



# **MHFMS-EXTEND TEST FOR CHILDREN WITH SPINAL MUSCULAR ATROPHY**

## **GROSS MOTOR MODULE**

### **PROTOCOL ADMINISTRATION AND SCORING MANUAL**

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*MHFMS-EXTEND: GROSS MOTOR TEST MODULE  
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## **MHFMS-EXTEND TEST MODULES**

### **GROSS MOTOR FUNCTION MODULE**

<b>Equipment needed</b>
1. 4' X 6' high density blue mat
2. Child and adolescent adjustable sized benches
5. 4 standard size stairs with rails
6. Stopwatch
7. Timer
8. Athletic Arm band - 2
10. Blue masking/painter's tape

**Items # 1-2 Should optimally be tested without shoes or orthoses. If unable to comply with an item with shoes and/or orthoses removed, may test with shoes and/or orthoses on (shoe inserts only allowed, nothing higher than a UCBL) only if absolutely necessary to complete task. If tested with shoes and/inserts mark devices on Clinical Report Form (CRF). No assistive devices (ie walkers, crutches) allowed. No physical assist or physical prompting that supports the trial should be given by the Clinical Evaluator (CE) or family/guardian. Verbal encouragement may be provided. Verbal strategies to complete the task should NOT be provided.**

### **Item #1: Climbs 4, 6" steps (in upright)**

#### **Start position**

Subject is standing independently, arms at side, in front of stairs at base of stairs.

#### **Directions**

Instruct the subject to climb up stairs without using the railing when you say "go". Also indicate that they should try to climb without using any nearby walls or rails. At the start of testing, let them know that a timer may sound while they are climbing, but they should disregard it. Set timer for 15 seconds and start at go signal. Timer will sound at 15 seconds. Note number of steps climbed when timer sounds. Indicate lead leg in comment section on CRF and on CE reminder form.

#### **Scoring**

- 0- Unable to complete.
- 1- Uses rail or wall support to climb 4 stairs or climbs < 4 stairs in 15 seconds. Must be in upright, may not use hands on steps (ie climbing in 4-point, hands and knees, bear or plantigrade positions not allowed). If climbs less than 4 stairs please indicate # of stairs climbed on CRF.
- 2- Climbs 4 standard stairs in <15 seconds, independent, no rail, wall, or other support.

\*\*\*\* Indicate on CRF and CE reminder form if climbs stairs with rail or without rail. If uses rail indicate if uses one (1) or two (2) hands on rail. Indicate in comment section on CRF if subject climbs steps in reciprocal manner alternating feet or if the use "step-tap" pattern.





up stairs medium



upstairsmed

**Item #2: Descends 4. 6” steps (in upright)**

\*\*\*\*If climbs less than 4 steps in previous item (#1), may lift subject up to top step to alleviate fatigue if necessary, prior to testing item #2.

**Start position**

Subject is standing independently, arms at side at the top of the stairs looking down.

**Directions**

Instruct the subject to climb down stairs when you say “go”. At the start of testing, let them know that a timer may sound while they are climbing down, but they should disregard it.

Set timer for 15 seconds and start at go signal. Timer will sound at 15 seconds. Note number of steps climbed when timer sounds. Instruct subject to ignore timer and to continue to bottom step. Indicate lead leg in comment section on CRF and on CE reminder form.

**Scoring**

- 0- Unable to complete
- 1- Uses rail or wall support to descend 4 standard stairs or descends less than 4 stairs in 15 seconds. Must be in upright, may not use hands on steps (ie descending in 4-point, hands and knees, bear or plantigrade positions not allowed). If descends less than 4 stairs please indicate # of stairs climbed in comments section on CRF.
- 2- Descends 4 standard stairs in 15 seconds. Independent, no rail, wall or other support.

\*\*\*\* Indicate on CRF and CE reminder form if descends stairs with rail or without rail. If uses rail indicate if uses one or 2 hands on rail. Indicate in comments section on CRF if subject descends steps in reciprocal manner alternating feet or if they use “step-tap” pattern.





down stairs fast



down stairs medium

**Item #3: Gets off chair without arms**

**Start position**

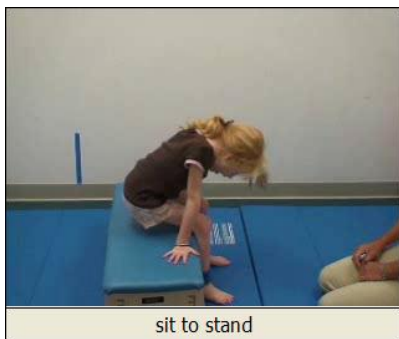
Subject is sitting on chair without arms. Chair should be placed on carpet or tile floor, **NOT** on mat. Hips and knees as close to 90/90 as possible with feet in contact with floor. **NO** braces and no shoes should be worn. If chair height is not exact, err on side of chair being lower rather than higher. A lower chair may make task more difficult. This is acceptable, as we do not want them in a higher chair on a later visit as they would likely do better and this would be a false positive vs. a true change. Record bench/chair height on CE reminder form.

**Directions**

Instruct subject to get up from chair without using arms and without pushing off of anything.

**Scoring**

- 0- Unable.
- 1- Uses hands to push off/up or requires hand held assist.
- 2- Independent without use of hands. May use momentum.



**Item #4: Gets to standing from lying supine on floor**

**Start position**

Subject should be lying supine on floor with arms at sides. Should optimally test without shoes or orthoses. If unable, may test with shoes and/or orthoses (shoe inserts only allowed, nothing higher than a UCBL) only if absolutely necessary to complete task. If tested with shoes and/inserts mark devices on CRF. No assistive devices (walker, crutches, etc) allowed. No physical assist or physical prompting that supports the trial should be given by the CE or family/guardian. Verbal encouragement may be provided.

**Directions**

Instruct the subject to get up to standing. Instruct to try as hard as possible without using hands. Goal is **best** performance, not speed of accomplishment. May demonstrate if necessary. If uses a Gower's maneuver to complete, indicate Gowers/No Gowers in comments section on CRF.

**Scoring**

- 0- Unable to complete
- 1- Uses furniture or hand held assist (HHA) to complete.
- 2- Independent. May push off floor or own body as needed.





**Item #5: Standing still on toes**

**Start position**

**NO braces, shoes or socks should be worn.** Standing independently, no upper extremity (UE) support allowed.

**Directions**

Instruct subject to stand still on tiptoes as long as they can. Demonstrate if necessary. Use stopwatch to time.

**Scoring**

- 0- Unable, or if cannot do without moving.
- 1- Stands still on tiptoes for < 5 seconds. Static standing, NO steps allowed.
- 2- Stands still on tiptoes for  $\geq$  5 seconds. Static standing, NO steps allowed.



**Item #6: Standing on one leg**

**Start position**

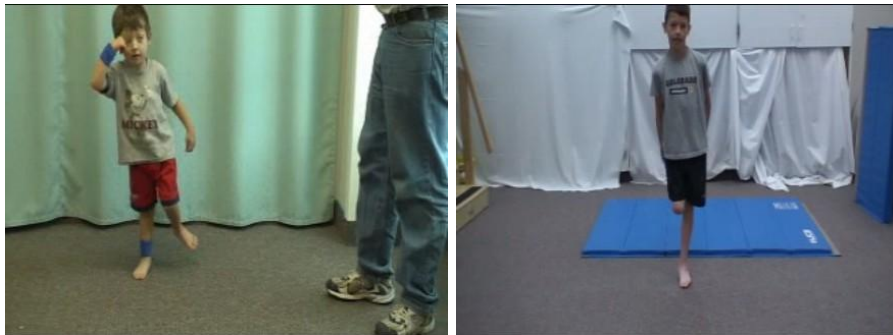
**No braces, shoes or socks should be worn.** Standing independently no upper extremity support allowed.

**Directions**

Instruct subject to stand still on one leg as long as they can. Demonstrate if necessary. Foot of weightbearing leg must maintain position- static unilateral stance. Arms and non-weightbearing foot position can be wherever and can be moving. Can stabilize foot against opposite leg. Indicate leg they stood on in comment section on CRF and on CE reminder form.

**Scoring**

- 0- Unable to complete task
- 1- Stands on one leg < 5 seconds, weight bearing leg not moving.
- 2- Stands on one leg  $\geq$  5 seconds, weight bearing leg not moving



**Item #7: Jumps**

**Start position**

**NO braces, shoes or socks should be worn.** Perform this item on carpeted or tiled area if available. Standing, independently, no UE support.

**Directions**

Instruct subject to jump up with both feet. Demonstrate if necessary.

**Scoring**

0- Unable to complete task.

1- Can initiate, barely clears feet or partially clears feet from surface. Part of foot- any part, still in contact with floor.

2- Complete clearance of both feet off surface. Both feet have to clear but may clear in "leap" fashion. However, at some point BOTH legs must be off surface at the same time.



**Item #8: Hops**

**Start position**

**NO braces, shoes or socks should be worn.** Perform this item on a carpeted or tiled area if available. Standing independently, no upper extremity support. .

**Directions**

Instruct the subject to hop consecutively on one leg. Foot **MUST** completely clear floor!! Indicate hopping leg in comment section on CRF and on CE reminder form.

**Scoring**

- 0- Unable to complete task.
- 1- Hops consecutively on the same leg < 5 times. Completely clears foot from surface.
- 2- Hops consecutively on the same leg  $\geq$  5 times. Completely clears foot from surface.

