UCLA/ORTHOPÆDIC HOSPITAL
CENTER FOR CEREBRAL PALSY

SCALE: Selective Control Assessment of the Lower Extremity
Score Sheet

Date: _____ Patient's Name: _____ DOB: _____ GMFCS level: _____

Diagnosis: ☐ spastic diplegia ☐ spastic quadriplegia ☐ spastic hemiplegia R L other: _____

			Left					Right		
Grade	Hip	Knee	Ankle	STJ	Toes	Hip	Knee	Ankle	STJ	Toes
Normal (2 points)										
Impaired (1 point)										
Unable (0 points)										
Total Limb Score L=		R=								

Resisted Synergy

knee extension with resisted limb extension	■		■	■		■		■	■	
dorsiflexion with resisted limb flexion	■	■		■	■	■	■		■	■

Descriptors

hip flexion contracture		■	■	■	■		■	■	■	■
adductor contracture or spasticity		■	■	■	■		■	■	■	■
knee flexion contracture	■					■				
hamstring tightness				■	■				■	■
plantar flexion contracture	■	■				■	■			
plantar flexor spasticity	■	■				■	■			
inverts or everts, not pure dorsiflexion	■	■		■	■	■	■		■	■
primarily moves toes	■	■		■	■	■	■		■	■
mirrors motion on opposite limb										
motion slower than 3 second verbal count										
moves one direction only (note motion achieved)										
movement of other joints										
motion ≤ 50% of available ROM										

Other comments regarding test: _____

_____

_____

_____

_____
Examiner

SCALE: Directions for administration

The patient must be able to follow simple motor commands. To test this ability, ask the patient to move his or her least affected body part. Before asking the patient to perform each joint test, passively move the joint to assess ROM. To assure understanding, demonstrate the movement sequence while supporting the limb. The language in the instructions to the patient is suggested and may be modified as needed to elicit optimum performance for individual patients. To guide patients in the desired speed of movement, provide a verbal three-second count during the task. Multiple attempts are allowed and feedback to improve performance is acceptable.

General instructions to patient – "I am going to ask you to move in a certain way. Move the way I ask you to move. Try not to move any other part of your body. If you have any questions or you don't understand what I am asking you to do, please tell me."

Hip

Position – Side lying with the hip and knee fully extended. Support the limb medially at the knee and ankle. For stability, you may flex the lower untested limb. The tested motion is hip flexion while keeping the knee extended. Assess hip flexion ROM with the knee extended, as it may be limited by hamstring tightness. If the patient has difficulty with this task because of hamstring tightness, then ask him or her to extend, flex then extend the hip while keeping the knee flexed 90^{o}. Evaluate hip extension ROM to assure an adequate arc of motion to assess performance of the task.

Instructions to patient – Ask the patient to flex, extend then flex the hip while keeping the knee extended. For example: "Move your leg forward, back then forward again while keeping your knee straight. I will take you through the motion first, and then I'd like you to do it yourself."

Knee

Position – The remaining tests are done in sitting with legs over the edge of the exam table. During the remaining tests you may allow the patient to lean back on his or her hands so the trunk is approximately 20^{o} from vertical to compensate for hamstring tightness.

Instructions – Ask the patient to extend, flex then extend the knee while keeping the hip flexed. For example: "Straighten your knee as much as you can, then bend it and straighten again. Try to do this without leaning further back or moving your other leg. I will take you through the motion first, and then I'd like you to do it yourself."

Limb Extension Synergy – If quadriceps weakness is suspected, limb extension synergy may be assessed. Allow the patient to lean back on his or her hands or be supported so the trunk is approximately 45^{o} from vertical. Position the limb in hip and knee flexion with ankle dorsiflexion. Ask the patient to push against your hand, extending the knee and plantar flexing the foot and toes. Resist at the metatarsal heads and compare knee extension excursion to the amount achieved during the knee selective voluntary motor control test.

Ankle

Position – Sitting, as in the knee extension test. The knee is extended and the examiner supports the calf. Assess passive ankle dorsiflexion ROM with the knee extended. The knee may be flexed to approximately 20^{o} if needed to accommodate hamstring and/or gastrocnemius tightness.

Instructions to patient – Ask patient to dorsiflex, plantar flex then dorsiflex the ankle while maintaining knee extension. For example: "Keeping your knee straight while I support your leg, move your foot up, down then up again. I will take you through the motion first, then I'd like you to do it yourself."

Limb Flexion Synergy (Confusion Test) – If dorsiflexor muscle weakness is suspected, limb flexion synergy may be assessed. Ask the patient to flex the hip while keeping the knee flexed. Resist hip flexion at the distal thigh. Compare dorsiflexion excursion to the amount achieved during the ankle selective voluntary motor control test.

Foot/Subtalar Joint

Position – Sitting, as in the knee and ankle tests. The calf is supported.

Instructions to patient – Ask patient to invert, evert then invert while maintaining knee extension. For example: "Move your ankle in, then out then in again while I support your leg. I will take you through the motion first, then I'd like you to do it yourself."

Toes

Position – Sitting, as in the ankle test. The heel is supported.

Instructions to patient – Ask patient to flex, extend then flex toes without moving ankle or knee. For example: "Curl all your toes down, then up then down again while I support your leg. I will take you through the motion first, then I'd like you to do it yourself."

SCALE: Selective Control Assessment of the Lower Extremity
Instructions for Grading

Each joint is scored either 2,1 or 0 points. These are summed for a Total Limb Score. The number of points for each grade is in parentheses. For each joint, check the joint score and all applicable descriptors on the *SCALE Score Sheet*.

Hip

Normal (2) Flexes, extends then flexes again. During flexion, movement occurs without knee flexion, within a three-second verbal count and without mirror movement (the same movement on the contralateral limb). If alternate hip extension test is used, extends, flexes then extends again. During extension, movement occurs without knee extension, within a three-second verbal count and without mirror movement.

Impaired (1) One or more of the following occur: extends or flexes ≤ 50% of available range of motion in the test position, performs task slower than three-second verbal count, exhibits mirror movements, movement occurs in only one direction or motion at untested joint occurs.

Unable (0) Does not flex or extend hip or does so only with simultaneous knee movement.

Knee

Normal (2) Extends, flexes and extends again. Movement occurs within three-second verbal count, without motion of the trunk or other joints and without mirror movement. A Normal grade may be given if the knee extends > 50% of available range of motion in the test position.

Impaired (1) One or more of the following occur: extends ≤ 50% of available range of motion, performs task slower than three-second verbal count, exhibits mirror movements, movement occurs in only one direction or motion at untested joint occurs.

Unable (0) Does not extend or only extends with simultaneous hip or ankle movement.

Ankle

Normal (2) Dorsiflexes, plantar flexes and dorsiflexes again. Movement occurs within a three-second verbal count, without motion at other joints and without mirror movement. At least 15° of ankle motion in the sagittal plane must be observed.

Impaired (1) One or more of the following occur: dorsiflexes ≤ 50% of available passive range of motion in the test position or active range during Limb Flexion Synergy, performs task slower than three-second verbal count, exhibits mirror movements, movement occurs in only one direction or motion at untested joint occurs. An "Impaired" grade is given if the motion is accompanied by toe extension or ankle inversion.

Unable (0) Does not dorsiflex or only dorsiflexes with hip and knee flexion.

Foot/Subtalar Joint

Normal (2) Inverts, everts and inverts again. Movement occurs within a three-second verbal count, without motion at other joints and without mirror movement. Active eversion must occur.

Impaired (1) One or more of the following occur: inverts or everts ≤ 50% of available range of motion, performs task slower than three-second verbal count, exhibits mirror movements, movement occurs in only one direction or motion at untested joint occurs.

Unable (0) Does not invert or evert or movement occurs only in synergy pattern. May dorsiflex, plantar flex or not move ankle at all.

Toes

Normal (2) Flexes, extends and flexes again. Movement occurs within a three- second verbal count, without motion at other joints and without mirror movement. Motion should occur at all five toes.

Impaired (1) One or more of the following occur: flexes or extends ≤ 50% of available range of motion, performs task slower than three- second verbal count, exhibits mirror movements, movement occurs in only one direction or motion at untested joint occurs.

Unable (0) Does not flex or extend toes.

Difference between Unable and Impaired

Unable (total synergy) has simultaneous movement at two or more joints. For every degree of motion at the desired joint, concomitant obligatory motion that is a part of the synergy pattern occurs at another joint in the limb. Patients with impaired motor control may be able to move the desired joint through a small arc of motion without any other joint motion, however a portion of the motion is accompanied by motion at an adjacent joint.

Difference between Impaired and Normal

Normal motor control is the ability to isolate joint motion through more than 50% of the available ROM within a three-second verbal count in an alternating fashion. The motion occurs without accompanying motion at any other joints of either limb. The inability to perform this task is impaired.