

# Post-Stroke Spasticity: Evidence-Based Stretching Guide

## ***Functional Gastrocnemius Stretch (Standing or Supine)***

Standing lunge stretch (heel down, knee straight) or supine assisted ankle dorsiflexion. Hold 30–60 s, repeat 3–4x/day.

*Reference:* Ghasemi E, Khademi-Kalantari K, Khalkhali-Zavieh M, et al. The effect of functional stretching exercises on neural and mechanical properties of the spastic medial gastrocnemius muscle in patients with chronic stroke: A randomized controlled trial. *J Stroke Cerebrovasc Dis.* 2018;27(7):1733-1742. doi:10.1016/j.jstrokecerebrovasdis.2018.01.024

## ***Hamstring Stretch (Supine)***

Supine with hip flexed to 90°, knee extended until stretch felt in posterior thigh. Hold 30–60 s, 3 reps, once/twice daily.

*Reference:* Gómez-Cuaresma L, Lucena-Antón D, González-Medina G, et al. Effectiveness of stretching in post-stroke spasticity and range of motion: Systematic review and meta-analysis. *J Pers Med.* 2021;11(11):1074. doi:10.3390/jpm11111074

## ***Wrist and Finger Extensor Stretch (Manual or Device)***

Forearm supported on table; therapist or device gently extends wrist/fingers toward neutral. Hold 30–60 s, repeat 3x/day.

*Reference:* Jo HM, Song JC, Jang SH. Improvements in spasticity and motor function using a static stretching device for people with chronic hemiparesis following stroke. *NeuroRehabilitation.* 2013;32(2):369-375. doi:10.3233/NRE-130857

## ***Shoulder External Rotation + Abduction Stretch***

Supine, therapist supports elbow at 90° and gently moves arm into external rotation ± abduction. Hold 30 s, repeat 3 reps.

*Reference:* Picelli A, Chemello E, Verzini E, et al. Long-term enhancement of botulinum toxin injections for post-stroke spasticity by use of stretching exercises: A randomized controlled trial. *Neural Plast.* 2024;2024:1584632. doi:10.1155/2024/1584632

## ***Hip Flexor Stretch (Modified Thomas Position / Bedside Lunge)***

Supine at bed edge; one leg held to chest, other leg hangs off edge to stretch hip flexor. Hold 30–60 s, repeat 2–3x.

*Reference:* Ghasemi E, Khademi-Kalantari K, Khalkhali-Zavieh M, et al. The effect of functional stretching exercises on neural and mechanical properties of the spastic medial gastrocnemius muscle in patients with chronic stroke: A randomized controlled trial. *J Stroke Cerebrovasc Dis.* 2018;27(7):1733-1742. doi:10.1016/j.jstrokecerebrovasdis.2018.01.024

## ***Positioning for Stretch (Prone, Supine, Side-lying)***

Prone: reduces hip/knee flexor tone. Supine: towel/pillow between knees prevents adduction.  
Side-lying: pillow between knees to counter extensor spasticity. Hold 10–20 min, several times/day.  
*Reference:* Satkunam LE, Fehlings D, Levin M, et al. Best practice guidelines for the management of patients with post-stroke spasticity: A modified scoping review. *Arch Rehabil Res Clin Transl.* 2023;5(4):100313. doi:10.1016/j.arrct.2023.100313