

# REAL TIME ASSESMENT IN TREATMENT OF TRAUMATIC BRAIN INJURY

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What Am I Talking About?

# GOALS OF TODAY'S TALK

- Understand What We Do
- Take Home Skills and Tools

# What the Heck Is Functional Neurology?

# Who Do We Treat?

- TBI Anatomical Damages with Deficits
- mTBI Functional Deficits Without Anatomical Damage
- Principles of Treatment Remain the Same

# GETTING STARTED

- Discard Bias
- Develop Strong Observational Skills
- Accept the Evidence

**\*\*WHEN IN DOUBT\*\*  
RECORD OR TAKE PICTURES**



# TRIPLE MATCH

# PRINCIPLES OF MANAGEMENT

- Identify the area of dysfunction and viability
- Can We Use Connective Pathways?
- Apply Therapeutic Activity
- Observe the Response
- Prescribe the Treatment

# IDENTIFYING THE AREAS OF VIABILITY AND DYSFUNCTION

# PHYSICAL EXAM

# THE HISTORY

- Include the Usual
- What Did You Hope We Could Do For You?

# EXAM PROCEDURE

# GAIT

- Get Up From Chair
- Wide Base
- Arm Swing
- Turn Right
- Turn Left
- Narrow Corridor
- Dual Task
- Amplitude, Cadence, and Tandem Walk

# ROMBERG'S

- Fall
- Sway
- Posture
- Yaw Titubation
- Tremor
- Neck Rotation



# ARMS OUT

- Placement
- Postural Tremor
- Displace Arms
- Finger to Nose
- Finger Dexterity
- Dysdiadochokinesia
- Shoulder Movement
- General Stability

# SINGLE LEG STANCE

- Weakness
- Stability

# EYES

- Optokinetics
- Pursuits and Saccades
- Anti Saccades
- Nystagmus
- Skew
- Near Response
- Gaze Stability
- Pupillary Response

# FACE

- Symmetry
- Sensation
- Expressive

# TONGUE AND PALATE

AUDITORY

SUPINE

# CHECK STRENGTH

- Right and Left Hip
- Right and Left Knee
- Right and Left Ankle
- Right and Left Foot



# UPPER MOTOR SIGNS

- Tone
- Babinskis
- Deep Tendon Reflexes

# COORDINATION

- Heel – Shin
- Patella Tap
- Finger to Nose

PRONE

# STRENGTH OF HAMSTRING AND HIP EXTENSORS

# PARASPINAL TONE & SPINAL GALANT

# INSTRUMENTATION

- Forceplate Technology
- mCTISB
- L.O.S.
- Interactive Metronome

# OTHER COMMON INSTRUMENTATION

- Saccadometer
- VNG

# IMAGING STUDIES & PRIOR RECORDS



# TRIPLE MATCH

NOW WE ARE READY TO TREAT

# THERAPEUTIC MENU

- Vision
- Sound
- Proprioception
- Vestibular
- Smell
- Motor Activity

# VISION BASED ACTIVITY

# PASSIVE

- Hemi Stim Glasses
- Eyelights
- Checkerboard Patter

# ACTIVE

- Optokinetics
- Saccades
- Antisaccades
- Remembered Saccades
- Saccades to Body Parts

# ACTIVE

- Pursuits horizontal, diagonal, small target
- Big Picture, Little Picture
- Gaze Stabilization
- Mirror Image

# Sound

- Different Tones
- Different Ears



# Proprioception

- Core Stabilization
- Tendon Taps
- Complex Multiplanar Movements
- Balance Activity
- Fine Motor Skills
- Manipulation

# Vestibular Activities

- Spinning
  - Continuous or Sinusoidal
- Galvanic
- VOR
- Translation

# Smells

# Cutaneous

- Reflexes to Extinction
- Sensory Stimulation

# Motor Activity

- Eccentric Contractions
- Isometric Contractions
- Isotonic Contractions

# Center of Gravity

# Core Activities

# Interactive Metronome

- Coordination
- Temporal Binding



# Measure the Response

- Immediate change
  - Usually Short Term Potentiation
- Fatigue
- No Change
  - Wrong Area Treated
  - Right Area, Wrong Treatment
  - Poor Application of Treatment
- Watch For Fatigue!

# Prescribe and Train

- Develop Long Term Potentiation Through Repetition
- Low and Slow
- Perfect Technique

# Follow-Up Visit

- Repeat the Procedure