**IC39: When Spasticity & Dystonia co-exist: re thinking CP motor classification and measurement**

**References**


**Hypertonicity Assessment Tool (HAT)**


HAT Manual and score sheets can be downloaded from the website: [https://research.hollandbloorview.ca/outcomemeasures/hat](https://research.hollandbloorview.ca/outcomemeasures/hat)

**Cerebral Palsy Description Form – Motor Impairments**


**Toolkit: The identification and measurement of dyskinesia in children with cerebral palsy**

Please describe CP type and severity in words as you would write in the medical record:

Please explain this form to parents if there is interest and opportunity. It will be useful to retain a copy for your records. Please forward to the address overleaf.
Australian Spasticity Assessment Scale (ASAS)
Love SC, Gibson N, Blair E

0  No catch on rapid passive movement (RPM) (no spasticity).
1  Catch on RPM followed by release. There is no resistance to RPM throughout rest of range.
2  Catch occurs in second half of available range (after halfway point) during RPM and is followed by resistance throughout remaining range.
3  Catch occurs in first half of available range (up to and including the halfway point) during RPM and is followed by resistance throughout remaining range.
4  When attempting RPM, the body part appears fixed but moves on slow passive movement.

NB  Contractures do not need to be recorded on this form.

Part II: FUNCTION AND ASSOCIATED IMPAIRMENTS

Please indicate Gross Motor Function Classification System E&R level (Palisano et al, 2007):

GMFCS:  Level I  Level II  Level III  Level IV  Level V

Please indicate Manual Ability Classification System level (Eliasson et al, 2006):

MACS:  Level I  Level II  Level III  Level IV  Level V

Please indicate associated impairments present in this child:

Intellectual:  IQ / DQ or severity range
☐ Normal  Method of assessment / Date assessed
Comments

Epilepsy:  Previously, but now resolved
☐ None  Seizure type(s) if current
Age at onset

Visual:  Some impairment
☐ Normal  Bilateral blindness
Strabismus
Uncertain

Hearing:  Some impairment
☐ Normal  Bilateral deafness
Uncertain

Speech:  Some impairment
☐ Normal  Non-verbal
Uncertain

Swallowing:  Modifications required (eg, special spoon, food thickening)
☐ Normal  Non-oral feeding
Uncertain

Please forward to:
# Hypertonia Assessment Tool (HAT) - Scoring Chart

**Name:**

**Clinical Diagnosis:**

**Limb Assessed:**
- [ ] Arm
- [ ] Left
- [ ] Right
- [ ] Leg
- [ ] Left
- [ ] Right

**Chart/File #:**

**Date of Birth:**

**Gender:**
- [ ] Male
- [ ] Female

**HAT Assessor:**

**Date of Assessment:**

## Hypertonia Assessment Tool (HAT)

<table>
<thead>
<tr>
<th>HAT Item</th>
<th>Scoring Guidelines (0=negative or 1=positive)</th>
<th>Score (0=negative 1=positive circle score)</th>
<th>Type of Hypertonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Increased involuntary movements/postures of the designated limb with tactile stimulus of another body part</td>
<td>0= No involuntary movements or postures observed</td>
<td>0</td>
<td>Dystonia</td>
</tr>
<tr>
<td></td>
<td>1= Involuntary movements or postures observed</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. Increased involuntary movements/postures with purposeful movements of another body part</td>
<td>0= No involuntary movements or postures observed</td>
<td>0</td>
<td>Dystonia</td>
</tr>
<tr>
<td></td>
<td>1= Involuntary movements or postures observed</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3. Velocity dependent resistance to stretch</td>
<td>0= No increased resistance noticed during fast stretch compared to slow stretch</td>
<td>0</td>
<td>Spasticity</td>
</tr>
<tr>
<td></td>
<td>1= Increased resistance noticed during fast stretch compared to slow stretch</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4. Presence of a spastic catch</td>
<td>0= No spastic catch noted</td>
<td>0</td>
<td>Spasticity</td>
</tr>
<tr>
<td></td>
<td>1= Spastic catch noted</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5. Equal resistance to passive stretch during bi-directional movement of a joint</td>
<td>0= Equal resistance not noted with bi-directional movement</td>
<td>0</td>
<td>Rigidity</td>
</tr>
<tr>
<td></td>
<td>1= Equal resistance noted with bi-directional movement</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6. Increased tone with movement of another body part</td>
<td>0= No increased tone noted with purposeful movement</td>
<td>0</td>
<td>Dystonia</td>
</tr>
<tr>
<td></td>
<td>1= Greater tone noted with purposeful movement</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7. Maintenance of limb position after passive movement</td>
<td>0= Limb returns (partially or fully) to original position</td>
<td>0</td>
<td>Rigidity</td>
</tr>
<tr>
<td></td>
<td>1= Limb remains in final position of stretch</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

## Summary Score - HAT Diagnosis

<table>
<thead>
<tr>
<th>Type of Hypertonia</th>
<th>Check box</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dystonia</td>
<td>[ ] Yes</td>
</tr>
<tr>
<td>Spasticity</td>
<td>[ ] Yes</td>
</tr>
<tr>
<td>Rigidity</td>
<td>[ ] Yes</td>
</tr>
<tr>
<td>Mixed Tone</td>
<td>[ ] Yes</td>
</tr>
</tbody>
</table>

**HAT Diagnosis**

*(Fill in all that apply)*

The HAT is a seven item tool that has been developed for children/youth aged 4 to 19 years to discriminate hypertonia subtypes of spasticity, dystonia and rigidity for each limb.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Left UL</th>
<th>Right UL</th>
<th>Left LL</th>
<th>Right LL</th>
<th>Subtype</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Increased involuntary movements/postures of limb to tactile stimulus of distal body part</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>Dystonia</td>
</tr>
<tr>
<td>2. Increased involuntary movements/postures with purposeful movement of distal body part</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>Dystonia</td>
</tr>
<tr>
<td>3. Velocity-dependent resistance to stretch</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>Spasticity</td>
</tr>
<tr>
<td>4. Presence of a spastic catch</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>Spasticity</td>
</tr>
<tr>
<td>5. Equal resistance to passive stretch during bidirectional movement of a joint</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>Rigidity</td>
</tr>
<tr>
<td>6. Increased tone with movement of a distant body part</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>Dystonia</td>
</tr>
<tr>
<td>7. Maintenance of limb position after passive movement</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>0 / 1</td>
<td>Rigidity</td>
</tr>
</tbody>
</table>

**Summary score for movement diagnosis**<sup>*</sup>  
(circle overall movement subtype identified for each limb)

<table>
<thead>
<tr>
<th>Dys/Sp</th>
<th>Dys/Sp</th>
<th>Dys/Sp</th>
<th>Dys/Sp</th>
</tr>
</thead>
<tbody>
<tr>
<td>R/M</td>
<td>R/M</td>
<td>R/M</td>
<td>R/M</td>
</tr>
</tbody>
</table>

**Overall Scale – for total body (if wish)**

* Dystonia - positive score (1) in at least one of items 1, 2 or 6  
**  
Spasticity - positive score (1) in either one or both of items 3 or 4  
**  
Rigidity - positive score (1) in either one or both of items 5 or 7  
**  
Mixed tone – presence of items from more than one subgroup  
**