

## Assessment Tools used in Hand Therapy

	Frequently used acceptable tools	Gold Standard	Future possibilities for use in the clinic pending research, time and/or cost
<b>Pain</b>	Visual Analog Scale (VAS) Numerical Rating Scale (NRS) Verbal Rating Scale (VRS) McGill Pain Questionnaire (MPQ) and short form version (SF-MPQ) Schultz UE Pain Assessment (SUEPA)	No gold standard is currently agreed upon but VAS has high reliability/validity and is quick to administer.	Heat beam dolorimeter Pressure threshold dolorimeter
<b>Edema</b>	Gulick Anthropometric Tape Figure 8 measurement (please see <a href="http://www.håndterapi.dk">www.håndterapi.dk</a> for instructions) Volumetric displacement Finger Circumference Gauge	Volumetric displacement	Computerized Limb Volume Measurement System (CLEMS) Perometer® Infrared Optoelectronic Volumetry Tissue tonometry
<b>Vascularity</b>	<b>Proximal:</b> Adson's maneuver Costoclavicular maneuver Hyperabduction test <b>Distal:</b> Allen test/modified Allen test Digital Allen test Temperature studies	No current gold standard.	Thermography
<b>Wounds</b>	<b>Wound assessment tools <i>not</i> wound size measurement tools:</b> 3 Color Concept (Red, yellow, black) VIP - Vascular, Infection, and Pressure Southampton Wound Assessment Scale Applied Wound Management	No current gold standard but would like to recommend Applied Wound Management. <a href="http://www.wounds-uk.com">www.wounds-uk.com</a>	No current information. Please note: wound size measurement tools are numerous with several good systems currently in use and others being validated but these are not covered here.
<b>Scars</b>	Visual Analogue Scale Vancouver Scar Scale (originally for burns but also validated for some other types of scars) Patient and Observer Scar Assessment Scale	No current gold standard.	Modified tissue tonometer (MTT) Tissue ultrasound palpation system (TUPS)
<b>ROM</b>	Manual goniometer Electro-goniometer Torque angle gauge	Manual goniometer Torque angle range of motion most reliable for passive range of motion.	Computerized "marker" systems Computerized glove systems Computerized and digital torque range of motion Myrin goniometer (with compass) Inclinometer based measurement for pronation/supination Video based motion analysis Compangle

<b>Strength</b>	Jarmar dynamometer Pinch guage Manual muscle test (MMT)	Jarmar dynamometer	Electronic/digital grip/pinch dynamometers (MicroFET4, DynEx) Computerized dynamometers Push/Pull dynamometer Electronic manual muscle testers Rotterdam intrinsic Hand Myometer (RIHM)
<b>Sensibility</b>	<b>Threshold tests:</b> Semmes-Weinstein Monofilaments (SWM) Weinstein Enhanced Sensory Test (WEST) Temperature, pinprick and vibration are used but controversial due to difficulty controlling test conditions <b>Functional tests:</b> 2P (Disk-Criminator, Boley Gauge) STI test Cold Sensitivity Severity Scale (CSSS) Downey Hand Center Sensitivity Test (for grading hypersensitivity) <b>Objective tests:</b> Ninhydrin Wrinkle test <b>Provocative tests:</b> Tinel, Phalens, etc. (not standardized)	A gold standard for each category is not recognized as this time but SWM are considered highly reliable and valid for threshold tests. WEST is an improvement upon SWM but additional clinical testing needs to be done to determine whether interpretation scales need to be adjusted.	Pressure Specified Sensory Device™ (PSSD) Automated Tactile Tester The Case IV System (Computer Aided sensory evaluator) Vibrometer (Bio-Thesiometer)
<b>Dexterity</b>	9 hole peg test Grooved pegbord Minnesota Rate of Manipulation Crawford small parts dexterity test Purdue Pegboard O'Conner Dexterity Test	No current gold standard.	No current information.
<b>Occupational Performance/ADL</b>	COPM	No current gold standard.	Flinn Performance Screening tool
<b>Upper Extremity Function</b>	DASH ( <a href="http://www.dash.iwh.on.ca">www.dash.iwh.on.ca</a> ) Upper Extremity Functional Scale (UEFS) Patient Rated Wrist Evaluation Symptom Severity Scale and Functional Scale (Carpal Tunnel) Michigan Hand Questionnaire	Currently, no gold standard but would like to recommend the DASH ; )	No current information.
<p>Comments: Whenever possible, I have tried to list tools in each category which show the highest level of validity and reliability. They are by no means in any specific order. You may notice that there are a few favorites which are not listed here. In these instances, it is because the tools listed showed clearly higher validity and reliability. I have made one exception to this rule by listing the Downey Hand Center Sensitivity Test for grading hypersensitivity. There is not enough literature to indicate it's reliability or validity but I have included it here because it was the only tool I found for grading hypersensitivity and I think this is one of those areas where we could do a better job measuring and documenting progress. Additionally, there are several very good test batteries which include many of the mentioned tests but are not included here. You may also notice that there are not many tools listed under Occupational performance/ADL. This is because most of the valid and reliable ADL assessment tools are intended for use in stroke, geriatric or in-patient rehab settings and do not lend themselves well for use in hand therapy. I have included the popular COPM as it is a very reliable and valid measure of Occupational Performance and there are a few studies showing it's use in hand therapy but I can't help wondering why there is not a tool available specifically for use in out-patient hand therapy? Perhaps one will be developed.</p> <p>There are a multitude of test tools out there and the research is never ending so If you find any inconsistencies or oversights in the material presented here, please let me know! <a href="mailto:maqqiehoegh@mac.com">maqqiehoegh@mac.com</a>.</p>			

