Welcome to today’s webinar: Managing Spasticity in Multiple Sclerosis

Your Presenter is Jackie Harris
Your Facilitator is Kathryn Keenan

This program is made possible through the support of Eventide Homes NSW
Thanks for joining us for this webinar – welcome!

You will be able to:
• hear the presenter
• see the slides
• see the presenter

You do not need to have camera or microphone.

We cannot see you or hear you today, but our system tells us that you are online.
Control panel appears on the right of screen

If you are using a Mac, a tablet or an iPad, you need to look for the control icons across the top, side or bottom of your screen;

Click the down arrow on the Questions pane to open

Type in your question and click send

Click to minimize or maximise
Handouts have been sent separately. This contains a copy of the slides presented today and possibly other relevant reading material depending on the topic.

The webinar will be recorded and will be available on our website: [www.ms.org.au](http://www.ms.org.au) via the Webinar library.
Welcome to today’s webinar: 
*Managing Spasticity in Multiple Sclerosis*

Your Presenter is Jackie Harris  
Your Facilitator is Kathryn Keenan

This program is made possible through the support of Eventide Homes NSW
Acknowledgement

We acknowledge and pay respect to the traditional custodians past and present on whose lands we meet today.

We acknowledge the deep feelings of attachment and the relationship of Aboriginal people to country and respect the cultural authority of the elders in each community.
Jackie Harris has been a physiotherapist for 18 years, and previously worked at MS Australia for 10 years. Currently she has a mobile physiotherapy practice specializing in MS & other neurological conditions.

She also works with children with Cerebral Palsy at Sydney Children's Hospital. Jackie has an interest in neurological physiotherapy, and in particular loves working with people with MS.

She is passionate about exercise, in her own life outside of work, but also as a way for people with MS to improve their condition and reach their potential.

Jackie loves sharing her knowledge with others.
This presentation has been prepared and is presented by an independent expert.

The views presented are not necessarily the views of Multiple Sclerosis Limited.

Individuals are encouraged to seek further advice regarding the relevance of the information presented for their situation.
Spasticity in MS

What is spasticity & how do I manage it?

Jackie Harris - Physiotherapist
Webinar Outline

• What is spasticity?
• How does it present in MS?
• How does it affect daily functions?
• Management strategies for spasticity in MS
• Resources
Seeing MS - Spasticity
Inspired by Tim Ferguson’s invisible symptom

My legs feel cramped, stiff, and hard to bend. I walk like a rusty robot.

- TIM FERGUSON -
What is spasticity?

- A speed-dependent increase in the stretch reflexes of a muscle, with exaggerated tendon jerks
  - often referred to as increased muscle tone
- Resulting from hyper-excitability of the stretch reflex in the muscle, which is a common component of upper motor neuron syndromes such as MS
  - upper motor neuron refers to the brain and spinal cord
- Clonus = involuntary, beating muscle contraction
What is Spasticity?

In laymans terms:

“An unusual tightening of muscles that feels like leg stiffness, jumping of legs, a repetetive bouncing of the foot, muscle cramping in the legs or arms, legs going out tight and straight or drawing up” - Rizzo et al 2004
What is the Stretch Reflex?

• Contraction of a muscle in response to its passive stretching

• The Stretch Reflex Arc is a negative feedback loop used to maintain muscle length at a desired value (for a particular activity)
Impact of Spasticity in MS

• Affects at least 60% of people with MS and tends to increase in severity as the condition progresses
• It can impair a range of daily activities
• Contractures
• Reduced mobility & falls
• Sleep disturbance
• Pain/discomfort
• Bladder/bowel dysfunction
• May also affect trunk & therefore posture
• Adds to weakness & fatigability
How does Spasticity present?

**MULTIPLE SCLEROSIS FACT #3**

**SPASTICITY:**
A constant charlie horse in the legs is more like it, but sadly it’s not just in the legs. Any muscle can be affected. We also have a tendency to involuntarily twitch and kick without warning. So if you say something stupid and we hit you in the head...oops, we’re sorry. That was an involuntary spastic moment.

PositiveLivingWithMS.com
How Does Spasticity Present?

- Muscle tone increases with rapid movement of arm or leg or quick change in body position
- Sudden contraction of a muscle that causes an arm or leg to either flex or extend
- Abnormal posturing of the arms or legs
- A series of rapid muscle contractions such as bouncing of the foot (clonus) when the ankle is dorsiflexed
  - This is often more pronounced when the muscle is tired
- Scissoring or crossing of the legs when attempting to stand, transfer or walk
How Does Spasticity Present?

- Uncontrollable spasms of the extremities (usually of the legs)
- Difficulty initiating movements
- Difficulty relaxing muscles once a movement has ceased
- Sensation of muscle tightness or pain
- Exaggerated tendon jerk responses

Spasticity is different from joint contracture/stiffness or tight muscles: it is possible to have spasticity, but still have full joint range of motion or muscle length.
Impact of Spasticity on Walking
https://www.youtube.com/watch?v=gR33CSPNcqk
https://www.youtube.com/watch?v=lB_7RRQ4bw
Management of spasticity

1. Addressing and minimising triggering factors
2. Physiotherapy assessment and treatment
3. Medical management & medication
Minimising Aggravating Factors

- There are aggravating factors that can induce or worsen spasticity in people with MS:
  - Urinary tract infection, or other infections such as the flu
  - Being too hot or cold
  - Tight clothing
  - Pressure sores
  - Constipation
  - Pain
  - Stress / anxiety
  - Fatigue

www.mstrust.org.uk/a-z/spasticity-and-spasms
STIFFNESS AND SPASMS DIARY

Using a stiffness/spasms diary for a week can help you identify what causes your symptoms to worsen.

1. How do I fill in the diary?

The day is divided into 6 sections - on awakening, morning, lunchtime, afternoon, evening and bedtime.

Use this scale to note how troubled you are by your stiffness/spasms - there is a box in each section for you to write down your score.

1 = not at all troubled
2 = a little troubled
3 = moderately troubled
4 = extremely troubled

If you are troubled by stiffness and spasms, write down in the space provided what you were doing at the time, how you were feeling or anything you think might be relevant - this will help you identify what triggered your symptoms. As much information as possible will help.

At the end of the week review the diary to see if you can identify a pattern.

2. What do I do once I’ve completed my diary?

Read the list of trigger factors and take appropriate action or take the actions suggested in the booklet.

If you are still unable to identify what is aggravating your symptoms, contact your MS nurse or physiotherapist for further advice.

---

Monday

Note how troubled you are by your stiffness/spasms

There is a box in each section for you to write down your score

- On Awakening: [ ]
- Morning: [ ]
- Lunchtime: [ ]
- Afternoon: [ ]
- Evening: [ ]
- Bedtime: [ ]
Relaxation

Relaxation techniques such as Yoga and Meditation can:

- Reduce stress & anxiety
- Reduce muscle & joint stiffness
- Improve quality of sleep
- Decreased impact of fatigue
- Reduce pain

Massage can help as a relaxation technique and to reduced pain

Practise good sleep hygiene

https://multiplesclerosis.net/living-with-ms/10-sleep-hygiene-tips/
Physiotherapy Assessment

• Range of motion measures
• Manual muscle testing (strength)
• GAIT pattern
• Posture - at rest and when moving
• Balance
• Functional assessments
Spasticity Scales

Modified Ashworth Scale (MAS)

0  No increase in tone
1  Slight increase in tone, mild catch at end of ROM
1+ Slight increase in tone, catch halfway through ROM
2  More marked increase in tone throughout the whole ROM
3  Considerable increase in tone, passive movement difficult
4  Rigid, very difficulty to move

Tardieu Scale

0  No resistance through passive ROM
1  Slight resistance through passive ROM, no catch
2  Clear catch at precise angle, followed by release
3  Fatigable clonus <10secs
4  Infatigable clonus >10secs
MSSS-88 scale

8 Sections
1. Muscle stiffness
2. Pain & discomfort
3. Muscle spasms
4. Effect of daily activities
5. Effect on ability to walk
6. Effect on body movements
7. Effect on your feelings
8. Effect on your social functioning
<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all bothered</th>
<th>A little bothered</th>
<th>Moderately bothered</th>
<th>Extremely bothered</th>
</tr>
</thead>
<tbody>
<tr>
<td>01. Stiffness when walking?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>02. Stiffness anywhere in your lower limbs?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>03. Stiffness when you are in the same position for a long time?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>04. Stiffness first thing in the morning?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>05. Tightness anywhere in your lower limbs?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>06. Your lower limbs feeling rigid?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>07. Stiffness when standing up?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>08. Tightness in your muscles?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>09. Stiffness that is unpredictable?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Feeling that your muscles are pulling?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Stiffness in your whole body?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Your whole body feeling rigid?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Physiotherapy Management

Treatment is often dependent on whether or not spasticity is affecting a person’s functional ability in everyday life:

- A person with very weak legs may find that spasticity makes the legs more rigid and helps them to stand, transfer, or walk – in that case treatment may not be needed.
- A person may have spasticity in their calf muscle causing them to trip on their toes when they get tired, in that case treatment is required.
- It’s important to examine which muscles are affected by spasticity & to what severity.
- It’s also important to find out if the spasticity is causing any pain or disrupted sleep, and if the spasticity is worse at particular times during the day or at night.
Physiotherapy Management

• Prevent contractures, reduce pain, and improve functions, e.g. walking or transfers
• Positioning, posture, seating
• Stretching may help – before standing up or getting out of bed (to temporarily reduce stiffness) & to prevent contracture
• Strengthening opposing muscles may help to improve functions that are compromised by spasticity
• Cardiorespiratory exercise to improve fitness, reduce pain, stress & fatigue
• Pre-cooling before exercise
Splinting to prevent contracture
Proprioceptive Neuro-Facilitation (PNF) Stretching

- Aims to maintain or improve muscle length and flexibility
- Contract-relax (hold contraction for 5-10 seconds) – push gentle against the stretch
- There is some evidence to suggest that LONG TERM stretching may change the sensitivity of the stretch reflex
PNF Stretching

1. Passive stretch
2. Contract against resistance
3. Relax... passive stretch

Images showing a woman performing PNF stretching exercises with resistance bands.
Guidelines for Strength Training (MS)

- Should be done 2-3 times per week, with a rest day in between strengthening sessions.
- You should work up to doing 2-3 sets of 10-15 reps of an exercise, using a heavy enough weight that you struggle to do the last few reps.
- You should increase weights/resistance as you become stronger.
- You can use body weight or theraband.
- A physio or EP can advise which muscle groups need strengthening and correct technique.
Aerobic Exercise Guidelines (MS)

• 2 – 5 sessions per week
• Can be done on consecutive days
• Build up to 30 minute sessions (starting at 10 minutes)
• Activities that make you “huff and puff”
  – Walking or hiking
  – Swimming
  – Cycling
  – Playing sport
Medical Management - Consult your GP or neurologist

• Baclofen
  – Consider side effects such as sleepiness and muscle weakness
  – Dose should be timed to address problems caused by spasticity
  – Need to wean on and off it, do not stop it suddenly

• Gabapentin

• Botox injections into a specific muscle

• Diazepam (valium)

• Sativex (canabis mouth spray)

• Intrathecal Baclofen Pump (ITB)

• Phenol nerve block or neurosurgery (SDR)

• Transcranial magnetic stimulation
A Coordinated, Multidisciplinary Approach is Best

• For example, you may need a combination of:
  – Botox injections
  – Splinting
  – Physiotherapy strengthening program

to manage spasticity in the calf
Take Home Messages

• Prevent and minimise aggravating factors
• Aiming to prevent the secondary consequences of spasticity such and muscle contracture or reduced mobility
• Important to have a physiotherapy assessment to determine the nature of your spasticity and effect on function
• Speak with your doctor about medication
• Move it or lose it!!
References

• Impact of pre-cooling therapy on the physical performance & functional capacity of MS patients Kaltsatou & Flouris 2018
• Non pharmacological intervetions for spasticity in MS Amatya et al 2013 Cochrane Colaboration
• MS Practice: Spasticity
• mstrust.org.uk
MS Connect
1800 042 138
msconnect@ms.org.au
Free E-books

Contact MS Connect to obtain login details
1800 042 138
Get Your Act Together

- Online Tool – designed to help you better manage your multiple sclerosis symptoms
- Focuses on some of the common symptoms of MS – emotions, fatigue, continence, cognition, pain and heat sensitivity
- Designed for people living in the ACT but includes useful information for all people living with MS
- Complete the tool to receive a personalized report (listing services, resources, tips etc)

Visit [www.ms.org.au](http://www.ms.org.au) and search Get Your Act Together
A major change to the way disability supports and services are funded and delivered

• Available to people who are: under 65, satisfy residency requirements and are able to demonstrate that their disability substantially affects daily living
• Promoting choice, control and social and economic participation
• Providing a whole-of-life approach
• It is not means tested
• Providing reasonable and necessary supports and services
• Ensuring equity of access
We can help you to

• understand the eligibility requirements
• understand the pathways to access the NDIS
• prepare for a planning conversation
• understand your current supports and any unmet need
• develop your goals
Multiple Sclerosis Limited

We are an NDIS ‘Registered Provider’

MS is a registered NDIS provider in NSW, ACT, Vic and Tas. MS is approved to provide:

- Preplanning prior to your conversations (All areas)
- Support Coordination/Connection – assistance to help make your plan active (All areas)
- Short term accommodation (Vic)
- Community Participation (NSW)
- Exercise physiology and personal training (NSW)
- Specialist Continence Assessment (NSW and Vic)
- Physiotherapy and Occupational Therapy (NSW and Vic)
- Plan Management

Want to learn more?
Please call MS Connect
1800 042 138
My Aged Care is an Australian Government initiative, website and phone line to help you find about aged care services.

Available to people who are 65 years of age and over.

Why Contact My Aged Care?

✓ Information
✓ Assistance in mapping out your needs
✓ An assessment for further supports

Phone: 1800 200 422 Free call Australia wide

Website: https://www.myagedcare.gov.au
MS Financial Assistance program
MS Financial Assistance program provides one-off funds for those facing financial hardship. The funds can be used to purchase equipment or air conditioners to promote quality of life and help with health related matters.

MS Go for Gold Scholarships
MS Go for Gold Scholarships are open to people living with multiple sclerosis who wish to follow a dream. The scholarships can be used to achieve dreams such as education, travel, the arts, music, sport, employment and lifestyle. Each scholarship is up to $3,000 in value (depending on the circumstances, see the MS Go for Gold Application Guidelines on our website for more information). Applications now open.
RESEARCH

Are you part of the MS community and interested in volunteering in a study?

We are looking for adults who:

• **Have a confirmed diagnosis of Multiple Sclerosis**
• **Are able to walk 50m with or without a walking aid**
  • **Are able to stand 1 minute unaided**
  • **Have had no worsening of MS symptoms in the past 30 days**

Interested, please contact Anna Butler on 0408368244 or ifims.melbourne@neura.edu.au

Thank you

MS Connect
1800 042 138
msconnect@ms.org.au
Please stay on after this webinar to complete a short survey.

Your feedback is important to us and will be used to improve our services.

Thank you for your time.