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Stride Analysis and Gait Variability

Availability:	**Please visit these websites for more information about the instrument:** **Footswitch Stride Analysis:** **B and L Engineering Footswitch Link** **Force Plates:** **AMTI Force and Motion Force Plate Link** **Electromyography (EMG):** **Motion Lab Systems Electromyography Link** **Energy-Cost Measurements:** **Servomex Gas Analyzer Link** **Harvard Apparatus Dry Gad Meters Link**
Classification:	**Exploratory:** Friedreich's Ataxia (FA) **Supplemental:** Cerebral Palsy (CP), Spinal Cord Injury (SCI) and SCI-Pediatric (age 3 and over)
Short Description of Instrument:	The most common techniques used to measure gait are footswitch stride analysis, dynamic EMG, energy-cost measurements, force plate, and instrumented motion analysis. The observational technique of gait analysis involves assessment of the motion pattern of each segment. **Footswitch Stride Analysis:** Footswitch Stride Analysis is generally used to obtain temporal gait measurements. Two types of footswitch measurements exist: Compression closing switches and Force sensitive resistor switches. **Dynamic Electromyography:** Dynamic EMG is used to localize the source of abnormal function so that selection of treatment is more precise. **Force Plates and Motion analysis:** Force plates and motion analysis aid in determining the functional requirement and the muscular response necessary. **Energy Cost Mesasurements:** Energy Cost Measurements and stride analysis are used to determine the effectiveness of a patient's gait.
Comments / Special Instructions:	N/A – data is analyzed, not scored. SCI-Pediatric specific: Best used for intra-subject analysis, as normative data for pediatrics is unavailable.
Rationale/ Justification:	Walking is a complex function that requires in-depth analysis of various aspects in order to appropriately treat any abnormality.

References:	Ebersbach G, Sojer M, Valldeoriola F, Wissel J, Müller J, Tolosa E, Poewe W. Comparative analysis of gait in Parkinson's disease, cerebellar ataxia and subcortical arteriosclerotic encephalopathy. Brain. 1999;122 (Pt 7):1349–1355. Gronley JK & Perry J. Gait analysis techniques. Rancho Los Amigos Hospital gait laboratory. Phys Ther.1984; 64(12):1831–1838. Hausdorff JM. Gait variability: methods, modeling and meaning. J Neuroeng Rehabil. 2005;2:19. Hausdorff JM, Ladin Z, Wei JY. Footswitch system for measurement of the temporal parameters of gait. J Biomech.1995;28(3):347–351.