

## Clinical Review of TBI Effects on Social Re-integration and Complex IADLs

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www.bridgesky.org

## Return to Community

Stephanie Ciccarella PT

### REHABILITATION

"IT IS TOO SIMPLE TO VIEW REHABILITATION AFTER BRAIN INJURY AS A PROCESS OF FACILITATING MEDICAL RECOVERY AND THEN PROVIDING VARIOUS THERAPIES TO HASTEN AN INDIVIDUAL'S RETURN TO FAMILY, SCHOOL, OR WORK."

### Primary Considerations



### COMMON PROBLEMS ASSOCIATED WITH TBI

- cognitive
- emotional
- physical
- neuro-endocrine
- hydrocephalus
- heteropic ossification
- urinary incontinence

#### COGNITION

- attention
- concentration
- new learning
- memory
- executive control function

#### EMOTIONAL

- emotional adjustment
- irritability
- impulsivity
- control of personal behaviors

#### PHYSICAL

- seizure
- spasticity
- coordination
- endurance

- post-traumatic headaches
- temporomandibular pain
- post-traumatic concussion syndrome
- chronic pain
- dizziness / balance problems
- sleep disturbances
- fatigue
- visual impairments
- auditory / mixed sensory impairments

### COMPLICATIONS

resulting symptomologies  
may be resulting effects of  
multiple interacting  
PROBLEMS

**independence**

connectedness with others

engagement in self-improvement

initiative

problem-solving

safety and judgment

**wellness**


--- GOALS ---



**Cognitive Domain**

consideration must be given to learning ability and potential

- strategies
  - pacing
  - blocking tasks
  - regular breaks
  - checking for error
  - quiet / closed environment
- teaching skills for self management



**Social Domain**

to successfully return to community, we must be able to respect the individual identity of others and oneself

- strategies
  - active listening
  - group treatment
  - modeling
  - rehearsal
- training → self-monitoring



**Behavioral Domain**

to ability to self-regulate behavior is key to successful management of life skills and relationships

- strategies
  - self-monitoring
  - self-instruction
  - relaxation
  - mindfulness
  - imagery
  - use of cues
- practice, practice, practice

### SO WHAT DOES A PHYSICAL THERAPY PLAN LOOK LIKE?

Greater Interaction with community resources is imperative for successful wellness and health...

Treatment may include:

- mobility training
- cognition
- communication
- household management skills
- community skills
- vocational tasks
- leisure skills

## SO WHAT DOES A PHYSICAL THERAPY PLAN LOOK LIKE?

Greater Interaction with community resources is imperative for successful wellness and health...

Training requires effective education and patient management skills:

- shaping
- fading
- environment manipulation
- humor
- simplicity
- consistency
- flexibility
- behavior modeling and planning
- person-centered**

## Community Mobility and TBI

Nancy Wylie, MS, OTR, CDRS

**Cessation of driving** is among the most functionally disabling consequences of TBI, as driving is **integral to independence, community membership, activities of daily living** such as access to work, shopping, and healthcare. Of all the potential life consequences of brain injury, the possibility of driving restriction is of greater concern to patients than any other functional limitations.

Rapport, Hanks, Bryer 2006

...cognitive functioning alone is inadequate in predicting driving performance... an on-road test should be an essential part of the assessment procedure.

Bruwer, Withaar 1997

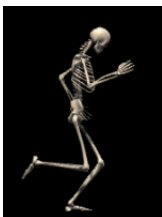
A substantial proportion of severely head-injured patients are good drivers, particularly if they have had much driving experience.

Bruwer, Withaar 1997

A history of TBI does not necessarily indicate a permanent loss of driving privileges.

Lew, Amick, Kraft, Stein, Cifu 2010

## Motor Skills



range of motion  
strength  
endurance  
coordination

<http://bestanimations.com>

## Vision



Optic Structures  
Optic Nerve  
Optic Pathway  
Visual Perception

### Common Symptoms of Mild TBI and the Effects on Driving Skills

#### Fatigue

- Response time
- Strength
- Coordination
- Clarity of thoughts
- Pain intensity

#### Headaches

- Visual acuity
- Visual processing
- Executive Function
- Attention

#### Visual Disturbances

- Visual acuity
- Visual perception
- Double vision
- Field of view loss
- Eye ROM
- Fusion

### Common Symptoms of Mild TBI and the Effects on Driving Skills

#### Dizziness/loss of balance

- Visual acuity
- Visual perception
- Posture
- Transfers
- Executive function
- Fatigue

#### Irritability-emotional disturbances

- Social issues
- Impulsivity
- Verbal aggression
- Physical aggression
- Loss of temper
- Poor decision making
- Impaired judgment

#### Feelings of depression

- Social issues
- Anger management
- Executive function
- Increased risk taking

### Common Symptoms of Mild TBI and the Effects on Driving Skills

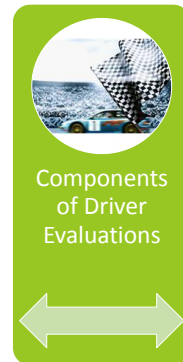
#### Seizures

- Driving eligibility
- Vision deficits
- Fatigue
- Pain
- Muscle weakness

#### Comorbidity

- Motor skills
- Vision
- Emotional
- Behavioral
- Cognition

- Clinical Assessment
- Behind the Wheel Assessment



### Training : correlation exists between clinical training and improved driving skills

#### CLINIC

- ✓ Perceptual Training
  - ✓ Attention
  - ✓ Tracking
  - ✓ Scanning
- ✓ Cognitive Training
  - ✓ Executive function
  - ✓ Working memory
  - ✓ Planning
  - ✓ Divided attention
- ✓ Physical training
  - ✓ ROM
  - ✓ Strengthening
  - ✓ Balance
  - ✓ Transfers
- ✓ Education
  - ✓ Patient
  - ✓ Family

#### BEHIND THE WHEEL

- ✓ Adaptive Equipment
- ✓ Retraining of Driving Skills
- ✓ Review of Road Rules
- ✓ Defensive Driving
- ✓ Anticipatory Planning
- ✓ Decision Making
- ✓ Communication
- ✓ Compensatory Techniques

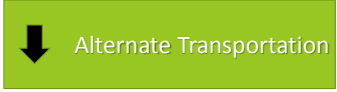
### Community Resources for Testing Driver Skills

#### Clinical Evaluations

- Drake Center
- Good Sam
- Bethesda North

#### Behind the Wheel and/or Clinical Evaluations

- Bicks Driving School Western Hills
- Mercy Mount Airy



Alternate Transportation

- Public Transportation
- Area Agency on Aging
- Senior Citizens Centers
- Veterans Services
- Churches
- Medical Transportation
- Family & Friends