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BRAIN INJURY REHABILITATION: FAMILY EDUCATION


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OUTLINE

Part 1:
– What is Brain Injury Rehabilitation at Shepherd?

Part 2:
– What is a Brain Injury?
– Neuroanatomy Basics

Part 3:
– What Happens Next?
– Family Support




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Part I: Rehabilitation Program


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Rehabilitation Program

- Main Goal:** Focus on patient and family-centered goals
 - Work with team to determine appropriate goals
 - Relearn skills
 - Learn new ways to do things, compensate
 - Increase mental & physical endurance/stamina
- Neuroplasticity**
 - Brain's ability to adapt/compensate
 - Connections among brain cells (neurons) reorganize in response to our changing needs
 - A goal of rehabilitation is to *attempt* to rebuild connections among neurons to make it possible for a function previously managed by a damaged area to be taken over by another undamaged area


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Part II: Brain 101


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Acquired Brain Injury (ABI)

- **Traumatic Brain Injury (TBI):**
 - Outside force impacts head hard enough to cause brain to move within the skull or the force directly hurts the brain
 - Examples: motor vehicle collisions, falls, gun-shot wounds, sports, physical violence, etc.
 - Closed Head Injury vs. Open Head Injury
- **Non-Traumatic Brain Injury (n-TBI):**
 - Does not involve external mechanical force
 - Examples: stroke, aneurysm, insufficient oxygen (anoxia/hypoxia) or blood supply (ischemia), infectious disease, AVM, etc.


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Brain Anatomy

- ❑ Brain is soft & has the consistency of a Jello mold
- ❑ Attached to the skull by small veins and meninges
- ❑ Floats in Cerebral Spinal Fluid (CSF)
 - ❑ Provides a cushion, "shock absorber"
- ❑ Enclosed environment
 - ❑ Other than veins and arteries, there is only one exit—where brain stem exits the base of the skull to become the spinal cord

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Brain Anatomy

- ❑ Two relatively symmetrical hemispheres (halves)
- ❑ Contralateral Control
 - ❑ Left side of brain controls right side of body, etc.

Left Brain Functions

Right Brain Functions

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FRONTAL LOBES

- ❑ Facilitates executive functions and goal directed thoughts:
 - ❑ Attention/concentration
 - ❑ Planning, organization, sequencing
 - ❑ Judgment/decision-making
 - ❑ Personality, behavioral & emotional regulation
- ❑ Motor strip at back of frontal lobe controls body's ability to move itself
 - ❑ Weakness (hemiparesis)
 - ❑ Paralysis (hemiplegia)

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PARIETAL LOBES

- ❑ Sensory strip at front of parietal lobe, behind motor strip
 - ❑ Detects pain, touch, pressure
 - ❑ Senses where the body is in space, movements
- ❑ Visuospatial judgments
- ❑ Attention to entire environmental field
 - ❑ Inattention vs. neglect
 - ❑ "Left Sided Neglect"

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TEMPORAL LOBES

- ❑ Auditory processing cortex
- ❑ Expressive and receptive language (aphasia)
- ❑ Hippocampus facilitates memory storage
 - ❑ Short-term vs. Long-term memories

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OCCIPITAL LOBES

- ❑ Processes visual information
- ❑ Visual problems common after brain injury
- ❑ Input enters through eyes, but you "see" with your brain
- ❑ Many injuries affect vision
 - ❑ Double vision, blurred vision
 - ❑ Visual field cut
 - ❑ Cortical blindness

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MEMORY LOSS AFTER BRAIN INJURY

- ❑ Retrograde amnesia
 - ❑ Inability to remember things from past
- ❑ Anterograde amnesia
 - ❑ Inability to make new memories
- ❑ Post-Traumatic Amnesia (PTA)
 - ❑ Retrograde and anterograde memory difficulties following a traumatic brain injury

Confabulation is common

- ❑ Disorientation & confusion → incorrect memories

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Potential Behavior Issues after Brain Injury

- ❑ Decreased initiation
 - ❑ Difficulty getting started
 - ❑ The “gas” is not working properly: “Abulia”
- ❑ Disinhibition
 - ❑ Problem with “social filter”, opposite of initiation problems
 - ❑ Colorful language, socially inappropriate behaviors
 - ❑ Unaware of inappropriateness of behavior
 - ❑ Not intentional
 - ❑ Not “personal”

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Potential Behavior Issues after Brain Injury

- ❑ Impulsivity
 - ❑ behavior with little or no forethought, reflection, or consideration of the consequences.
- ❑ Perseveration
 - ❑ Repetitive topics, phrases, or behaviors
- ❑ Emotional lability (mood swings)
- ❑ How can you help?
 - ❑ Reduce over-stimulation
 - ❑ Discuss phone/device use with MD/Neuropsychologist
 - ❑ Try not to argue or reason
 - ❑ Redirect, change the topic, ignore as needed

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PART III: WHAT HAPPENS NEXT?

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Discharge from Rehab Track

- ❑ Family Training Day(s)
- ❑ Ongoing care/rehab
 - ❑ Shepherd Pathways
 - ❑ Day Program vs. Single Service
 - ❑ Other outpatient therapy clinics
 - ❑ Other skilled care facilities
 - ❑ Home health
- ❑ May have neuropsychological testing to assess cognitive and emotional functioning at discharge

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Discharge from Rehab Track

- ❑ Recovery does not end at discharge
 - ❑ First 6 months: most rapid recovery
- ❑ Continued neuronal recovery for 1 – 2 years after injury
- ❑ Continued functional recovery continues

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NEURAL RECOVERY

- Everyone is DIFFERENT
 - Time & Biology
- Types of recovery
 - Recovery from secondary effects (brain swelling, medical complications, etc.)
 - Reorganization of brain functions
 - Nearby cells may take on additional work
- Limitations
 - We do not make new brain cells
 - Limited capacity for reorganization

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Ongoing Difficulties & Limitations

- Physical
 - Movement, coordination, balance
 - Stamina and endurance
- Cognitive
 - Safety awareness, impulsivity
 - Memory, confusion
 - Executive skills
- Emotional and behavioral issues
 - Depression, anxiety, adjustment issues
 - Dysregulation, poor self-monitoring
 - Apathy—"can't do" not "won't do"
- Importance of supervision
 - Due to deficits in judgment, memory, safety awareness, problem solving, insight into limitations, distractibility, impulsivity and behavioral regulation

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Family

- Adjustment to Injury (for family)
 - Feelings of loss, sadness, anger, guilt, and frustration are common
- You do not have to go through this alone - help is available
 - Family counselor
 - Chaplain services
 - Peer support coordinator
- Break the stress response cycle
 - Rest, eat well, get some exercise
 - Practice whatever gives you strength, peace, hope
- Manage your physical & emotional energy
 - Find people who will help you *and then let them*
 - This is your chance for a break before your loved one is discharged

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PART IV: ADDITIONAL INFORMATION

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(EXAMPLES OF) TIPS FOR VISITORS

Reduce stimulation

- Turn off TV/radio/phones/lights
- 1-2 visitors at a time
- Limit side conversations

Reduce fatigue

- Limit visits to short periods (15-30 min) at a time
- 1-2 visitors during therapy (therapist may also ask to meet alone)
- Give breaks in between visits (30 min)
- Limit conversation time

Communication Tips

- Speak at a slightly slower rate with lower volume
- One question at a time
- Have one person speak at a time/no cross-talk or side conversations
- Give time to think/respond
- Don't talk down to the person

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CVO/AVASYS KEEP YOUR LOVED ONE SAFE

- Constant Visual Observer (CVO)
 - 1:1 tech who stays with your loved one to keep them safe
 - Fall risk
 - Wandering
 - Pulling at lines/tubes
 - Harm to themselves/others
- Avasys
 - 360°, tele-monitoring device
 - A tech monitors cameras live
 - Does not record feed
 - Verbal re-direction through speakers on device
 - Tech can call nurses/staff to intervene

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Substance Use

- Brain is still in recovery mode
 - Increases risk of falls
 - Increases risk of seizures
 - Reduced medication efficacy
 - Reduced judgment
- Substance abuse is more common after brain injury, even if not present before

If you have concerns about your family member using alcohol/ substances after discharge, please talk to your neuropsychologist

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REHAB TREATMENT TEAM

Medical Doctor

- Designs treatment plan
- Monitors medical status and places orders for consults
- Medication management

Nursing

- Day by day duties and examination
- Medication distribution
- Bowel/Bladder
- PCTs work with nurses



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REHAB TREATMENT TEAM

Case Manager

- Contact between team and family
- Management of insurance companies
- Discharge planning

Respiratory Therapy

- Tracheostomy management
- Monitor respiratory function and need for oxygen

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REHAB TREATMENT TEAM

Occupational Therapy (OT)

- Rehabilitation for arms, hands, fine motor skills, vision
- Activities of daily living

Physical Therapy (PT)

- Rehabilitation for legs, torso, balance, sequencing movements
- Wheelchair fitting/training
- Transfers

Both OT and PT may work on casting limbs to address tone

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REHAB TREATMENT TEAM

Speech & Language Therapy

- Swallowing
- Speech and Language
- Cognition

Neuropsychology

- Formal, standardized assessment of thinking skills
- Capacity evaluations (ex: Power of Attorney vs. Guardianship)
- Mood functioning

Nutrition

- Diet, weight
- Importance of/education for nutrition habits for discharge

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