

Clinical Test of Sensory Interaction on Balance (CTSIB)

- **Purpose:** Often referred to as the "Foam & Dome" test, the CTSIB is used to assess a person's ability to use and integrate the three main sensory systems responsible for balance: **vision**, **somatosensory** (sensation from the body and support surface), and **vestibular** (inner ear balance system).
- **Procedure:** The test involves a series of six conditions, altering visual input (eyes open/closed, visual dome) and surface stability (firm surface/foam surface) to determine which sensory system the patient may be overly dependent on or have a deficit in.
- **Administration:** A modified version (mCTSIB) typically uses four conditions (firm surface/eyes open, firm surface/eyes closed, foam surface/eyes open, foam surface/eyes closed) and each condition is timed for a set duration, often 10 seconds.

CTSIB scoring involves timing how long a person can maintain balance in six different conditions, with a maximum of 30 seconds per condition. The primary score is the total time in seconds, with a maximum possible score of 180 seconds (30 seconds x 6 conditions). Scoring can also include a subjective sway rating from 1 (minimal) to 4 (fall) for each trial.

Primary scoring method: Timing

- **Measure time:** Use a stopwatch to record the number of seconds a person can maintain the test position for each of the six conditions.
- **Trial end criteria:** A trial ends when the patient falls, opens their eyes (in closed-eye conditions), moves their arms for support, or receives manual assistance.
- **Maximum time:** If the person holds the position for the full 30 seconds, the trial ends and the time is recorded.
- **Total score:** Add up the time from all six conditions. The maximum total score is 180 seconds.

Secondary scoring method: Sway rating

- **Rate sway:** In addition to timing, a therapist can rate the amount of sway during each trial.
- **Rating scale:** Use a 1-to-4 scale:

1= Minimal sway
2= Mild sway
3= Moderate sway
4= Fall

- **Total sway score:** The therapist can add up the total sway score across all trials.

Interpretation

- **Compare to norms:** Compare the individual's total score to age-specific normative data to determine if their balance is normal or abnormal for their age group.
- **Use for progress:** A higher total score indicates better balance. This is useful for tracking improvement over time, especially with a force plate which can provide more objective data for those who score 30/30 on all conditions.

| m-CTSIB Condition | 5th | 10th | 25th | 50th | 75th | 90th | 95th |
|-------------------|------|------|------|------|------|------|------|
| Male (n = 315) | | | | | | | |
| Eyes Open-Firm | 0.23 | 0.29 | 0.37 | 0.48 | 0.63 | 0.88 | 1.06 |
| Eyes Closed-Firm | 0.40 | 0.48 | 0.58 | 0.73 | 0.95 | 1.20 | 1.56 |
| Eyes Open-Foam | 0.49 | 0.54 | 0.66 | 0.82 | 1.04 | 1.33 | 1.57 |
| Eyes Closed-Foam | 1.25 | 1.47 | 1.72 | 2.01 | 2.39 | 2.88 | 3.10 |
| Composite Score | 0.71 | 0.77 | 0.87 | 1.05 | 1.22 | 1.44 | 1.59 |
| Female (n = 276) | | | | | | | |
| Eyes Open-Firm | 0.23 | 0.27 | 0.33 | 0.41 | 0.54 | 0.77 | 0.92 |
| Eyes Closed-Firm | 0.34 | 0.41 | 0.51 | 0.67 | 0.88 | 1.11 | 1.30 |
| Eyes Open-Foam | 0.48 | 0.52 | 0.60 | 0.74 | 0.89 | 1.11 | 1.29 |
| Eyes Closed-Foam | 1.25 | 1.35 | 1.58 | 1.86 | 2.22 | 2.58 | 2.73 |
| Composite Score | 0.65 | 0.73 | 0.82 | 0.95 | 1.10 | 1.26 | 1.39 |

