

Tip Sheet 4 – The Clock Drawing Test (CDT)

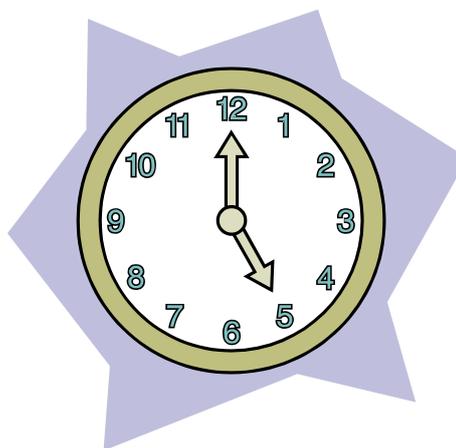
What is the CDT: The Clock Drawing Test (CDT) is a measure of dementia severity. There are variations in the administration of the test including using a pre-drawn circle and a clock copying task. This tip sheet refers to the free drawn test where the client is presented with a blank piece of paper. Clients are asked to draw a clock face and mark in the hours and then draw in the hands to indicate a particular time (for example quarter to two – see below, ten past eleven, or ten to two). The CDT assesses frontal and temporo-parietal functioning.

Benefits of the CDT: The way a client draws a clock face can provide an assessor with insight into the severity of dementia and it only takes two minutes to administer. It is also appropriate in multiethnic populations due to the ‘universal’ nature of the clock.

The CDT can complement other screening tests, especially those, which do not include an item to assess frontal lobe impairment.

Things to be aware of

A valid scoring method in multiethnic Australian population has not been demonstrated with the CDT. The one study in Australia using a multiethnic sample demonstrated low specificity using five different scoring methods; between 42%-84% of cognitively intact people were incorrectly classified as having dementia.



The CDT could be used to supplement the recommended tools. Educational attainment can influence this test, so be aware when interpreting scores.

Consider physical impairment including any issues with muscles in the hand/arm or vision.

Remove/cover any clocks in the room and be aware if participants have a wrist watch on during this test.



Scoring

There are a number of scoring systems used in the literature but no one scoring system shows superior predictive validity.

The main aspects to consider are

- (i) correct spacing with even spaces between numbers and correct placement of 12,3,6,and 9, and
- (ii) correct placement of hands (e.g.10 past 11)

(Brodaty et al, 2002). Much is gained by observation of the task, and scoring is descriptive.

Another more complicated scoring system is described if required:

- **Sunderland et al. 1989** A PRIORI criteria for evaluating clock drawings. Cut off score = 5 or less indicates impairment.

10 - 6 Drawing of clock face with number and circle generally intact

- 10 Hands in correct position (i.e. Hours hand approaching 3 o'clock)
- 9 Slight errors in placement of hands.
- 8 More noticeable errors in placement of hour and minute hands.
- 7 Placement of hands is significantly off course.
- 6 Inappropriate use of clock hands (i.e. use of digital display or circling numbers despite repeated instructions).

5 - 1 Drawing of clock face with circle and numbers is NOT intact

- 5 Crowding of numbers at one end of the clock or reversal of numbers. Hands may still be present in some fashion.
- 4 Further distortion of number sequence. Integrity of clock face is now gone (i.e. numbers missing or placed outside of boundaries of the clock face).
- 3 Numbers and clock face no longer obviously connected in the clock drawing. Hands are not present.
- 2 Drawing reveals some evidence of instructions being received but only vague representation of a clock.
- 1 Either no attempt or an uninterpretable effort is made.



Further Resources and References

- **Tool reference:** Sunderland, T., Hill, J.L., Mellow, A.M., Lawlor, B.A., Gundersheimer, J., Newhouse, P.A., & Grafman, J.H. (1989). Clock drawing in Alzheimer's disease: a novel measure of dementia severity. *Journal of the American Geriatrics Society*, 37, 725-729.
- Brodaty H, Pond D, Kemp NM, et al. (2002). The GPCOG: A new screening test for dementia designed for general practice. *Journal of the American Geriatrics Society*, 50(3), 530-534.