ask Questions During the Webinar:

- **Chat Feature** – Type in your questions using the chat box on the lower left hand side of your screen.

The screenshot shows a webinar interface. On the left, there is a chat box with a 'Hide Chat' and 'Raise Hand' button at the top. The chat box contains a 'Chat with Presenter:' label, a text input field with the placeholder 'Type your question here...', and a 'Send' button. A red circle highlights the chat box, and a red arrow points to the 'Send' button. To the right of the chat box, there is a purple banner with the text 'I AM. I CAN. I WILL.' and 'Can Do Multiple Webinar'. Below the banner, the date 'July 9, 2013' and time '8:00 – 9:00 PM Eastern Time' are displayed. The topic 'Bladder & Bowel Issues: To Pee or Not to Pee?' is shown under the heading 'DISCUSSION'. The presenter is identified as 'Dr. Susan Kalota, Urology & Can Do MS Program' under the heading 'PRESENTER'. At the bottom, there is a green banner with the text 'DISCOVER THE POWER TO BE more THAN'. The 'CAN DO Multiple Sclerosis' logo is in the bottom left, and the 'MS National Multiple Sclerosis Society' logo is in the bottom right.

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What is spasticity

- Stiffness or tightness in the muscles
- Increased muscle tone
- Can be mild or severe, and can change from day to day
- Can be constant or cause spasms or involuntary movements
- Can affect any muscle, but is most commonly seen in the arms or legs, hips or back

Pathophysiology

It may be that MS lesions in the brain and spinal cord disrupt the signals that help maintain the normal balance between muscle relaxation and contraction.

These opposing muscle groups remain activated, leading to muscles in a constant state of contraction.

Signs and Symptoms of Spasticity

- Increased reflexes
- Clonus (repeated muscle contractions)
- Increased muscle tone
- Limited range of motion of joints
- Impaired voluntary movements
- Muscle spasms:
 - Limb jerks out (extensor spasm)
 - Limb bends (flexor spasm)
 - Limb pulls inward (adductor spasm)
 - May cause arching of the back

Spasticity and Mobility

- Can limit the range of motion and normal movement of an extremity
- Can interfere with any aspect of mobility
 - Walking
 - Sitting
 - Transfers
 - Can increase risk for falls
 - Can cause contractures (frozen joints)
 - Pressure sores
 - Pain

Spasticity Exacerbators

- Infection
- Full Bladder
- Constipation
- Tight clothing
- Position
- Sudden movements
- Heat or humidity

How is Spasticity Managed?

Physical Therapy

Medications

Avoiding or minimizing conditions that may exacerbate spasticity.

Physical Therapy Evaluation

Subjective

Subjective

- How does your spasticity assist or interfere with your function
- Has it caused you injuries
- What is the frequency of the spasms
- Any pain due to spasticity
- Any known triggers

Physical Therapy Evaluation Objective

- Assess spasticity
 - Ashworth scale (1-4 scale)
- Range of Motion
- Strength
 - 0-5 scale

Physical Therapy Evaluation Objective

- ❑ Mobility assessment
 - Assistance required
 - Compensatory movements
 - Safety
 - Technique used
 - Equipment needed

Potential Complications of Spasticity

- Contractures
- Increasing spasticity
- Declining mobility
- Pain
- Skin breakdown
- Fatigue / decreasing endurance
- Falls, injuries

MS and Spasticity

- Fall prevalence: *“in a given year, nearly 60% of individuals with MS will experience a fall”*¹
- *“Over 70% of older people with MS report moderate to extreme balance problems”*²

¹ *International Journal of MS Care (Vol 16, Number 4, Winter 2014, p161).*

² *International Journal of MS Care (Vol 16, Number 4, Winter 2014, p163).*

Spasticity Management

- Stretching
- Positioning
- Strengthening, especially opposing muscles
- Correcting mobility
- Consider equipment to decrease difficulty of mobility/decrease fatigue

Work Smarter, Not Harder

- Proper posture and body mechanics
- Sit when possible
- Use equipment as needed to avoid reaching, carrying, squatting
- Use orthotics or mobility devices as needed to decrease energy expenditure of walking

Orthotics and Mobility Devices



Get properly evaluated



Assistive / Mobility Devices



Perspectives by a Person with MS Living with Assistive Devices

“I’d realize how much energy, both mental and physical, I had been using just to maintain my activity *without* the equipment: how much easier the use of the device made it for me, how much more energy it allowed me to have, how much more independent it allowed me to be, how much better it helped me feel about myself! The other thing I found was that it helped me to see how many things I had *stopped* doing without even realizing it, but that I could now do again! “

Orthotics – Low Tech



Orthotics – High Tech



How to choose

What makes you walk most normally?

When your walking is more normal:

- *Less energy expenditure/fatigue*
- *Less spasticity*
- *Decrease fall risk*

Establishing an Exercise Program for Spasticity Management

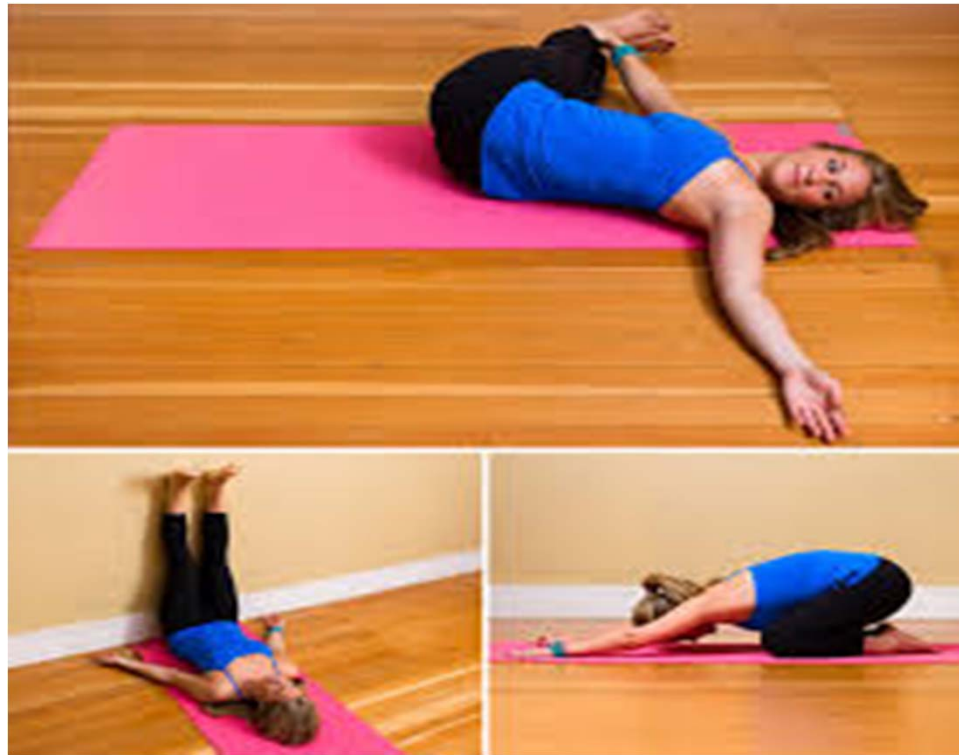
- Flexibility exercises
- Strength training
- Balance and vestibular training
- Aerobic training / cardio

Stretching Exercises

- Hip flexors
- Hip adductors
- Quads
- Hamstrings
- Gastroc



Flexibility - Yoga



Equipment for Flexibility Exercises

- Theraband stretch strap
- Yoga strap



Also consider:

- Belt
- Dog leash or collar
- Towel



Flexibility – “Rules”

- No bouncing
- Sustain stretch for 30-60 seconds
- Maintain proper alignment, posture
- Perform daily
- Relaxed breathing
- Perform slowly

Flexibility Exercises

Routine For: Can Do MS
Created By: Kathy SanMartino, PT, NCS, MSCS

Jul 14, 2014

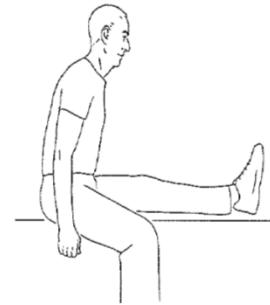
AROM - 55 TRUNK: Rotation

Sit at edge of sitting surface with upright posture. Turn at waist to look over shoulder.



5 reps per set,
1 set per day

STRETCHING - 32 HIP: Hamstrings – Long Sitting



Place one leg on surface with knee straight. Lean forward keeping back straight. Hold 30 seconds.
5 reps per set, 1 set per day

STRETCHING - 26 HIP: Adductors



Lie on edge of surface. Place leg off surface.
Hold 5 minutes each side.

STRETCHING - 53 SCI SELF STRETCH
Calf Stretch



Place strap around foot. Pull toes up to stretch back of calf, keep knee straight. Hold 30 seconds.
5 reps per set, 1 set per day

Flexibility Positioning Devices



Hip abductor wedge



Multipodus system/
PRAFO

Flexibility - Standing



Easy Glide Standing Table



Prime Engineering Standing Table

Strengthening Exercise

❖ Core Strengthening



❖ Functional Strengthening



Strength Training



Can't hold onto the weights?...

Want to keep it simple...

- Adjustable velcro weights
- Theraband or theratube



Strength Training



Strength Training in the Pool

- AquaFlex fitness paddles
- Aquatic therapy water dumbbells

Strength Training



Strength Training in the Pool

- Cafeteria tray
- Pool weights

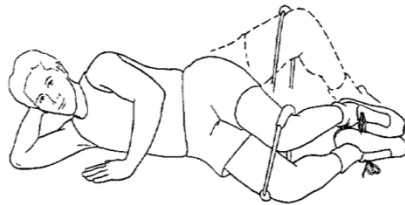


Strengthening Exercises

Routine For: CanDoMS
Created By: Kathy SanMartino, PT, NCS, MSCS

Jul 16, 2014

REHAB: LOWER EXTREMITY - 6 Hip Abduction: Side-Lying (Single Leg)



Lie on side with knees bent, tubing around thighs just above knees. Raise top leg, keeping knee bent. (Can do this sitting in chair - tube around thighs, spread knees apart.)

Repeat 1- times per set. Repeat on other side.
Do 1-3 sets per session. Do 3 sessions per week.

HIP - 11 FLEXION: Sitting – Resistance Band (Active)

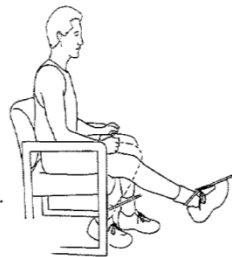
Sit, both feet flat.
Against yellow resistance band, lift right knee toward ceiling.



Complete 1-3 sets of 10 repetitions.
Perform 3 sessions per week.

REHAB: LOWER EXTREMITY - 11 Knee Flexion: Sitting (Single Leg)

Sit facing anchor, leg extended. Tubing looped around ankle, flex knee, pulling back.

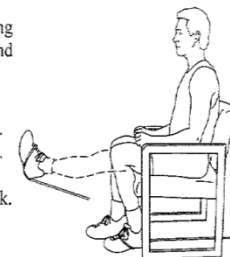


Repeat 10 times per set.
 Repeat with other leg.
Do 1-3 sets per session.
Do 3 sessions per week.

Anchor Height: Knee

REHAB: LOWER EXTREMITY - 12 Knee Extension: Sitting (Single Leg)

Sitting, face away from anchor, knee flexed, tubing looped around foot. Extend knee.



Repeat 10 times per set.
 Repeat with other leg.
Do 1-3 sets per session.
Do 3 sessions per week.

Anchor Height: Mid-shin

Strength Training

Routine For: Can Do MS
Created By: Kathy SanMartino, PT, NCS, MSCS

Jul 14, 2014

FUNCTIONAL MOBILITY - 20 SIT TO STAND No Device

Sit with feet shoulder-width apart, on floor. Lean chest forward, stand up. Weight bear equally on left and right sides.



5 reps per set,
1 set week

TRUNK ACTIVATION - 16 FORWARD LEAN Reverse Sit-Up

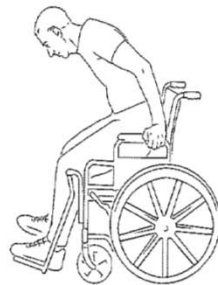
From sitting position, tighten abdominals. Slowly lean backward at the waist toward pillows or bolster.



10 reps per set,
1-3 sets per day,
3 days per week

FUNCTIONAL MOBILITY - 46 PRESSURE RELIEF Depression

Lock wheelchair brakes. Push down with arms on armrests or wheels to raise hips up.



Repeat 10 times per set.
Perform 1-3 sets of 10.



Aerobic Training / Cardio

Aerobic exercise is defined as activities that:

- ✓ increase heart rate
- ✓ involve large muscle groups
- ✓ can be sustained for at least 10 minutes

CDC Comments

- CDC recommends at least 2.5 hours a
- week of moderate intensity aerobic
- physical activity.
- Aerobic activity can be performed in episodes of at least 10 minutes.
- *Resources for HCPs/Disability&Health.www.cdc.gov*

RPE

- 0 Nothing
- 1 Very, Very Light
- 2 Very Light
- 3 Moderate
- 4 Somewhat Hard
- 5 Hard
- 6
- 7 Very Hard
- 8
- 9 Very, Very Hard
- 10 Maximal



Aerobic Training / Cardio



RTI electrical
stimulation bike



Handcycles

Aerobic Training / Cardio



Aerobic Training / Cardio



Exercising with MS

- Should recover from fatigue of exercising within 1-2 hours
- Temperature management
- Energy “budget” consideration

Exercise Resources

- Exercise DVDs from NMSS
- NMSS or CanDo wellness programs
- Fitness Programs at local rehab hospitals or private PT clinics

Exercising with MS – Staying Cool



- High tech
 - cooling vests
- Low tech
 - spray bottle, air condition, fans, drinking cold water, wear wet cap
- Cool pools (80-84°)



Medications

- Medications for spasticity work best when used with a regular stretching program.
- Most may cause drowsiness, or even weakness, dry mouth, some constipation
- Sometimes medications are used in combination for best effect
- No single dose works for everyone
- Work with you health care provider to find the right regimen

Medications

- Muscle relaxers:
- Baclofen—Usually taken 3-4 times per day
 - May cause drowsiness or weakness
- Tizanidine--Usually taken 3 times per day
 - May cause drowsiness, dry mouth
- Diazepam—Usually taken 3 times per day
 - May cause drowsiness or dizziness
- Clonazepam—Usually twice per day
 - May cause drowsiness or dizziness

Botox

- Injectable medication
- Blocks the neurotransmitter that allows messaging from nerve cells to skeletal muscle
- Results is relaxation of the muscle
- Best for smaller muscles of the upper extremity or feet and ankles
- Injections must be repeated every 3 months

Intrathecal Baclofen Pump (ITB)

- Implanted programmable pump used to deliver small amounts of medication directly to the spinal cord to reduce spasticity.
- Avoids systemic side effects like sedation
- Requires a “test dose” to determine whether it will be effective

Summary

- Spasticity is a common and treatable symptom in multiple sclerosis
- Management of spasticity is important to maintain mobility and function and to prevent complications.
- Physical therapy and regular exercise and stretching are important components in spasticity management.
- Combination of exercise and medication are beneficial in controlling spasticity

Resources

- *National MS Society – exercise DVDs*
- *www.accesstr.com (Access to Recreation)*
- *Flexiciser 760/759-1303*
- *www.PattersonMedical.com*
- *www.polarbearcoolers.com*
- *www.restorative-therapies.com (RTI bike)*
- *www.scitotalfitness.com*
- *www.sprintaquatics.com*

Thank You!



Gail Hartley
Nurse Practitioner



Kathy San Martino
Physical Therapist

Questions/Comments

Can Do MS Resources

e | NEWS
your best life update

Q&A

Can Do Library



Find these resources at www.MSCanDo.org.

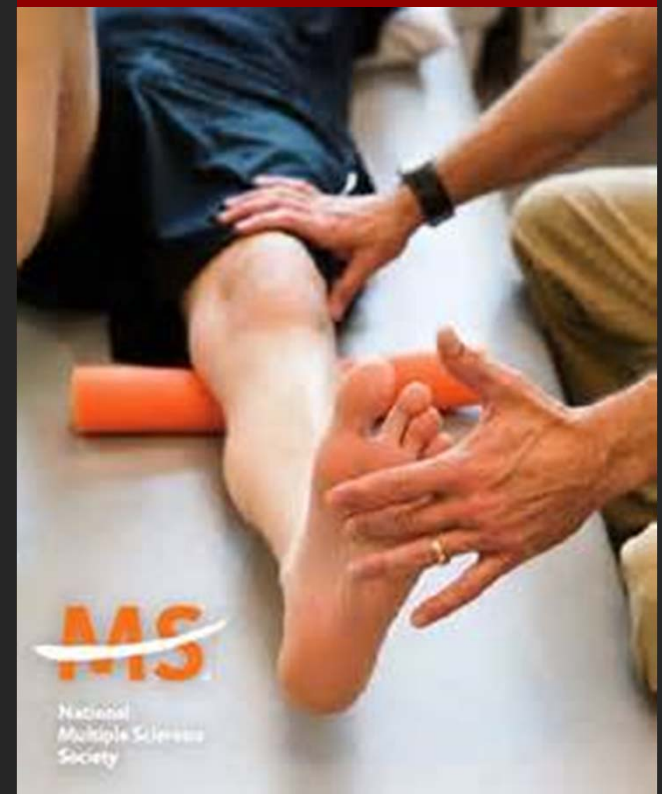


National MS Society Resources

Spasticity and MS: Management Strategies



Controlling Spasticity in MS



nationalMSSociety.org

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Workout Your Worries: Anxiety, Exercise, and MS



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