

Spasticity Management Program



Patients with brain and spinal cord injury damage often suffer from different degrees of muscle spasm during the process of rehabilitation. It influences patients' function and the rehabilitation progress. Thus treatment of muscle spasm is one of the important goals of the NTWC Neurorehabilitation Team.



What is spasticity?

Spasticity causes muscles overacting, stiffness and/or tightness. The stiffness or muscle tightness cause difficulty in movements. The degree and location of spasticity differ with each individual but it usually occurs in the limbs. It can affect any part of the body including the trunk, neck, eyelids, face, or vocal cord. There are about thirty percent of stroke patients suffering from spasticity.

What are the common causes of spasticity?

1. stroke
2. traumatic brain injury
3. spinal cord injury
4. brain tumor
5. hypoxic brain injury
6. multiple sclerosis
7. cerebral palsy

Common symptoms:

1. increase muscle tone
2. muscle tightness, stiffness or pain
3. involuntary movement of muscle
4. spasms
5. clonus
6. spastic, muscle contractions

Common signs of spasticity:



When does spasticity develop?

Symptoms usually appear a few weeks after brain and spinal cord damage, it may also occur within a few months or even after one year.

If untreated, it will cause:



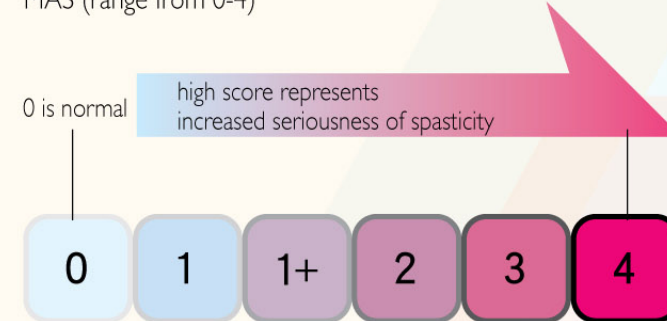
Spasticity can affect various aspects of daily life:

1. Daily activities such as eating, getting dressed
2. Mobility, ability to walk
3. Sitting posture
4. Quality of sleeping
5. Joint pain by active or passive movements
6. Personal hygiene

How to evaluate the level of spasticity?

It can be assessed by physicians, physiotherapists and occupational therapists. They will analyse the level of spasticity via by gait analysis and Modified Asthworth Scale(MAS).

MAS (range from 0-4)



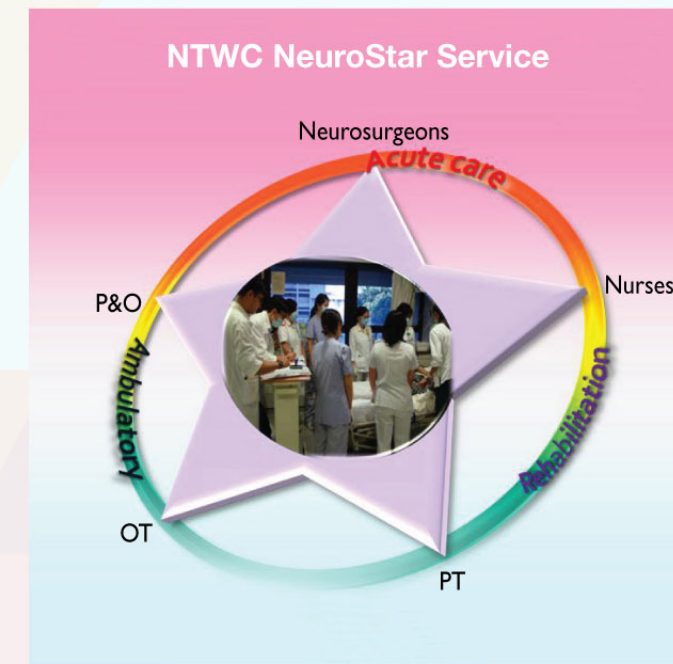
Treatment goal:

1. Increase independence in self-care activities
2. Improve limb positioning and gait pattern
3. Relieve the signs and symptoms of spasticity
4. Reduce pain and discomfort in stiff muscle
5. Reduce problems associated with participation in daily activities such as feeding, bathing, dressing
6. Less burden for carers
7. Improve fitness and functioning of orthoses
8. Improve quality of life

About us:

The Spasticity Management Program in NTWC offers medical evaluations, treatment options and supports from a team of specialists helping patients control their spasticity and improve their function. The treatments are tailor-made to each patient in order to achieve optimal outcome.

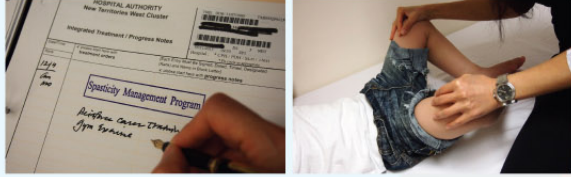
The members are:



Treatment approach

Medical evaluation

Accurate assessment to achieve the treatment goal and timely intervention by means of medication+/-surgery.



Nursing care

To coordinate different specialties' operations and to provide psychological, emotional support and information for reference; and to follow up treatment plans and progress of the patients.



- Formulate timetables for the use of orthoses or equipment



- Monitor the comfort level and effectiveness of orthoses or equipment; and prevent any discomfort and complications e.g. pressure ulcer and the blocking of blood flow



- Provide ways of treatment according to the patient's condition



- Provide pain management for young patients before Botox injection

Physiotherapy Service

- Services cover the acute, rehabilitation and community phase
- Physical examinations and gait analysis will be performed
- Physiotherapist will recruit suitable candidates to Botox Clinic and arrange Botox injection for tone management



Physiotherapy treatments:

- Body massage
- Proper positioning
- Pain management
- Muscle strengthening exercise
- Coordination exercise
- Balance exercise
- Gait training
- Functional training



Role of patients and their carers

The participation of the patients and their family members in formulating the treatment plan is encouraged. They are part of our team and their expectation guides the setting of the treatment goal and our aims to facilitate patient's daily activities.



Occupational Therapy Service

Aims to normalize abnormal muscle tone and promote limb functions, especially upper limbs and hand function, through different training modalities to maximise patients' self care ability and functional independence in their daily living.

It includes:

- Seating & Positioning
- Upper Limb Splintages
- Upper Limb and Hand Function Training
 - Different training modalities :
 - Tone normalization
 - Mirror therapy
 - Bilateral Arm Movement Training
 - Upper limb function training
 - Robot-aided training
 - Hand function and dexterity training
 - Constraint-Induced Movement Therapy
- Activities of Daily Living (ADL) and Instrumental ADL Training



Prosthetic and Orthotics Service

Provide different orthoses according to individual needs. Our goals are to prevent muscle contracture, support the trunk and limbs, protect the wounds and relieve pain



Protective helmet



Soft lumbar corset



Rigid lumbar corset



Ankle foot orthosis



Resting AFO



Knee extension splint

Drug treatment

It includes oral medications and intramuscular injection. Oral medication can be used for the treatment of muscle spasms in whole body but the widespread use of intramuscular botulinum toxin type A is to treat localized muscle spasms.

How does Botulinum Toxin work?

- a neurotoxin
- blocking the chemical signal between nerves and muscles causing muscle weakness
- provide reliable relief from spasticity symptoms including pain and muscles stiffness
- clinical effect takes 1-2 weeks after injection and ongoing benefit may last up to 3-4 months. As the effect is transient, patient must receive training to maximize the benefit from injection
- serial casting will be placed for maintaining the stretches on the injected muscles of the lower limbs for 2-3 weeks
- serial injections are often required

The side effects are temporary. The possible side effect is less than 10%

- Pain, tenderness and/or bruising at the site of injection
- Malaise
- Temporary muscle weakness

Less common side effects

- fever
- flu syndrome
- joint pain
- nausea
- allergic reaction
- respiratory failure

Inform your medical practitioners if you have the following symptoms before injection:

- fever, cold or flu like symptoms
- Recent use of antibiotics
- History of allergy