**MOTOR TASKS ADMINISTRATION AND SCORING PROTOCOL**

Keep shoes on unless examiner or examinee has high-heels.

Be sure that the chair’s height allows feet to be flat on the floor.

Participants will be video-recorded while performing the tasks to enable re-scoring by multiple evaluators after the time of testing. Video-recording of timed motor coordination and stressed gait maneuvers must include all 4 extremities and face at all times, to allow observation of overflow movements. Video-recording of conflicting response inhibition task and contralateral response task must include both upper extremities at all times. A tripod will hold the camera at a position that respects these criteria. Video-camera and tripod is stored in Xavier’s desk.

**1. Timed motor coordination**: “First we are going to see how fast you can move your feet, hands, fingers and tongue”

**1.1 Hand pats**: “Choose one hand and pat it on your lap, like this, as fast as you can” (examiner demonstrates) “Ready? Go!” (stop after 20 pats; repeat with contralateral hand)

**1.4 Hand pronate-supinate**: “Pat your hand like this, back and palm, back and palm, like this, as fast as you can” (examiner demonstrates). “Ready? Go!” (stop after 10 pronation-supination repetitions; repeat with contralateral hand)

**1.3 Finger taps**: “I want you to tap the thumb and index finger together as fast as you can, like this” (examiner demonstrates) “Ready? Go!” (stop after 20 taps; repeat with contralateral hand)

**1.4 Finger-to-thumb opposition**: “Tap each finger against the thumb in order, then do them again, like this” (examiner demonstrates) “Do not go backwards, always this way - index, middle, ring, pinkie, 1, 2, 3, 4, 1, 2, 3, 4. Try it” (examinee tries) “OK, now try it on the other hand. Good. Now get ready to choose one hand and do these taps in order as fast as you can. Ready? Go!” (stop after 5 sequences; repeat with contralateral hand)

**1.5 Toe taps**: “choose one foot and tap it like this, like you are impatiently waiting for someone, on the floor” (examiner demonstrates) “Keep the heel of your foot on the floor and tap the front of the front of the foot fast, like this. Ready? Go!” (repeat with contralateral foot)

**1.6 Heel-toe taps**: “Now, rock one foot back and forth, heel-toe, heel-toe, as fast as you can, like this” (examiner demonstrates) “Ready? Go!” (repeat with contralateral foot)

**1.7 Tongue side-to-side**: move your tongue side-to-side, like this, touching each corner of your lips, then the other, back and forth as fast as you can” (examiner demonstrates) “Ready? Go!”

**2. Stressed gait maneuvers** (Each tasked is performed once, following a straight line indicated by a 6-foot long adhesive tape, away from any nearby obstructions)

**2.1 Gait on heels**: “Walk this line to the end up on your heels, like this” (examiner demonstrates, arms hanging naturally)

**2.2 Gait on toes**: “Now walk this line on your toes, like this” (examiner demonstrates, arms hanging naturally)

**2.3 Gait on sides of feet**: “Now walk like this” (examiner demonstrates gait on outer border of feet, arms hanging naturally)

**Scoring method:** The following will be considered overflow movements. (i) Feet-to-hand overflow: the hands mimic the posture of the feet, for example, extension of the wrist during heel-walking. (ii) Proximal overflow: unintended movements in musculature proximal to that necessary for performance of the task, for example, flexion/extension of the wrist during finger tapping. (iii) Orofacial overflow: unintended oral-buccal movements that accompany voluntary movements of the distal limbs, for example, repetitive lip pursing during finger tapping. (iv) Mirror movements: unintended movements that accompany voluntary activity in homologous muscles on the opposite side of the body, for example, right hand movements during left hand tapping.

Each timed motor coordination task will receive an overflow movements score of 0, 1, 2 or 3; corresponding to the number of types of overflow movements observed: proximal overflow, orofacial overflow, and mirror movements. Tongue side-to-side will be scored with an overflow score of either 0 or 1, depending on whether jaw synkinesia is present while performing the task. Each stress gait maneuver will receive an overflow score of 0 or 1 depending on whether hand postures (feet-to-hand overflow) are present while performing the task.

The variable of interest in this study will be the sum of total overflow movements present during timed motor coordination tasks plus those present during stressed gait maneuvers.

**3. Conflicting response inhibition task**: Examinee places both hands on a table. “If I show you my finger, you show me your fist; if I show you my fist, you show me your finger. Respond with your [dominant] hand as quickly as possible.” The examiner, using the left hand, presents each of the two gestures 24 times (for a total of 48 presentations) in a fixed pseudorandom sequence, at a rate of one per second.

**1 0 1 1 0 0 1 1 1 1 0 1 0 0 1 1**

**1 1 1 0 1 1 0 1 0 0 0 0 1 0 0 0**

**0 1 0 0 0 1 1 0 1 0 0 0 1 1 1 0**

**1 = finger 0 = fist. Generated with matlab randperm.**

**Scoring method**: The variable of interest is the total number of echopraxic errors (i.e., the subject’s inability to inhibit the prepotent tendency to mimic the examiner).

**4. Contralateral response inhibition ask**: Examinee places both hands on a table and closes his/her eyes. “Lift the right hand when I touch your left hand and lift the left hand when I touch your right hand”. A total of 48 trials are administered (24 for each hand) in fixed pseudorandom sequence.

**0 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0**

**1 1 0 1 1 0 0 0 1 1 1 0 1 0 0 1**

**1 1 1 1 0 1 1 0 1 1 0 1 0 0 0 1**

**1 = right 0 = left. Generated with matlab randperm.**

**Scoring method**: The variable of interest is the total number of lateral (same side) errors (i.e., the subject’s inability to inhibit the prepotent response of raising the hand that is touched).