

# 13 - 4. Executive function

## 4. Executive function

© SPMM Course 4. Executive function □ This includes planning, initiation, sequencing, coordinating, error detection, error correction, set shifting, and termination. It is closely allied to other frontal functions such as judgement, problem solving, impulse control, and abstract reasoning. □ Executive function is generally believed to be a dorsolateral frontal lobe function and depends on intact frontal-subcortical circuits. □ Impulsivity is thought to reflect failure of response inhibition, and is seen in inferior frontal pathology. It can be assessed using the Go-No-Go task. The examiner instructs the patient to tap once in response to a single tap, and to withhold a response for two taps. This test can be made more difficult by changing the initial rule after several trials (for example, “tap once when I tap twice, and not at all when I tap once”). □ The ability to switch task, and the inhibition of inappropriate, or perseverative, responses can also be assessed by asking the patient to copy a short sequence of alternating squares and triangles, and then to continue across the page. Perseveration in drawing one or other of the shapes may be seen in frontal lobe deficits, but the test is relatively insensitive. □ The cognitive estimates test may prompt bizarre or improbable responses in patients with frontal or executive dysfunction. Although it is a formal test performed at the bedside by asking, for example, the height of the Post Office Tower, the population of London, or the speed of a typical racehorse. □ Questions about the similarity between two conceptually similar objects can be used to assess inferential reasoning, which may be impaired in the same way. Simple pairs such as “apples and oranges” or “desk and chair” are tested first, followed by more abstract pairs such as “love and hate” or “sculpture and symphony”. Patients typically answer, quite concretely, that two objects are “different” or that they are “not similar” instead of forming an abstract concept to link the pair. This often persists despite encouragement to consider other ways in which the items are alike. □ Testing of proverb meanings probably measures a similar skill, but it is highly dependent on educational and cultural background.

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