

ANZSOM ASM 2024 OCCUPATIONAL COLOUR VISION WORKSHOP

EXERCISE 2: INTERPRETING FARNSWORTH DICHOTOMOUS D15

TASK

A D15 has been given to candidates for different occupations as part of their occupational colour vision workup.

- Plot the results on D15 results sheets.
- Indicate whether each candidate has passed or failed the D15.
- Comment on the diagnosis and severity of any colour vision defect.
- What other comments or recommendations can be made?

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Supervisor, Chemical Production
Factory

1, 15, 2, 14, 3, 13, 4, 12, 5, 11, 6, 10, 7, 9, 8 Doctor

1, 2, 3, 4, 6, 5, 7, 8, 10, 9, 11, 12, 14, 13, 15 Croupier

15, 14, 1, 2, 13, 12, 3, 4, 11, 10, 5, 6, 9, 7, 8 Electrician

1, 2, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3 Policeman

3, 1, 2, 4, 5, 6, 7, 15, 8, 14, 9, 13, 11, 10, 12 Rail controller (screens)

1, 15, 2, 3, 4, 14, 5, 13, 7, 6, 11, 12, 10, 8, 9 Cake Decorator

4, 2, 5, 6, 1, 3, 7, 8, 9, 11, 10, 12, 13, 14, 15 Paint Quality Control Officer



How to score and apply D15

1. Connect the dots on the scoresheet in order of the results given by the patient
2. Count the number of true crossings (Caps that are out of order, but where the drawn line does not fully cross the circle, are not counted as crossings.)
3. Look at the axes drawn in dotted lines to determine which axis the majority of crossings are in alignment with. (type)
4. Three or more crossings on the first attempt, or one crossing on the second attempt (after the first attempt with one or two crossings), is considered a fail.
 - a. Or apply occupational standard if different (Note that some occupational standards define what constitutes a fail differently. In these circumstances, the details of the particular standard need to be adhered to.)
 - b. National Transport Commission for Rail Safety Workers: 2 or more crossings constitutes a fail. 3 trials – to pass one needs 2 or more correct trials.

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How to undertake the D15

1. The test is best done in a light box with daylight fluorescent tube, or a under a daylight illuminator, appropriate LED source, or daylight from an uncurtained window. (Ordinary fluorescent tubes have a colour cast that can interfere with making accurate arrangements.)
2. Leave the pilot cap in the box. (With some D15s it is fixed permanently in the box.) Take out the other caps, putting them in front of the examinee and mixing them up. Put the box behind the caps.
3. Ask the examinee to pick the cap with the colour nearest to the pilot cap and put in next to the pilot cap in the box, then the cap with the nearest colour to that cap, and then the cap with the nearest colour to that, and so on. There should be a gradual progression of colour from the start to the end of the box. (Discourage the examinee from putting together runs of caps outside the box and then trying to fit them into the sequence.
4. If the examinee has a run of caps in the reverse order that it should be in the sequence, this can made it hard for him or her conceptually to fit the run into the sequence. It is much easy to proceed cap by cap from the beginning.) There is no absolute time limit to complete the tests, but examinees should be encouraged to perform the test with reasonable celerity. (Occasionally examinees take an inordinately long time to make their choices. These examinees need to be encouraged firmly but gently to keep going.)
5. On completion the examiner closes the box and turns the box over to reveal the sequence of caps from the numbers on the back of the caps.
6. This sequence is then recorded and then plotted on the circle on the D15 result sheet, drawing a line from the pilot cap to the number on the circle of the next cap chosen by the examinee and then to the next number chosen by the examinee and so on to the end of the caps. The lines drawn should generally be straight. (There is no need to use a ruler, hand drawing is fine.) Sometimes, if the numbers are going back and forward along the edge of the circle, it is necessary to bend the drawn lines slightly, rather than drawing them on top of one another.
7. The examiner then counts the number of times the drawn lines fully cross the circle. Caps that are out of order, but where the drawn line does not fully cross the circle, are not counted as crossings. (As a general rule, there has to be a gap of at least 4 numbers for a line to be considered as a crossing. (Tritan defects are an exception to this rule –



see below.) If there is just one or two crossings, the examiner repeats the test. (Often on the repeat test, particularly if the initial test had just one crossing, there are no crossings. To that end, the advice detailed above, to enjoin the examinee not to indulge in assembling runs of caps outside the box, is pertinent.)

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