

Modified Clinical Test of Sensory Interaction in Balance (mCTSIB)

The modified Clinical Test of Sensory Interaction on Balance (mCTSIB) is a simplified derivative of the CTSIB, or “Foam and Dome” test which assesses the patient’s functional balance control during four sensory conditions. Although the mCTSIB data set can document the presence of sensory dysfunction, it cannot provide impairment information specific to an individual sensory system. The information provided is designed to help the clinician assess the need for further testing in patients with complaints related to balance dysfunction, and to establish objective baselines for treatment planning and outcome measurement.

1. Eyes open firm surface
2. Eyes closed firm surface
3. Eyes open unstable surface (foam)
4. Eyes closed unstable surface (foam)

Purpose of Test:

This test is designed to assess how well an older adult is using sensory inputs when one or more sensory systems are compromised. In condition one, all sensory systems (i.e., vision, somatosensory, and vestibular) are available for maintaining balance. In condition two, vision has been removed and the older adult must rely on the somatosensory and vestibular systems to balance. In condition three, the somatosensory system has been compromised and the older adults must use vision and the vestibular system to balance. In condition four, vision has been removed and the somatosensory system has been compromised so they must rely primarily on the vestibular inputs to balance.

Begin timing each trial using a stopwatch. The trial is over when (a) the participant opens his/her eyes in an eyes closed condition, (b) raises arms from sides, (c) loses balance and requires manual assistance to prevent a fall.

This test provides some insight into whether each of the sensory systems available for balance is being used effectively. Failure to maintain balance in condition two indicates that the older adult is visually dependent. They are not using somatosensory inputs to maintain balance when eyes are closed. Failure to maintain balance in conditions 3 and 4 indicate that the visual and/or vestibular system is not being used to maintain balance. Poor performance on this test would suggest the need for multisensory training if the medical history does not indicate that an actual problem(s) exists (e.g. peripheral neuropathy).

*Administer only one trial per condition if participant is able to complete first trial without loss of balance.

mCTSIB Scoring Form

Condition One: Eyes Open, Firm Surface

Trial One Total Time: _____ / 30 sec

Trial Two Total Time: _____ / 30 sec

Trial Three Total Time: _____ / 30 sec

Condition Three: Eyes Open, Foam Surface

Trial One Total Time: _____ / 30 sec

Trial Two Total Time: _____ / 30 sec

Trial Three Total Time: _____ / 30 sec

Condition Two: Eyes Closed, Firm Surface

Trial One Total Time: _____ / 30 sec

Trial Two Total Time: _____ / 30 sec

Trial Three Total Time: _____ / 30 sec

Condition Four: Eyes Closed, Foam Surface

Trial One Total Time: _____ / 30 sec

Trial Two Total Time: _____ / 30 sec

Trial Three Total Time: _____ / 30 sec

TOTAL: _____ / 120 sec

Condition	Possible Impairments	Recommended Exercises
1 – Eyes Open, Firm Surface (3/3 systems available)	- Poor gaze stabilization - Poor use of surface cues - Lower body weakness	Teach visual “spotting” Balance activities with reduced/occupied/absent vision
2 – Eyes Closed, Firm Surface (2/3 systems available)	- Poor use of surface cues - Lower body weakness - Fear of falling	Increased awareness of surface information through verbal cueing during standing exercises. Balance activities with reduced/occupied/absent vision Lower body activities against resistance Confidence-building activities
3 – Eyes Open, Foam Surface (2/3 systems available) Somatosensory information reduced	- Poor use of vision - Lower body weakness - Poor center-of-gravity control	Gaze stabilization techniques. Balance activities performed on compliant, or moving surfaces. Lower body exercises against resistance. Standing center-of-gravity activities on compliant surfaces of different thickness.
4 – Eyes Closed, Foam Surface (1/3 systems available) Somatosensory reduced and vision absent.	- Poor use of vestibular inputs - Fear of falling in high sway condition - Lower body weakness	Balance activities performed on compliant/moving surfaces with vision reduced/occupied/absent. Voluntary sway activities to build confidence. Lower body exercise against resistance.