

Evaluation Skills: Hypotonia – Part 3

Intervention Strategies for Children with Low Muscle Tone

Functional Skills and Goals for a child with Hypotonia: Rolling, Independent sitting with good postural alignment, Independent standing with good skeletal alignment, Self-initiation of cruising and motivation to move, Single limb stance, Transitioning from the ground to standing, Jumping forwards and down

ROLLING

Impairments

- Decreased core strength with elevated rib cage and decreased oblique muscle activation
- Decreased cross-plane movements and trunk dissociation with minimal rotation
- Impaired visual tracking
- Decreased strength of hip flexors for initiating rolling supine to prone
- Decreased cervical spine strength for clearing head
- Decreased tolerance for tummy time
- Decreased UE strength for pushing up through arms
- Impaired motor planning and coordination

Treatment Ideas

- Transitioning supine to sitting through side lying overground and on stability ball for oblique activation
- Lateral head righting for clearing head against gravity when rolling
- Active and passive trunk rotation and dissociation
- Reaching for knees/feet in supine
- Kinesiotaping to activate obliques
- Prone positioning and reaching on stability ball, overground, and in carrying hold
- Reaching for toys in supine and across body

INDEPENDENT SITTING WITH GOOD POSTURAL ALIGNMENT

Impairments

- Decreased muscle strength and endurance in postural muscles
- Decreased muscle tone in trunk and extremities
- Increased joint mobility and ligament laxity
- Vision deficits
- Delayed righting and protective reactions

Treatment Ideas

- Sitting in Bumbo with towel folded to promote neutral pelvic alignment
- Adaptive equipment: Theratog, kinesiotaping, SPIO for promoting upright posture
 - Kinesiotaping (dependent on posture)
 - Activating rectus abdominis
 - Activating back extensors
- Manual cuing to promote upright posture and pelvic alignment when sitting
- Propped sitting at a bench for decreasing posterior pelvic tilt
- Sit on ball: work trunk flexors and extensors
- Pivoting in prone for weight shifting and oblique strengthening
- Head and trunk righting
- Rolling supine to/from prone for core and UE strengthening

INDEPENDENT STANDING WITH GOOD SKELETAL ALIGNMENT

Impairments

- Decreased muscle strength and endurance
- Decreased muscle tone in trunk and extremities
- Increased joint flexibility
- Poor static balance: Hypofunctioning vestibular, vision, or somatosensory systems
- Poor proprioceptive sense
- Poor tactile input in foot

Treatment Ideas

- Orthotic

- Sit on ball: work trunk flexors and extensors
- NMES/FES to gastrocs, glute max, abdominals
- Theratog and kinesiotape to align scapula and decrease rounded shoulders
- Side bridges, lateral step ups, clam shells for glute med strengthening
- Work glute max and lats simultaneously for increasing core stability
- Practice equilibrium strategies and uptrain the weak system
- Ankle weights for increasing proprioception
- Picking stickers off feet with and without vision
- Bubble wrap to prevent hyperextension

SELF-INITIATION OF CRUISING AND MOTIVATION TO MOVE

Impairments

- Poor cognitive skills
- Poor motor planning (may look like weakness)
- Decreased vision, hearing, or touch
- Poor LE dissociation and coordination
- Decreased muscle strength of hip muscles
- Poor stability of pelvis: Decreased strength of pelvic muscles
- Decreased lateral weight shifting

Treatment Ideas

- Pair 2 senses (vision and auditory) to increase motivation
- Give hands-on help to move through sequence and then decrease assistance
- Facilitation to prevent compensation of hip flexors
- Hitting ball with side of foot in standing
- Zoom ball with 1 foot abducted
- Play in tall kneel and half kneel (on/off compliant surface)
- Twinkle little star with lateral weight shifting
- Lateral stepping up/down a bench
- Sit to/from stand transitions with facilitation to maintain hips in neutral

SLS (SINGLE LIMB STANCE)

Impairments

- Poor stability of pelvis
- Decreased strength of pelvic muscles (hip and abdominal)
- Increased joint flexibility
- Poor static balance: Hypofunctioning vestibular, vision, or somatosensory systems
- Poor proprioceptive sense
- Poor tactile input in foot

Treatment Ideas

- Step on/over phone book as part of cruising
- Stand with one shoe on, other off
- Play in tall kneel and half kneel (on/off compliant surface)
- Side bridges, lateral step ups, clam shells for glute med strengthening
- Work glute max and lats simultaneously for increasing core stability
- Don shoes/socks in standing
- Strengthen ankle

TRANSITIONING FROM THE GROUND TO STANDING

Impairments

- Poor stability of pelvis
- Decreased strength of pelvic and hip muscles
- Decreased cross-plane movements
- Increased joint mobility and ligamental laxity
- Poor motor planning
- Impaired weight shifting

Treatment Ideas

- Step on/over phone book as part of cruising
- Play in tall kneel and half kneel (on/off compliant surface)
- Side bridges, lateral step ups, clam shells for glute med strengthening
- Bridges, squats, and lunges for glute strengthening
- LAQs, lunges, wall squats for quad strengthening
- Strengthen ankle
- Stand through bear crawl initially and work towards standing through half kneel

JUMPING FORWARDS AND DOWN

Impairments

- Decreased concentric strength in hip extensors, quads, and plantar flexors
- Decreased eccentric hip extensor and quad strength during landing
- Decreased power generation
- Hypermobility of joints
- Poor motor planning and coordination

Treatment Ideas

- Jumping into deep squat to prevent genu recurvatum
- Squat jumps for increasing power generation
- Rapid sit to stands for increasing power generation paired with slow stand to sit transitions for improving eccentric control
- Squatting and raising on tiptoes for improving motor planning
 - Squatting is introduced from the first therapy session as part of clean up to make it a functional way to get lots of squats throughout the session – also functional for HEP
- Facilitation for push-off when raising on tiptoes
- Running for increasing power in gastrocs for push-off
- Hip abductor strengthening for decreasing stress on medial knee during landing

Adaptive Equipment can be used with children who are really low tone and not gaining skills as quickly so they still get the benefit of the skills even though they are not doing it independently. Standers, Gait Trainers, & Hip Helpers

Prone Standers – if the child has good head and trunk control

- Dondolino by Ormesa is great

Other Standers – Work with your vendor to find the right fit for your kiddo