Sensory Assessments:

• Tactile discrimination: the ability to correctly identify a raised pin pattern applied to the finger tip from 4 possible patterns provided to the participant (Brown et al., 2010, Langan et al., 2013).

• Stereognosis: the ability to correctly identify a raised dot domino pattern from 3 options.

Semmes-Weinstein Monofilament Test

Motor Assessments:

• WeeFIM (pediatric version of the Functional Independence Measure)
• Mallet Functional Evaluation (NBPP)
• Grip Strength
• 9-Hole Peg Test
• Jebson-Taylor Hand Function Test

Methods

Participants:

• 16 children and adolescents with NBPP (mean age 11.9 yrs)
• 19 right hand dominant age-matched controls (mean age 12.3 yrs)
• No other neurological or musculoskeletal conditions

The aim of this study was to quantify somatosensory function using a variety of assessment tools in children and adolescents with NBPP and age-matched controls and to determine if motor ability may be predicted by the presence of somatosensory deficits.

Results

• Motor function was significantly impaired in the affected (Aff) compared to the unaffected (Unaff) hand and the non-dominant control hand. (9-Hole: *p<.01, **p<.001; Jebson-Taylor: *p<.05, p<.001)

Conclusions

• The results of this study indicate that somatosensory function can be impaired in children and adolescents with Neonatal Brachial Plexus Palsy and extend recent findings demonstrating impaired position sense in this population (Brown et al., in press). These deficits in somatosensory function may be due to activity-dependent reorganization in sensorimotor pathways, most likely at the cortical level.

• Commonly used point-pressure measures such as monofilament testing may not adequately capture changes in tactile acuity, underscoring the need for more sensitive sensory assessment tools.

• The results of this study underscore the importance of evaluating somatosensory function in NBPP which, in turn, may assist in the development of more effective rehabilitation programs.