SNS COLLEGE OF PHYSIOTHERAPY COIMBATORE - 35

COURSE NAME: PHYSIOTHERAPY IN NEUROLOGICAL SCIENCES

SUBJECT CODE: 6288

TOPIC: ASSESSMENT OF HIGHER FUNCTION

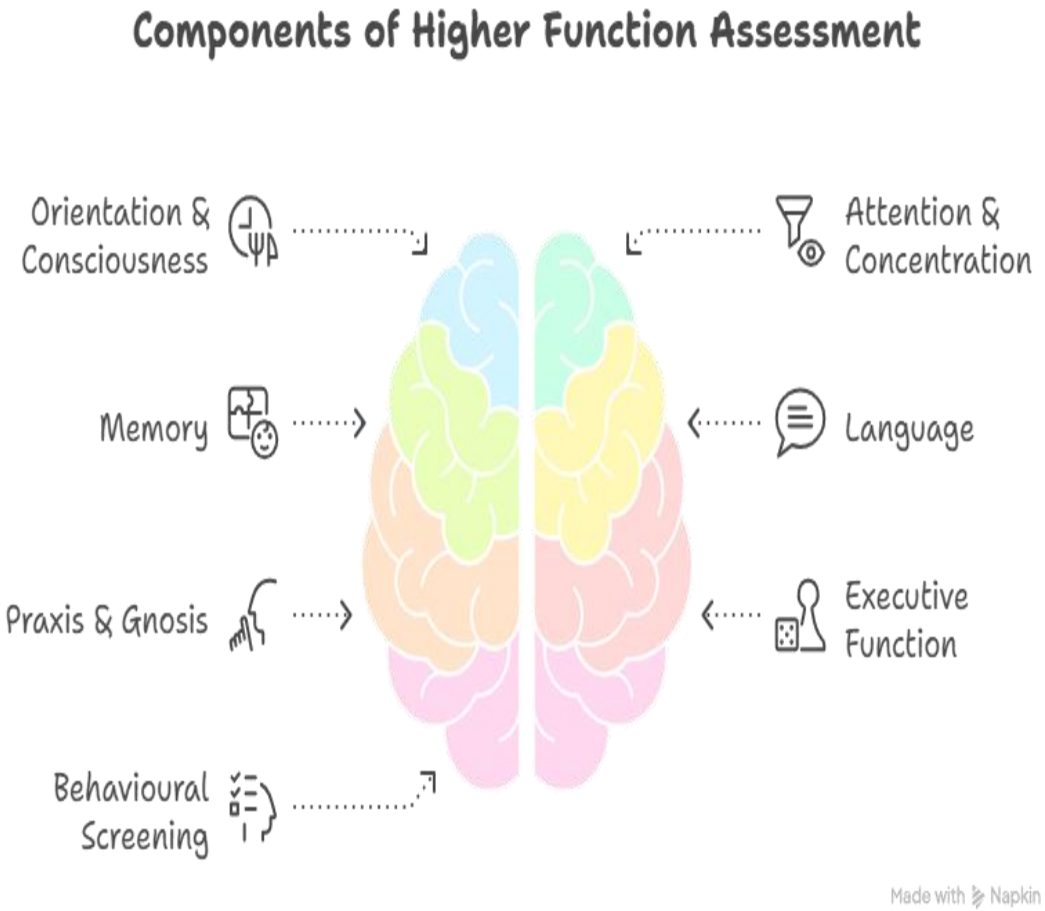
Design thinking in higher mental function

- **Empathize** Understand patient's cognitive/behavioral complaints, caregiver concerns, daily functional limitations.
- **Define** Identify specific higher mental function affected (memory, attention, language, executive function, etc.).
- **Ideate** Select suitable clinical tests & standardized scales for assessment.
- **Prototype** Apply tests in real-life functional context (bedside assessments, scales).
- **Test** Interpret results, monitor progress, and re-assess after intervention.

Introduction

Higher mental functions is referred to the complex brain functions enabling cognition, language, behavior, reasoning.

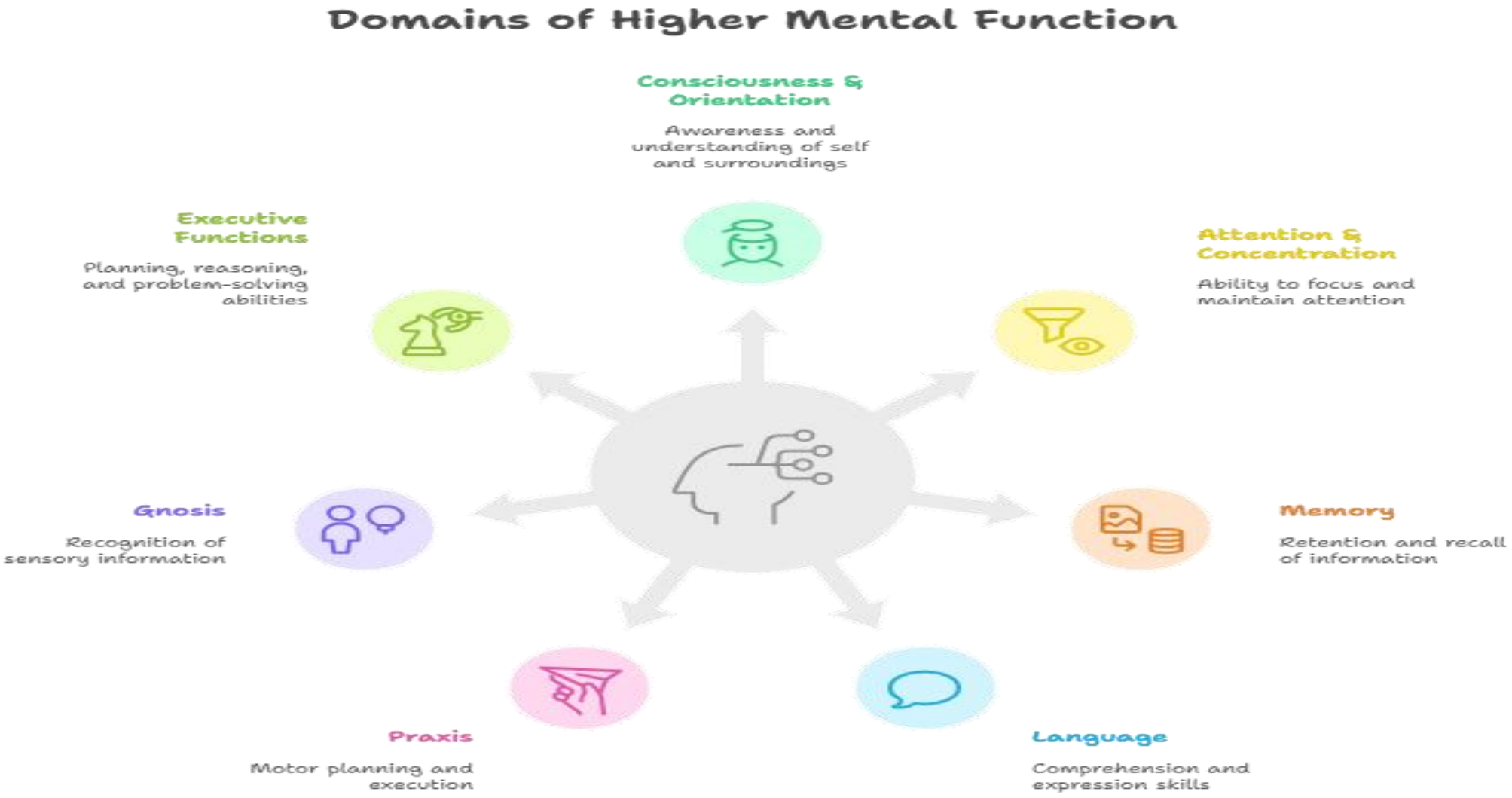
It is essential in neurological rehabilitation (stroke, TBI, dementia, MS, Parkinson's, etc.).



Domains of HMF

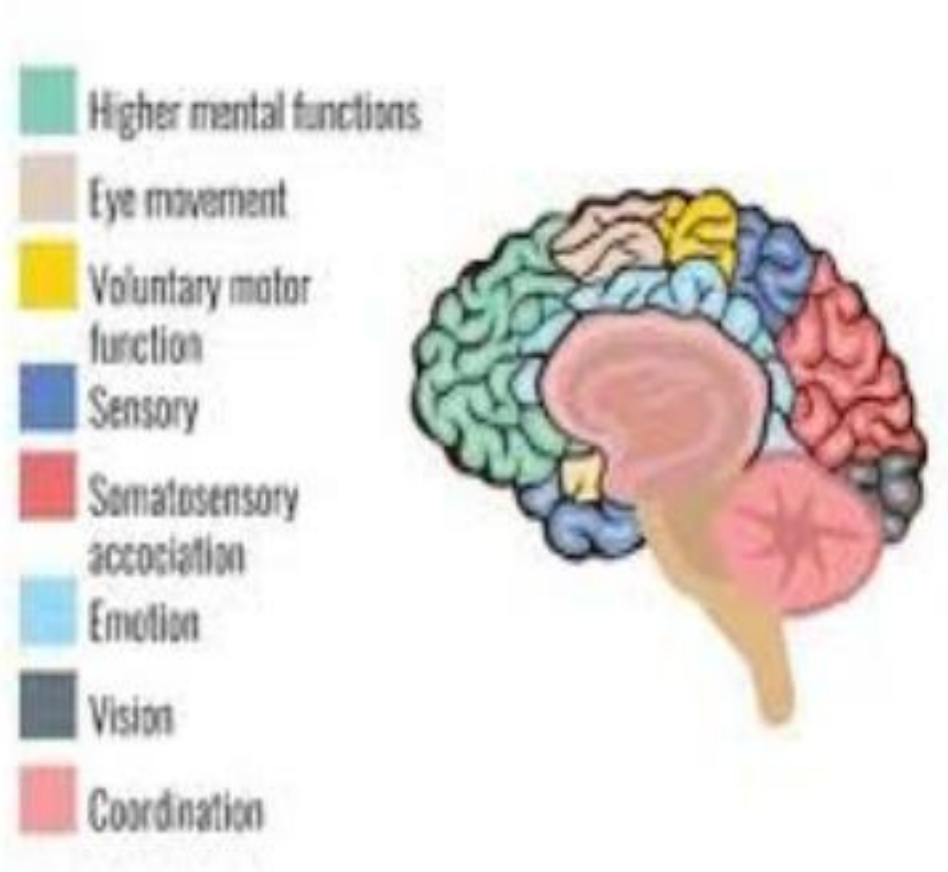
1. Consciousness & Orientation
2. Attention & Concentration
3. Memory (immediate, recent, remote)
4. Language (comprehension, expression, naming, repetition)
5. Praxis (motor planning)
6. Gnosis (recognition – visual, auditory, tactile)
7. Executive functions (planning, reasoning, problem-solving)

Higher mental function - Mindmap



General Clinical Examination of HMF

Orientation: time, place, person.
Attention: digit span, serial 7s.
Memory: recall objects, short stories.
Language: naming objects, following commands.
Calculation & abstract thinking: simple arithmetic, proverbs.
Judgment & insight.



Measuring scales

Mini-Mental State Examination (MMSE):

30-point scale.
Domains: orientation, registration, attention, recall, language, visuospatial.
Scoring:
25–30 - normal
21–24 - mild impairment
10–20 - moderate impairment
<10 - severe impairment

Montreal Cognitive Assessment (MoCA): sensitive for mild cognitive impairment.

Orientation & Consciousness Scales

Glasgow Coma Scale (GCS): eye, verbal, motor response (3–15).

Rancho Los Amigos Levels of Cognitive Functioning (LOCF): 1–8 levels (coma → purposeful response).

Uses: early rehab prognosis, monitoring recovery post-TBI/stroke.

Attention & Concentration Assessment

Clinical tests:

Digit span forward/backward, serial subtraction, cancellation tasks.

Scales:

Test of Everyday Attention (TEA).

Trail Making Test (TMT-A & B).

Interpretation:

slowed performance indicates impaired selective/divided attention.

Memory Assessment

Immediate memory: digit span, repeating words.

Recent memory: recall objects after 5–10 minutes.

Remote memory: personal/ historical events.

Scales:

Wechsler Memory Scale.

Rey Auditory Verbal Learning Test (RAVLT).

Uses: dementia, stroke, TBI rehabilitation.

Language Assessment

Components:

fluency, comprehension, repetition, naming, reading, writing.

Bedside tests:

naming objects, following commands, sentence repetition.

Scales:

Boston Diagnostic Aphasia Examination (BDAE).
Western Aphasia Battery (WAB).

Interpretation:

It helps classify aphasia type (Broca's, Wernicke's, conduction, global).

Praxis & Gnosis

Praxis:

It is tested by asking patient to mimic tool use (e.g., brushing teeth) or symbolic gestures.

Gnosis:

Visual → object recognition.
Auditory → identify sounds.
Tactile (astereognosis) → recognize objects by touch.

Deficits: apraxia, agnosia (common in parietal lobe lesions).

Executive Function Assessment

Clinical tasks:

problem-solving, planning a sequence (e.g., making tea).

Scales:

Wisconsin Card Sorting Test (WCST).

Stroop Test.

Tower of London test.

Uses:

frontal lobe injury, Parkinson's, dementia, TBI.

Behavioural Screening

Depression and anxiety often co-exist with HMF deficits.

Scales:
Beck Depression Inventory (BDI).
Hospital Anxiety and Depression Scale (HADS).

Important for holistic neurorehabilitation.

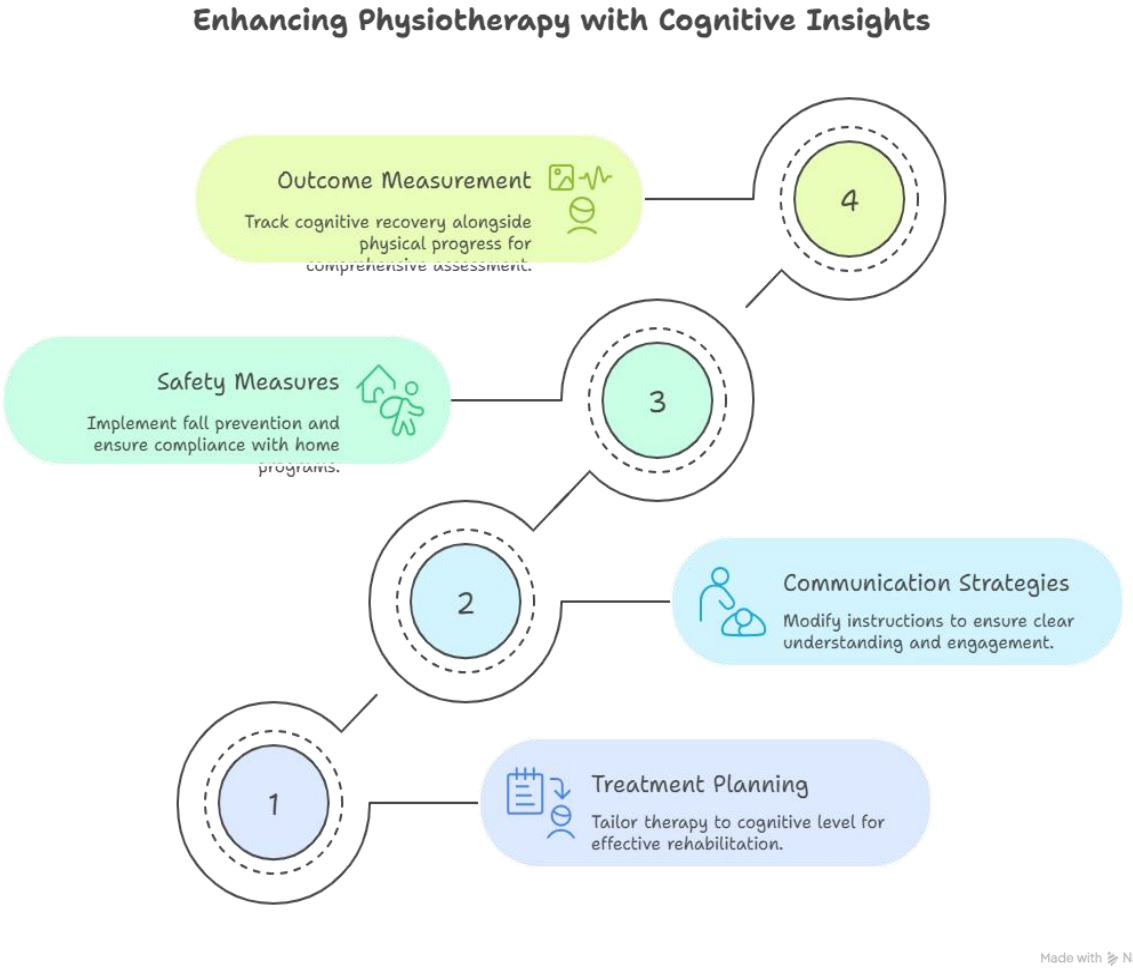
Uses of HMF Assessment in Physiotherapy

Treatment planning: tailor therapy to cognitive level.

Communication strategies: modify instructions.

Safety: fall prevention, compliance with home program.

Outcome measurement: track cognitive recovery alongside physical progress.



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