

Delirium and Dementia (Neurocognitive Disorders)

Cognitive Domains

Domain	Anatomy	Functions	Tests
Complex Attention	Superior colliculus (visual orientation) Inferior colliculus (auditory) Ascending RAS (arousal) Thalamus (sustained/alternating) DLPFC (initiation) OFC (sustaining) Parietal (hemi-spatial)	Voluntary attention Focused attention Divided attention Sustained attention (concentration) Alternating attention	Register 3 items Forward and Backward Digit Span Letter vigilance (tap hand on letter 'a', squeeze fingers) e.g. SAVE A HAART Count backwards from 20 WORLD backwards Serial 7s (also calculation)
Memory and Learning	Papez Circuit Hippocampus → fornix → mamillary bodies → mammillothalamic-tract → anterior thalamic nuclei → cingulum bundle → parahippocampal gyrus/entorhinal cortex Amygdaloid circuit Amygdala, mediodorsal thalamic nuclei, OFC, insula, hypothalamus, limbic striatum, nucleus basalis of Meynert	Anterograde Memory Retrograde Memory Episodic memory (autobiographical memory) Semantic memory (facts) Encoding (learning) Retrieval (accessing)	Delayed recall (recall 3 or 5 words, recall items of a story, reconstruct a picture after 5 minute delay Current Events Orientation
Language	Broca's area (left inferior frontal gyrus) Wernicke's area (L posterior superior temporal gyrus) Arcuate fasciculus Angular gyrus (reading and writing) Supramarginal gyrus	Expression (fluency) Comprehension/Reception Reading and Writing Semantic verbal fluency Phonemic verbal fluency Prosody (affective communication)	Repeat a sentence Write a sentence Read a sentence Spontaneous speech production Confrontation naming Words beginning with 'f' (60s) (phonemic fluency) Name animals (60s) (semantic fluency)
Executive Functions	Dorsolateral Prefrontal Cortex	Organization, planning, monitoring, decision-making, feedback/error utilization, cognitive flexibility	Abstraction Mini-trails B Clock draw Verbal fluency Go-no go Luria 3-step command
Perceptuo-motor	R angular gyrus/supramarginal gyrus L parietal lobe	Visual recognition (gnosis) Motor coordination (praxis) Visuoconstruction Visual perception Psychomotor speed	Clock draw Rey-Osterreith complex figure Line bisection Alphabet across page (<21s)
Social Cognition	Temporal poles TPJ Amygdala Medial prefrontal cortex	Reading emotions in faces Reading internal states/Theory of Mind	Reading the mind in the eyes Faux pas test