

بنام خداوند جان و

Rehabilitation of Patients with Traumatic Brain Injury

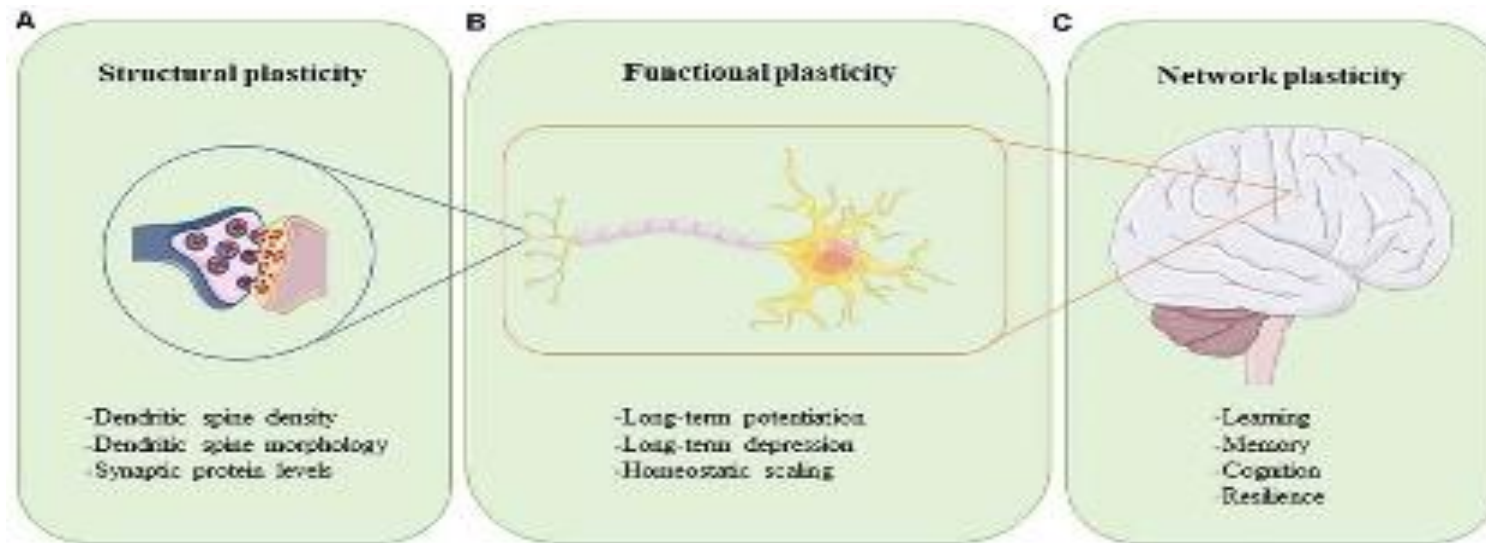
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- The goal of TBI rehabilitation is to return patients to functional independence and improve community participation in a person's lifetime following TBI.



- Three distinct phases of recovery have been described.
 - ✓ involves activation of cellular repair and reversal of diaschisis
 - ✓ plasticity of existing neuronal pathways to produce a functional change
 - ✓ neuroanatomic plasticity to produce nascent connections.
- Myelin-associated proteins, including Nogo-A and the receptor NgR1, play a role in preventing axonal sprouting during neural repair.



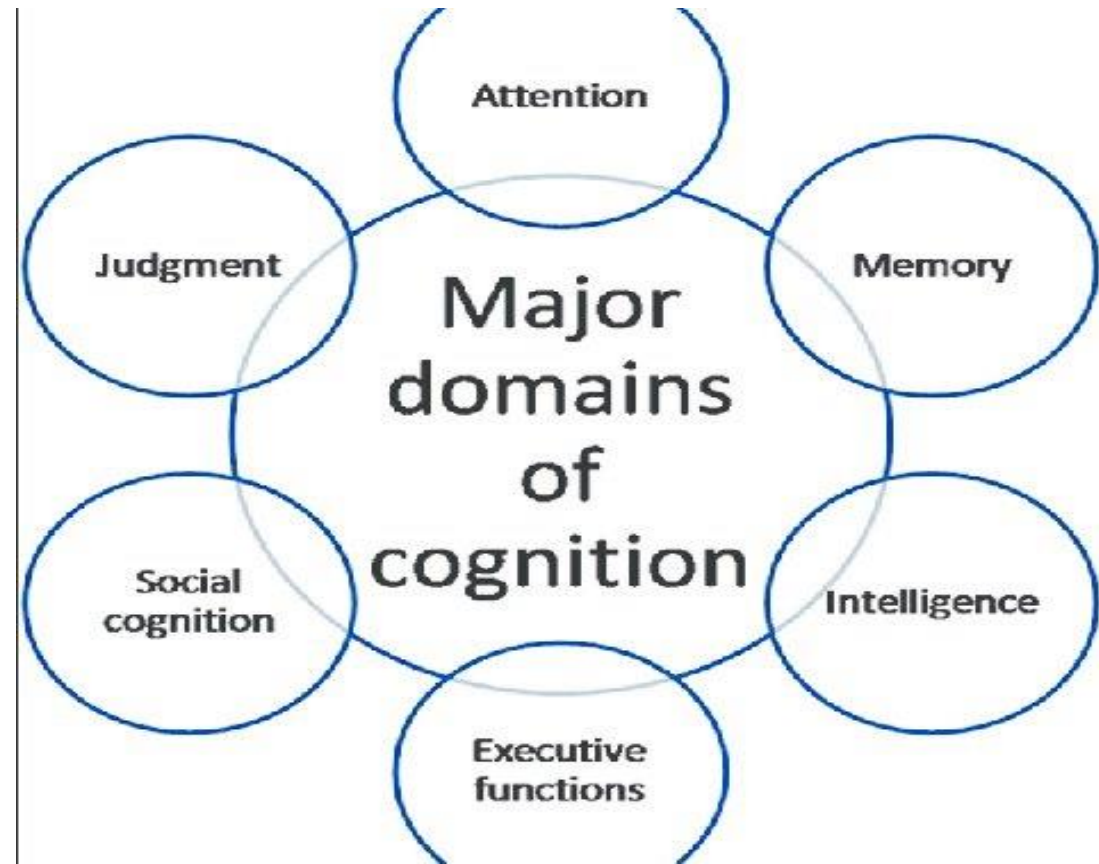
• COGNITIVE DYSFUNCTION IN TRAUMATIC BRAIN INJURY

✓ Fundamental Basis of Cognition

- Reaction Time
- Working Memory
- Unawareness of Deficits

✓ Major Domains of Cognition

- General Intelligence
- Memory
- Executive Functions



• Treatment of Cognitive Dysfunction

✓ Nonpharmacologic Therapy

- Errorless Learning.
- Metacognitive Training.
- Physical Paradigms.
- Other Therapy Protocols.



• Pharmacologic Therapy

- ✓ Amantadine
- ✓ Methylphenidate
- ✓ Atomoxetine
- ✓ Donepezil and Other Cholinergic Medications
- ✓ Selective Serotonin Reuptake Inhibitors
- ✓ Modafinil



- **AGITATION AND AGGRESSION**

- ✓ defined agitation as a state of aggression during PTA in the absence of other physical, medical, or psychiatric causes.

- ✓ 20% to 70%

- ✓ In most cases, agitation will be time limited, typically resolving in about 10 days or less

- ✓ **Treatment**



- **SLEEP DISTURBANCE**

- ✓ 30% to 70%

- ✓ The literature suggests a significantly increased risk of sleep disturbance in patients with milder injuries, depression, fatigue, pain, anxiety, and female gender

- ✓ **Treatment**



- **DEPRESSION**

- ✓ TBI is associated with an increased risk for psychiatric disorders, including major depression, dysthymia, bipolar affective disorder, generalized anxiety disorder, posttraumatic stress disorder, panic disorder, and obsessive-compulsive disorder.

- ✓ 25%-60%

- ✓ **Neuroanatomy**

- ✓ **Treatment**



- **APATHY**

- ✓ Apathy is the lack of motivation to form an intention, feeling, emotion, or concern.



- **Spasticity**

- ✓ Spasticity is a velocity-dependent increase in muscle resistance. It is characterized by increased muscle tone, increased intermittent or sustained involuntary somatic reflexes, clonus, and (in some patients, painful) muscle spasms in response to stretch and/or noxious cutaneous stimulation.

- ✓ **Treatment**

- Physical Modalities.
 - Medications.
 - Chemical Blocks.
 - Surgical Intervention.

- **Bowel and Bladder Incontinence**

- ✓ Bowel Incontinence
- ✓ Urinary Incontinence

- **Dysphagia**



- **GENERAL SUPPORTIVE MEASURES**

- ✓ Nutrition

- Metabolism

- Route

- Timing

- ✓ Venous Thromboembolism Prophylaxis in Traumatic Brain Injury

- **PAIN SYNDROMES**

- ✓ **Headache**

- ✓ **Neuropathic Pain**

- Central neuropathic pain may be defined as pain caused by a primary lesion or dysfunction of the peripheral nervous system or CNS.

- ✓ **Peripheral Neuropathy**

• **Complex Regional Pain Syndrome**

- ✓ Complex regional pain syndrome (CRPS) is a painful disorder that often develops as a disproportionate reaction to trauma.
- ✓ CRPS can develop after a wide subset of events, including myocardial infarction, malignancies, infections, medication administration, extremity trauma, peripheral nerve lesion, stroke, and TBI.
- ✓ Type I, or reflex sympathetic dystrophy
- ✓ Type II, referred to as causalgia, is associated with injury to a peripheral nerve.

- **SPECIFIC SYNDROMES**

- ✓ **Posttraumatic Hydrocephalus**

- ✓ **Heterotopic Ossification**

- ✓ **Paroxysmal Sympathetic Hyperactivity**

**Thanks for
your attention.**