
Functional Dexterity Test

Scores on the FDT were obtained on a sample size of 46 hand injured patients and compared with each patient's ability to perform four activities – buttoning, tying shoelaces, screwing a nut and bolt, and lacing yarn as representative of functional activities requiring 3-jaw chuck prehension pattern. These functional activities were scored in categories ranging from *functional*, representing the ability to perform all four activities with the injured hand in the same time frame of non-injured hands, to nonfunctional, representing inability to perform all of the *functional* activities in a reasonable amount of time. The range of timed scores for each functional category are listed in the Table 2.

Reference:

Aaron, DH, Stegink CW. *Development of the Functional Dexterity Test (FDT)*, J Hand Ther., 2003; 16: 12-21



Functional Dexterity Test (FDT)

Adult Instruction



Indications

For conditions affecting hand dexterity. Provides information regarding one's ability to use the hand for daily tasks requiring 3-jaw chuck prehensions, ie. buttoning, tying shoelaces, screwing a nut and bolt, and lacing yarn.

Instructions For Use

The examiner places the pegboard 3.9" (10 cm) from the edge of the table where the patient is comfortably sitting. The examiner instructs the patient to turn over all the pegs with the non-injured hand starting at the top (away from patient) at the opposite side of the board. For example, if the patient starts with the left hand, he or she begins by turning the right upper peg furthest away from him or her, turning pegs from the right to the left, dropping a row, then reversing the direction, continuing in a zigzag manner to right, until the patient reaches the last bottom right-hand peg.

The examiner provides the following verbal instructions to the patient: **"Please start with your non-injured hand. Start by turning the peg at the top opposite corner [point to peg], turn all the pegs over as quickly as possible, turning over one row of pegs, then reversing the order in the next row, in a zigzag fashion."** (For bilaterally injured patients, start with the dominant hand.) The patient is instructed further: **"Do not turn your hand up to face the ceiling (supinate) or touch the board for help in turning the peg; each of these motions carries a penalty of 5-seconds. If you drop a peg, time is stopped, and a 10-second penalty is added. You then need to retrieve the peg and put it in the pegboard in the unturned position. Then continue to turn the pegs with the peg that you just put back. The clock starts where it was stopped, and the time is continued."**

The examiner demonstrates by turning over 4 pegs. The patient is asked to practice by turning over all the pegs on the board one time with the noninjured hand: **"Turn over all the pegs on the board with your non-injured hand."** The test is then performed twice, first with the non-injured hand followed by the injured hand. For each hand, the examiner records the time it takes to turn over all the pegs, penalties and unusual movement patterns observed. Figure 3 shows a sequence of 3-jaw chuck prehension used for turning over the pegs on the board.

Functional Dexterity Test (FDT)

Score and Record Keeping Sheet for Injured and Noninjured Hands (adult)

Patient's Name: _____ Examiner: _____

Noninjured Hand			Injured Hand						
<input type="checkbox"/> Right <input type="checkbox"/> Left			<input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Dominant <input type="checkbox"/> Non-Dominant						
Date	Penalty Touch (-5) Supinate (-5) Drop (-10)	Score (sec)	Initial Score (Sec)	Penalty for Touching Board (-5 sec)	Penalty for Supinating (-5 sec)	Penalty for Dropping Peg (-10 sec)	Total Score (sec)	Score by Functional Level	Observations

Instructions For Scoring

Using a stopwatch, the examiner records the time, in seconds, that it takes for the patient to turn over all the pegs on the board with one hand. A 5-second penalty is added each time the patient supinates or touches the board for assistance. If a patient drops a peg, time is stopped, and a 10-second penalty is added. The patient retrieves the peg and puts it in the pegboard in the unturned position. The patient is instructed to continue to turn the pegs with the peg that he or she just put back. The clock starts where it was stopped, and the time is continued.

Two scores are obtained: (1) initial time, in seconds, to complete the test and (2) combined total time with penalty seconds added to the initial time. Example: If the patient's non-dominant injured hand exceeds 55 seconds, he or she receives a non-functional rating. The test is stopped after 2 minutes so that progress within the non-functional range still can be measured. The examiner should note any unusual movement patterns during test administration and consider them in the assessment of the patient's overall functional performance. The final score, time plus penalties, is the score used to determine the functional level (Table 2) according to the definitions set by Aaron. Statistically, the test provides an interval level of measurement, and the user can use parametric statistics to analyze the data for research purposes.

Table 2

Range of dexterity scores in seconds compared with a single functional score

	Dominant Injured Hand (sec)	Nondominant Injured Hand (sec)
Score by Functional Level	Range	Range
Functional	16-25	18-27
Moderately Functional	26-33	28-45
Minimally Functional	34-50	46-55
Nonfunctional	>50	>55