Woodlands Health
National Healthcare Group

Better Health.
With You.

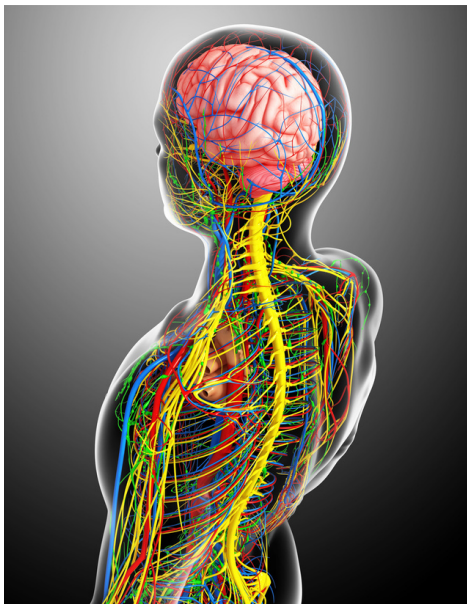
Hypotonia and Stroke

What is hypotonia?

Hypotonia or flaccidity is a medical term used to describe decreased muscle tone.

Normally, even when relaxed, muscles have a very small amount of contraction that gives them a springy feel and provides some resistance to passive movement. It is not the same as muscle weakness, although the two conditions can co-exist.

What causes hypotonia?



Muscle tone is regulated by signals that travel from the brain to the nerves and tell the muscles to contract. When these signals from brain are suddenly absent as it may happen during stroke, the muscles under the control of brain will lose their tone, causing hypotonia.

Hypotonia can happen from damage to the brain, spinal cord, or nerves. There are a variety of medical conditions that may cause hypotonia and stroke is one of them.

What causes hypotonia? (continued)

The stage of hypotonia or flaccidity is the initial period immediately after stroke. However, not all individuals with stroke will develop flaccidity immediately after their stroke. On the contrary, some will have flaccidity that lasts beyond the very initial period after stroke, as every stroke is so different.

What are the effects of hypotonia?

Hypotonia caused by stroke usually affects the muscles on one side of the body (opposite to the side of brain damage). This can include the muscles of face, neck, trunk, arm and leg. As the affected muscles are under low tone, they are unable to support the underlying skeleton.

This can lead to the following:

Unable to initiate voluntary movement	**Difficulty with functional movements**	**Problems with maintaining erect body posture**
Problem with swallowing water and food	**Breathing and speech difficulties**	**Loss of control of arm and leg**
Ligament and joint laxity	**Poor reflexes**	**Reduced sitting and standing balance**

What are the consequences of hypotonia?

Flaccidity after stroke can be a hard period to deal with. When you have low tone or flaccidity in your muscles, due to the acute stroke, you may have following complications.

Breathing difficulties
Breathing difficulties occur as a result of weaker rib cage muscles.

Reduced cough strength
Abdominal muscles are the main group of muscles which enables you to cough effectively. Due to reduced cough strength, you may not be able to cough out phlegm or saliva from the throat, leading to infections in your lungs. This increases the risk of developing hospital acquired pneumonia.

Injuries to the muscles, ligaments and joint capsules
As the muscles are weaker on the affected side, displacement of bones within the joints is common. This can put the joint capsule, ligaments around the joints, and muscles may be over stretched, leading to pain. Example, shoulder subluxation, leading to shoulder pain.

Bed sore
Flaccid paralysis of the muscles reduces your mobility, leading to prolonged immobility, which may damage the skin over bony prominences on high pressure areas such as buttocks.

Deep vein thrombosis
Blood clots formation is common in the blood vessels of leg, when there is low muscle tone. This blood clot, once dislodges from the leg vessels, it may travel to heart/brain, leading to stroke.

Reduced sitting & standing balance
You may not be able to sit or stand upright independently as your trunk muscles may be weak. This can affect your ability to perform daily functions.

Falls
You may be at high risk of falling with less trunk control, reduced leg support during standing and or walking.

What precautions should I take to prevent the consequences of hypotonia?

- Your therapist may suggest and demonstrate to you some simple exercises, that you can do yourself or by your family members or care givers.

- Appropriate positioning of your arm and leg, including trunk when you are lying down, sitting or standing.

- Regular bed mobility – frequently, of at least 2 hourly turning in bed

- Reduce the time spent lying on the bed. Transfer to chair, sit out of bed and participate in therapy activities as much as possible.

How long does the hypotonia condition last after stroke?

As the type of stroke is different from individual to individual, it is difficult to predict how long hypotonia lasts in each individual.

For many individuals with stroke (in cerebrum or big brain), muscle tone improves over time. But unfortunately, in some instances (stroke in cerebellum or little brain), hypotonia may be persistent indefinitely.

How to manage hypotonia?

The neural connections within the brain have the ability to rewire. These new pathways or connections allow undamaged portion of the brain to take control of the functions from damaged portions.

This phenomenon is called neuro plasticity. The best way to activate the neuro plasticity is by rehabilitation exercises.

Following are some of the intervention strategies, your therapist may discuss and apply to you.

- Appropriate positioning of the affected limbs

- Weight-bearing to the affected limbs – this can be done with assistance from a helper. Weight bearing for the arm can be done over the side of the bed. Weight bearing to the leg will occur when transferring from bed to chair or when learning to transfer and stand with the therapist.

- Passive range of motion: Exercises done by therapist can help you maintain the joint range, prevent joint stiffness. Make sure you avoid moving your arm into a painful position. Please follow your therapists' demonstrated techniques, and frequency. Please contact your therapist in case if you are not sure of anything.

- Muscle facilitation – tapping, electrical stimulation, quick stretch etc. (to be done by a qualified therapist)

- Mental Imagery - The patient will imagine the movement needed to perform a task and rehearse it mentally.

Please discuss with your therapist in-charge for more information or if you require clarifications.

Contributed by Physiotherapy, Rehabilitation, Allied Health Services