Spasticity: The Case for Earlier Recognition and Management

One window of opportunity. Two possible futures.

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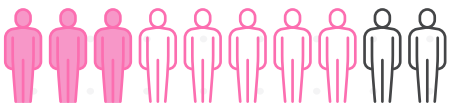
It Starts with a Stroke

Spasticity is a common post-stroke complication, with prevalence estimates ranging from 30–80% across post-stroke phases, yet it remains under-recognized and under-treated.[1]

30–80%



- Involuntary muscle overactivity
- Impaired voluntary motor control
- Passive tissue remodeling

STROKE

Day 0

Not only Stroke

- SCI[2]
- TBI[2]
- MS[2]
- CP[2]

Spasticity Sits Within a Broader Multidomain Picture[3,4]

Spasticity is defined as "a disorder of sensorimotor control resulting from upper motor neuron disease. It is characterized by velocity- and length-dependent involuntary muscle overactivity, which is intermittent or sustained, during passive stretch."[3]

Following stroke, spasticity may coexist with impaired voluntary motor control and secondary tissue changes, contributing to a broader clinical picture.[3]

Early Subacute Phase (7 Days–3 Months): A Window of Opportunity[1,5,6]

The 3-month transition phase after a first-ever stroke may represent a window of heightened neuroplasticity, before more fixed structural tissue changes develop.[5]

- Severe initial paresis
- Early increased tone or hyperreflexia
- Lesion in internal capsule or brainstem

The Recognition Gap

The reality for many patients is that they receive treatment only once spasticity is already well established.[1]

Delays often reflect underrecognition of early signs, limited clinician training, and fragmented referral pathways.[1]

Predictors of Post-stroke Spasticity Warrant Early Assessment[1,5]

Severe initial paresis, early hyperreflexia, or lesions of the internal capsule or brainstem mark patients at higher risk.[1]

Weeks

About 3 months

The Decision Point

Early Recognition: Manage or Refer

Early recognition, referral, and management may help:[1]

Potential progress towards:

- Reducing involuntary muscle activity and maintaining early mobility
  - Preserving muscle length and joint range of motion
    - Supporting reparative plasticity and engagement with rehabilitation
      - Helping preserve function: mobility, independence, and quality of life may be maintained.[1,5,7]

Delayed Recognition and Management

The clinical cost of treatment delays[1]

When established spasticity goes untreated, pain, motor decline, stiffness, muscle shortening, and joint contracture may follow, limiting mobility and rehabilitation gains and adding to caregiver burden.[1]

- Sustained overactivity and immobility
  - Shortening, stiffness, and pain
    - Hardwired tissue change and contracture
      - Chronic spasticity, contracture risk, and greater caregiver burden.[1,5]

Professional Societies Support Individualized, Goal-Directed Management[1,2,6]

- Rehabilitation: PT/OT, stretching, and individualized contracture management
- Oral antispasticity agents (may be limited by sedation and weakness)
- Chemodenervation for focal upper- and lower-limb spasticity
- Intrathecal baclofen for severe, refractory spasticity
- Chemical neurolysis (phenol or alcohol)
- Surgical options (orthopedic or neurosurgical) in selected patients

Reassess regularly to track progress toward goals and adapt management to individual patient needs.[2]

Recognize Spasticity and Act Early Before its Secondary Complications Become Established[1]

Screen proactively → **Assess early** → **Act or refer** → **Reassess periodically**[6]

Earlier recognition may create opportunities for timely, individualized care.[1] Evidence for earlier intervention is growing but still maturing.[1]

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Abbreviations:
CP: cerebral palsy; MS: multiple sclerosis; OT: occupational therapy; PT: physical therapy; SCI: spinal cord injury; TBI: traumatic brain injury.