



Sensory Issues in Cerebral Palsy

adopted from *Sensory Integration and the Child with Cerebral Palsy* by Blanche and Nakasuji, 2001

Neuromotor and Related Sensory Processing Dysfunctions by Diagnostic Classifications of Cerebral Palsy adopted from: <i>Sensory Integration and the Child with Cerebral Palsy</i> by Blanche and Nakasuji, 2001				
Diagnostic Classific	Neuromotor Limitations	Sensory Processing Deficits That May be Masked as Motor Deficits	Traditional Intervention of the Motor Dysfunction	Sensory-Based Principles to Apply to Intervention Hemiplegia
Hemi-CP	<p>Unilateral movement disorder that affects both sides</p> <p>Asymmetry of posture, movements</p> <p>Bilateral coordination difficulties</p> <p>Weakness in involved extremities, distal weakness.</p>	<p>Bilateral tactile and proprioceptive deficits that can contribute to severe praxis deficits</p> <p>Sensory dormany</p> <p>Visual perceptual difficulties, visuospatial relations</p>	<p>Improve postural control</p> <p>Increase symmetrical motor functions</p> <p>Improve bilateral motor coordination</p> <p>Increase weight-bearing and weight-shifting ability on the involved side.</p> <p>Strengthen the involved side</p>	<p>Improve tactile discrimination</p> <p>Increase registration and modulation of vestibular and proprioceptive sensory input</p> <p>Interpret the speed of movement and timing of the motor act needed to respond to anticipated changes in the environment (projected actions)</p> <p>Initiate movement sequences</p> <p>Improve motor plannings skills</p>
Mild-Mod. Spastic Quad.	<p>Increaed muscle tone throughout the entire body, UE more than LE.</p> <p>One side can have greater motor compromise than the other</p>	<p>Sensory registration deficits (vestibular and proprioceptive sensory systems)</p> <p>Sensory Dormancy</p> <p>Sometimes sensory modulation difficulties</p> <p>Hyperresponsivity to tactile input</p> <p>Tactile discrimination problems</p> <p>Visual motor deficits</p>	<p>Improve postural head control</p> <p>Increase active/passive ROM</p> <p>Increase ability to weight bear</p> <p>Improve positioning and posture</p> <p>Improve strength</p>	<p>Mild - Moderate Spastic Quadriplegia</p> <p>Improve registration of sensory input, particularly of vestibular/ proprioceptive sensory input i.e. intense swinging, work against gravity, joint compressions, etc</p>
Spastic Diplegia	<p>Bilateral movement disorder</p> <p>Spasticity more evident in LE</p> <p>Decreased postural tone in the trunk</p>	<p>Vestibular Processing Disorders: Fear of movement, gravitational insecurity. Decreased response to linear vestib. input.</p> <p>Tactile Processing Disorders: Decreased or increased response to tactile input during handling. Tactile discrimination problems such as 2-point disc rim.</p>	<p>Improve bilateral coordination</p> <p>Increase active/passive ROM</p> <p>Increase weight bearing ability</p> <p>Improve posture</p> <p>Increase strength</p>	<p>Spastic Diplegic</p> <p>Increase registration/modulation of vestibular, tactile and proprioceptive sensory input</p> <p>Improve ability to tolerate movement and changes of position.</p> <p>Increase ability to tolerate variety of tactile input during handling</p>



Diagnostic Class	Neuromotor Limitations	Sensory Processing Deficits that May be Masked as Motor Deficits	Traditional Intervention of the Motor Dysfunction	Sensory-Based Principles to Apply to Intervention
Ataxia	Decreased stability in the trunk Decreased postural tone Wide-base of support during ambulation Poor balance Poor co-contraction around joints	Sensory registration deficits Decreased proprioceptive and vestibular feedback from active movements Sensory modulation difficulties of vestibular sensory input	Strengthen trunk Improve proximal stability Improve balance Improve midrange control	Ataxia Increase registration of sensory input, especially proprioception and vestibular input. Facilitate attention and active participation and engagement in purposeful tasks, and ultimately functional performance. Improve motor planning skills and organization of behavior in a larger spatiotemporal environment
Athetosis	Lack of stability in the trunk and the extremities Use of atypical synergies to obtain control. Decreased postural tone and postural control	Decreased response to vestibular and proprioceptive input Tactile processing deficits Sensory modulation deficits	Head/neck/trunk control Weight bearing Functional use of extremities Decrease influence of reflexes Improve postural control Increase strength and endurance Improve modulation of sensory input	Athetosis Improve registration of vestibular/proprioception Improve modulation of sensory input, espec. Touch Hypotonia Decreased head and trunk control Decreased muscle tone throughout the trunk and extremities Poor co-contraction around joints
Understanding the Nature of Sensory Integration with Diverse Populations Roley, Blanche and Schaaf Therapy Skill Builders, 2001				Generalized proprioceptive defensiveness often associated with generalized modulation difficulties of many sensory systems Can demonstrate extremes in arousal level, fluctuating between states of hyper vigilance to coping by "shutting down" through sleeping