



Understanding Spasticity: Ask a Neuro PT



Tone vs. Spasticity

Not all tightness is the same

- **Normal tone** – muscles have an amount of tension to help you stay upright
- **Spasticity** - speed-dependent increase in resistance when a muscle is stretched



Spasticity Starts in the Brain

Misfired signals, not strength

- **Signal mix-up in the brain** — after stroke, the pathways that normally quiet muscles are weakened
- **Overactive reflex loops** — the nerves that tell muscles to tighten keep firing, even when they shouldn't
- **Muscles respond to faulty messages**



Factors that Influence Spasticity

How the body and the environment shape tone

- Stress
- Fast Movements
- Pain
- Cold
- Fatigue
- Poor Positioning
- Poor Sleep
- Full Bladder/Infection
- Skin Irritation

Daily Tools

Preparing the brain for better movement

Slow
Breathing

Slow
Stretching

Gentle
Heat

Weight-
Bearing

Positioning
techniques

Rhythmic
Movements

Rhythmic Movement

Giving the brain steady input

- **Helps opposite muscles relax** — when one muscle moves gently over and over, the muscle on the other side naturally relaxes
- **Gives the brain predictable input** — repeated, smooth motion sends a steady message to the brain, which helps reduce over-reactive tightness.
- **Taps into automatic movement patterns**



Weight Bearing

Helping the nervous system settle through grounded input

- **Gentle prolonged stretch** — weight bearing naturally lengthens tight muscles without triggering fast-stretch reflexes.
- **Steady sensory input** — pressure through hands, feet, helps quiet over-reactive muscles.

Examples:

- Standing frame
- Quadruped
- Leaning forward on table/handrail



Prolonged Positioning

Prevention of muscle shortening

Positioning with support

- Using pillows, wedges, or arm/leg supports to hold the limb in a comfortable, lengthened position
- Especially helpful for bed & wheelchair positioning



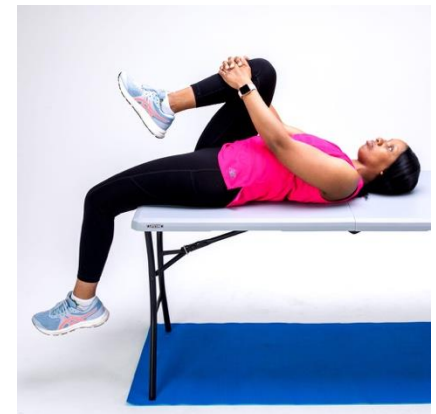
Splinting

- Wearing a hand, wrist, elbow, or ankle splint to keep joints aligned and gently stretched.
- Helps prevent contractures and reduces unwanted tightness over time.



Low Load Prolonged Stretching

- 30 seconds helps maintain flexibility
- 90 seconds or longer helps muscles gradually lengthen



Medical Options

Talk to your physical medicine & rehabilitation physician for appropriate options

Oral meds	Baclofen, tizanidine, diazepam, etc	Primary care, PM&R, neurology
Botox	Relaxes specific tight muscles	PM&R, neurology
Nerve blocks	Quiet overactive reflexes	PM&R, interventional specialists
Baclofen pump	For severe whole-body tightness	PM&R (pump-trained), neurosurgery
Orthotics/casting	Supports alignment; prevents contracture	Orthotist, PT/OT, PM&R



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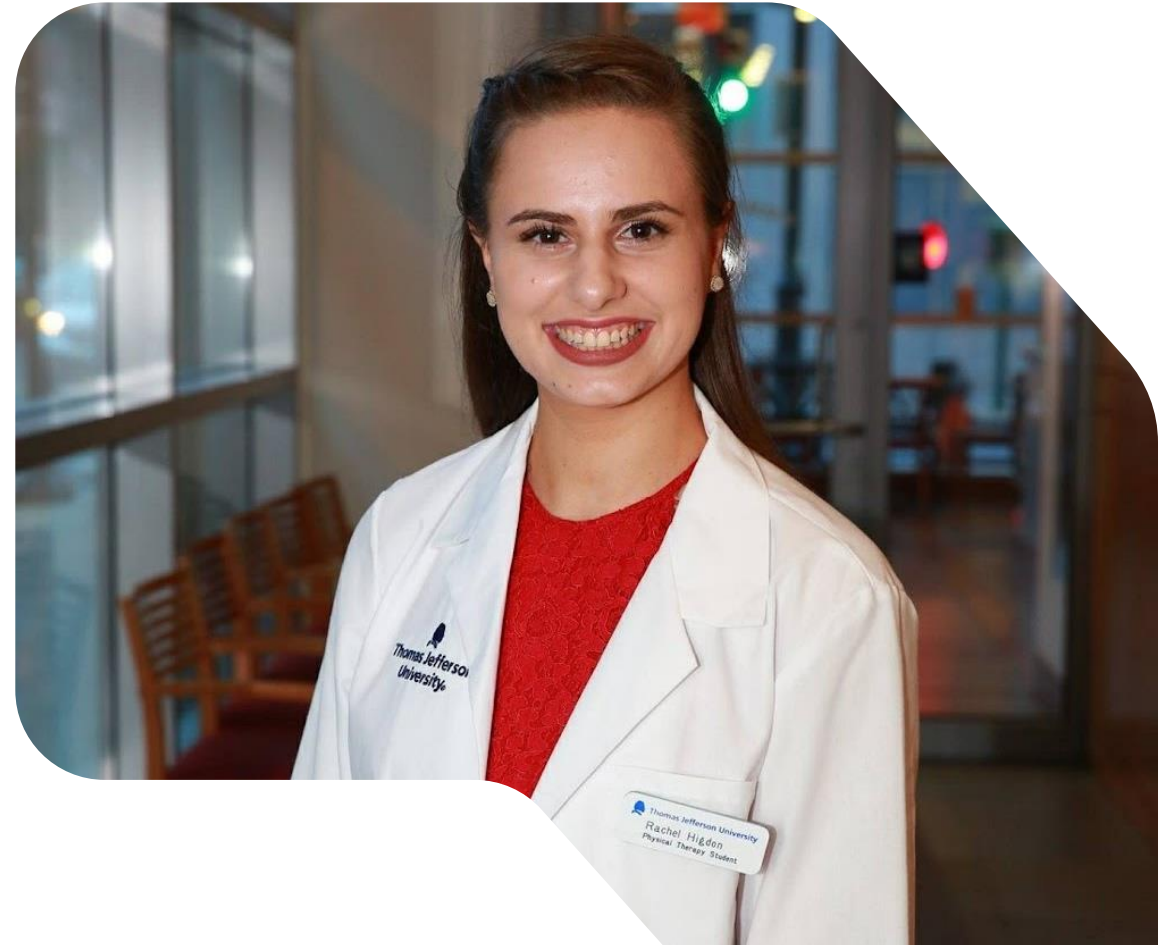
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