Jebsen Hand Function Test (JHFT)

Assessment Overview

Assessment Area

ICF Domain:
Activity
Subcategory:
Mobility

You Will Need

Length:
15-45 minutes to complete 7 items
Scoring:
Total score is the sum of time taken for each subtest, which are rounded to the nearest second. Shorter times indicate better performance
Equipment:
-Stopwatch
-Chair (18" seat height)
-Desk/table (30" high)
-4 sheets of unruled white paper
-Clipboard
-Sentences typed in upper case centered on a 5x8" index card on a bookstand
-5 index cards (ruled on one side only)
-Empty 1 pound coffee can
-2 paper clips
-2 regular sized bottle caps
-2 U.S. pennies
-5 kidney beans (~5/8" long)
-1 regular teaspoon
-Wooden board (41 ½" long, 11 ¼" wide, ¾" thick)
-"C" clamp
-Plywood (20" long, 2" wide, ½" thick) glued to the board
-4 standard size (1 ¼" diameter) red wooden checkers
-5 No. 303 cans

Summary

The Jebsen Hand Function Test (JHFT/JTT) was developed to provide a standardized and objective evaluation of fine and gross motor hand function using simulated activities of daily living. The JHFT is one of the oldest standardized tests of hand function and used individuals with SCI during its initial development.

Items to be performed on both the dominant and non-dominant hand. The JHFT only assesses the speed and not the quality of performance (slow times reflect a less desirable performance). It is a clinician-administered; performance-based measure.

Weighted and non-weighted hand function is assessed through: writing; turning over 3 by 5 inch cards; picking up small common objects; simulated feeding; stacking checkers; picking up large objects; and picking up large heavy objects. Time to complete each task is recorded. Patients are required to perform all of the subtests with both the right and left hands, with the non-dominant hand tested first.

Caution
The JHFT is not recommended for individuals with C5 tetraplegia and above or who have hand neuroprostheses.
May not assess function of intrinsic hand muscles and allows participants to complete tasks by compensating with trunk and shoulder movements.

Availability

Worksheet: Jebsen Hand Function Test worksheet be found here.

A test kit is sold commercially through multiple vendors, which usually includes instructions, all items needed to perform seven subtests, a carrying bag, and pad of 50 blank record forms. Cost is generally 400–500$ US.

Languages: English and Italian.

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI

Statistical Error

Not established in SCI

Typical Values

Average time to complete all JFHT subtests:
- Dominant hand = 89.47 ± 67.98 s
- Nondominant hand = 167.11 ± 257.58 s

(Nobilia et al. 2019; N=136; 80 females, 56 males; 15 tetraplegia; Italian version)

Normative (dominant, non-dominant; ±SD) Values:

For women:	For men:
Writing:	**Writing:**
11.7±2.1, 30.2±8.6*	12.2±3.5, 32.3±11.8*
15.7±4.7, 38.9±14.9**	19.5±7.5, 48.2±19.1**
Card turning:	**Card turning:**
4.3±1.4, 4.8±1.1*	4.0±0.9, 4.5±0.9*
4.9±1.2, 5.5±1.1**	5.3±1.6, 6.1±2.2**
Small objects:	**Small objects:**
5.5±0.8, 6.0±1.0*	5.9±1.0, 6.2±0.9*
6.6±1.3, 6.6±0.8**	6.8±1.2, 7.9±1.9**
Simulated feeding:	**Simulated feeding:**
6.7±1.1, 8.0±1.6*	6.4±0.9, 7.9±1.3*
6.8±1.1, 8.7±2.0**	6.9±0.9, 8.6±1.5**
Checkers:	**Checkers:**
3.3±0.6, 3.8±0.7*	3.3±0.7, 3.8±0.6*
3.6±0.6, 4.4±1.0**	3.8±0.7, 4.6±1.0**
Large, light objects:	**Large, light objects:**
3.1±0.5, 3.3±0.6*	3.0±0.4, 3.2±0.6*
3.5±0.6, 3.4±0.6**	3.6±0.7, 3.9±0.7**
Large, heavy objects:	**Large, heavy objects:**
3.2±0.5, 3.3±0.5*	3.0±0.5, 3.1±0.4*
3.5±0.6, 3.7±0.7**	3.5±0.7, 3.8±0.7**

*20-59 years old (n=120)
**60-94 years old (n=30)

(Jebsen et al 1969; n = 360; age 20-94 years)

Measurement Properties

Validity – Low to High

Moderate to High correlation with Klein-Bell ADL Scale (K-B Scale):

K-B Scale – dressing subscale = -0.69

K-B Scale – bathing/hygiene subscale = -0.57

K-B Scale – eating subscale = -0.45

K-B Scale – overall = -0.635

(Lynch & Bridle 1989; N=18, chronic SCI)

Low to High between the Van Lieshout test short version in Italian (LT-SV-IT) and dynamometer:

Reliability – Moderate to High

Moderate to High Test-retest reliability:

Correlation for items = 0.60-0.99

(Jebsen et al. 1969; N=26; mixed conditions; mean (SD) age: 34.5 (20) years)

High Test-retest reliability:

ICC = 0.818 dominant hand; 0.821 non-dominant hand

(Nobilia et al. 2019; N=136; 80 females, 56 males; 15 tetraplegia; Italian version)

High Intra-rater reliability:

ICC = 0.814 Dominant hand; 0.981 non-dominant hand

r = −0.96 and −0.12, $p < 0.05$

(Panuccio et al. 2021; N=48; 38 males, 10 females; ASIA: 18A, 11B, 14C, 5D; Italian version)

Low to High correlations between JHFT and all subtests (p < .01) and between the subtests and grip force measured with the dynamometer (p < .05):

Dominant hand, r = -0.606 to 1.000
Nondominant hand, r = -0.533 to 1.000

(Nobilia et al. 2019; N=136; 80 females, 56 males; 15 tetraplegia; Italian 3version)

Number of studies reporting validity data: 3

(Nobilia et al. 2019; N=136; 80 females, 56 males; 15 tetraplegia; Italian version)

Moderate to High Internal consistency:

α = 0.94 left hand

α = 0.96 right hand

(Panuccio et al. 2021; N=48; 38 males, 10 females; ASIA: 18A, 11B, 14C, 5D; Italian version)

α = 0.829 dominant hand

α = 0.415 non-dominant hand

(Nobilia et al. 2019; N=136; 80 females, 56 males; 15 tetraplegia; Italian version)

Number of studies reporting reliability data: 3

Responsiveness

Floor/Ceiling Effect:
Not established in SCI

Effect Size:
Not established in SCI

Number of studies reporting responsiveness data: 0