

# USER MANUAL

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## HAMILTON INVENTORY FOR COMPLEX REGIONAL PAIN SYNDROME Part A: Clinician – Based Component

BETA VERSION 2011

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October 22, 2011

\*\* This beta version of the HI-CRPS is being made available to readers of the Journal of Hand Therapy as a supplement. It is intended to inform the reader of the iterative process of tool development and does not represent a completed outcome measure ready for use in research or clinical practice. If you have comments or questions about the material herein, please contact Tara Packham at [packhamt@hhsc.ca](mailto:packhamt@hhsc.ca). \*\*

# SCORING INSTRUCTIONS

## SENSORY COMPONENTS

### 1) Allodynia:

**Definition:** Pain or unpleasant sensation is experienced when an ordinarily painless stimulus is applied.

**Testing:** Lightly stroke the affected limb 3 times with a cotton swab; rate response (use both verbal and behavioural feedback)  
**Instructions:** I am going to touch you lightly with this swab; tell me how it feels. (Allow patient to respond then ask) Does it hurt?

- 0 = None, no complaints of pain
- 1 = Mild, patient reports discomfort when asked but no physical behaviours evident
- 2 = Moderate, patient reports pain, may show a behavioural response such as flinching, grimacing, or vocalizing discomfort
- 3 = Severe, patient reports pain and has a clear behavioural response; may decline to be tested

### 2) Cold Hyperalgesia:

**Definition:** an exaggerated painful sensation evoked by low-temperature stimulation (Verdugo et al., 2004, p. 369).

**Testing:** Touch test tube of cold water to skin for 3 seconds. Repeat over 3 different zones within affected area. Rate response as below.  
**Instructions:** I am going to touch you with this test tube of cold water; tell me how it feels to you. (Allow patient to respond then ask) Does it hurt?

- 0 = None, no complaints of pain; may report that tube feels cold.
- 1 = Mild, patient reports discomfort with cold but no physical behaviours evident
- 2 = Moderate, patient reports pain, may show a behavioural response such as flinching, grimacing, or vocalizing discomfort
- 3 = Severe, patient reports pain and has a clear behavioural response; may decline to be tested

### 3) **Guarding:**

**Definition:** behaviours in which one engages in as a means to protect their affected body part from becoming injured or re-injured; may include postures, use of assistive devices (slings, splints, braces) and vigilance.

**Testing:** Observe and rate evidence of bracing, holding affected body part close to their body, or avoidance of activity (i.e. avoiding social situations for fear of someone hitting affected body part) and reduced interaction with the immediate environment (i.e. does not weight-bear or use limb to hold or manipulate objects. May keep body part covered with clothing or avoid clothing. May use braces or splints as external protection.

0 = None, no guarding behaviour observed or reported.

1 = Mild, patient reports needing to protect limb, may demonstrate some protective behaviour such as altered posture but is able to interact with the environment

2 = Moderate, patient demonstrates clear postural alteration and protective behaviours such as covering limb but is able to interact with the environment to some degree

3 = Severe, patient adopts non-functional postures, demonstrates vigilance and/or restricts environmental interactions; may refuse aspects of assessment

## **AUTONOMIC COMPONENTS**

### 4) **Skin temperature asymmetry:**

**Definition:** temperature of the skin that is noticeably warmer or colder than that of the unaffected or contralateral limb.

**Testing:** Wipe skin areas to remove moisture. Measure surface skin temperature using infra-red thermometer over a distal area of skin (preferably without hair); compare to opposite limb. Note if temperature is increased or decreased compared to unaffected side.

0 = None, temperature side differences of less than 0.5 degrees C measured.

1 = Mild, temperature side differences of 0.5 degrees C to 1.0 degrees C measured

2 = Moderate, temperature differences of 1.0 degrees C to 1.5 degrees C measured

3 = Severe, temperature side differences of greater than 1.5 degrees C

### 5) **Vascular function - mottling:**

**Definition:** skin colouring appears uneven, patchy, or mottled. May be seen together with redness or cyanosis.

**Testing:** Patches of red and/or white spots throughout the affected body part greater than observed in contra-lateral unaffected limb.  
**Instructions:** (If not observed) Does this hand/foot ever get blotchy or patchy looking? How often does that happen?

0 = None, no differences observed.

1 = Mild, slight differences evident and/or patient reports it happens infrequently

2 = Moderate, clear differences evident and/or patient reports it occurs regularly

3 = Severe, clear differences compared to other side and intense coloration of patches evident (i.e. very purple or very red blotches); patient reports limb is always discoloured.

### 6) **Sweating: Hyperhydrosis**

**Definition:** excessive sweating or moisture of the skin as compared to the unaffected side. Sweating may occurs in areas not normally prone to perspiration (i.e. the dorsum of the hand).

**Testing:** Skin may be moist to very wet to touch; look for sheen and/or beads of moisture; moisture quickly reappears after drying with cloth, etc. This differs in frequency and severity compared to opposite limb. Also note moisture in areas not normally prone to sweating, such as around the nails.  
**Instructions:** (if not observed) Does this hand/foot ever get moist or sweaty? How often does that happen?  
If patient denies any sweating, then ask:  
Has your hand/foot stopped sweating since your injury? Does it stay dry even if you are working up a sweat on the other side? \*\* score as anhydrosis

0 = None, no differences observed.

1 = Mild, slight differences evident and/or patient reports it happens infrequently

2 = Moderate, clear differences evident and/or patient reports it occurs regularly

3 = Severe, clear differences compared to other side. For hyperhydrosis, beads of sweat are clearly visible; patient reports limb is always moist or sweaty. For anhydrosis, no sweating is visible despite visible sweating on unaffected side.

## 7) **Edema**

**Definition:** characterized by an accumulation of fluid resulting in an increase in tissue volume.

**Testing:** Volumetry or figure of 8 measurements recommended for objective measurements; may also consider whether edema is localized or generalized in the limb.

0 = None, no swelling observed.

1 = Mild, slight differences evident between limb size and/or patient reports it comes and goes intermittently

2 = Moderate, clear differences evident between limbs; may impact on ROM

3 = Severe differences compared to other side; significant impact on ROM; tissues may have pitting or boggy end feel

## **TROPHIC COMPONENTS**

### 8) **Changes in hair growth patterns**

**Definition:** characterized by a change in hair, including: a) colour, b) texture, c) distribution, or d) density of follicle growth; can be increased or decreased.

0 = None, no differences observed.

1 = Mild, slight differences evident in one or two characteristics

2 = Moderate, differences evident

3 = Severe, clear differences compared to other side

### 9) **Changes in nails**

**Definition:** characterized by changes in nail a) colour, b) ridging, c) thickness.

0 = None, no differences observed.

1 = Mild, slight differences evident in comparison to contralateral limb

2 = Moderate, clear differences evident

3 = Severe, clear differences compared to other side.

### 10) **Changes in skin quality**

**Definition:** characterized by thickening or thinning of the epidermis; may be shiny or dull in appearance.

0 = None, no differences observed.

1 = Mild, slight differences evident in comparison to contralateral limb

2 = Moderate differences evident

3 = Severe, clear differences compared to other side; patient may report or show evidence of poor wound healing or ulcerations.

## **MOTOR DYSFUNCTION COMPONENTS**

The following two items are scored on a Likert scale based on agreement.

### 11) **The movement is less than would be expected for the patient's initial degree of injury**

**Definition:** Degree of movement is less than would be anticipated in relation to initial injury: based on clinical judgement related to a clear understanding of initial injury vs. the movement loss appears to be the direct result of CRPS.

### 12) **The movement is less than would be expected for the patient's stage of healing/duration of time since injury**

**Definition:** Degree of movement is less than would be anticipated in relation to time elapsed since initial injury and treatment protocols utilized to guide rehabilitation

### 13) **Abnormal muscle tone**

**Definition:** characterized by decrease in muscle tone (hypotonic) or increase in muscle tone (hypertonic). Muscle tone is defined as the amount of contraction in a muscle at rest.

- 0 = None, no differences observed.
- 1 = Mild, slight differences evident in comparison to contralateral limb
- 2 = Moderate, clear differences evident.
- 3 = Severe, clear differences compared to other side.

**Testing:** Palpation of muscle belly at rest; observations of muscle wasting. Objective assessment can include manual muscle testing and/or evaluations of resistance to passive movement such as the Ashworth scale.

### 14) **Incoordination**

**Definition:** the lack of skilful and balanced movement of the affected extremity; may include *dysdiachokinesia* [the ability to make rapid, smooth, and alternating movements] and/or *dystonia* [uncoordinated muscle movements caused by prolonged contractions].

**Testing:** rapid alternating movements of hands or feet (ie pronation/supination or inversion/eversion); finger to nose test; heel/toe walking

- 0 = None, no differences observed.
- 1 = Mild, slight differences evident in comparison to contralateral limb
- 2 = Moderate differences in tone evident
- 3 = Severe, clear differences compared to other side.

## HAMILTON INVENTORY FOR COMPLEX REGIONAL PAIN SYNDROME

### SECTION A: CLINICIAN-BASED ASSESSMENT

#### Demographics

<b>DATE:</b> _____	( yy / mm / dd)	
<b>SEX:</b> FEMALE <input type="checkbox"/> MALE <input type="checkbox"/>	<b>DATE OF BIRTH:</b> /    / ( yy / mm / dd)	
<b>SMOKER :</b> YES <input type="checkbox"/> NO <input type="checkbox"/>		
<b>UPPER EXTREMITY</b> <input type="checkbox"/>	<b>LOWER EXTREMITY</b> <input type="checkbox"/>	<b>BOTH</b> <input type="checkbox"/>
<b>PRECIPITATING EVENT:</b> YES <input type="checkbox"/> NO <input type="checkbox"/>		
<b>SPECIFY:</b> _____ _____		
<b>INTERVAL BETWEEN PRECIPITATING EVENT AND ONSET OF SYMPTOMS:</b>		
<input type="checkbox"/> < 2 weeks <input type="checkbox"/> 2-4 weeks <input type="checkbox"/> 4-6 weeks <input type="checkbox"/> 6-8 weeks <input type="checkbox"/> > 8weeks		
<b>TIME SINCE ONSET OF SYMPTOMS:</b>		
<input type="checkbox"/> < 3 months <input type="checkbox"/> 3-6 months <input type="checkbox"/> 6-9 months <input type="checkbox"/> 9-12 months <input type="checkbox"/> > 12 months		
<b>EMPLOYMENT:</b> Working prior to onset <input type="checkbox"/> YES <input type="checkbox"/> NO		
Current status: <input type="checkbox"/> unable to work <input type="checkbox"/> modified duties <input type="checkbox"/> no change		

#### SENSORY COMPONENTS:

Please rate the patients symptoms of:

1. Hypersensitivity (allodynia):				
0	1	2	3	
None	Mild	Moderate	Severe	
2. Hyperpathia: cold				
0	1	2	3	
None	Mild	Moderate	Severe	
3. Guarding behavior				
0	1	2	3	
None	Mild	Moderate	Severe	

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## AUTONOMIC COMPONENTS:

Check the boxes that describe the patient's current autonomic changes when compared to the opposite side.

### 4. Skin temperature differences:

0	1	2	3
None	Mild	Moderate	Severe

Affected side is:  Colder  Hotter

### 5. Vascular function: mottling

0	1	2	3
None	Mild	Moderate	Severe

### 6. Sweating ( hyperhydrosis)

0	1	2	3
None	Mild	Moderate	Severe

Anhydrosis Y N

### 7. Edema

0	1	2	3
None	Mild	Moderate	Severe

## TROPHIC COMPONENTS:

Check the boxes that describe the patient, comparing to the unaffected limb.

### 8. Changes in hair growth patterns

0	1	2	3
None	Mild	Moderate	Severe

### 9. Changes in nails

0	1	2	3
None	Mild	Moderate	Severe

### 10. Changes in skin quality

0	1	2	3
None	Mild	Moderate	Severe

**MOTOR COMPONENTS:**

Please check the box that best describes the patient's current motor changes.

11. The movement is less than would be expected for the patient's initial degree of injury

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly Agree	Agree	Slightly Agree	Disagree

12. The movement is less than would be expected for the patient's stage of healing/duration of time since injury.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly Agree	Agree	Slightly Agree	Disagree

13. Abnormal Muscle Tone	<input type="checkbox"/>	Hypotonic	<input type="checkbox"/>	Hypertonic
0	1	2	3	
None	Mild	Moderate	Severe	

14. Incoordination

0	1	2	3
None	Mild	Moderate	Severe