Managing Concussion: A Neuropsychology and Speech Therapy Approach

Presentation developed and led by
Alison H. Tverdov, Psy.D.
Vanessa Edwards, M.S., CCC-SLP

Powerpoint contributions by Kelly Kollias, Psy.D.
Objectives

• Signs, symptoms, and progression of concussion
• Post-concussion syndrome
• Neuropsychological treatment
• Speech Therapy treatment
Varying Definitions/Classification Systems

- There have been more than 25 different grading systems for concussion
- Recent consensus statements from the international symposia on concussion in sport have recommended foregoing grading scales/systems
- Current conceptualization examples:
  - Physical, cognitive, emotional, sleep
  - Cognitive (includes fatigue), vestibular, ocular, post-traumatic migraine, cervical, anxiety/mood related concussions
  - Somatic, Cognitive, Emotional/Behavioral
- Synonymous terms: Mild Traumatic Brain Injury (mTBI), Minor head injury, Minor head trauma
Definition of Concussion

• Occurs when a forceful motion of the head results in a transient alteration of mental status of physiological brain function
  – Can occur with or without direct impact to the head.
  – Functional rather than structural injury.
• Note: mTBI (including concussion) accounts for at least 75% of all TBI in the U.S.
Common Concussion Symptoms

- Headache/migraines
- Neck Pain
- Dizziness
- Balance Problems
  - Sensitivity to Noise
  - Feeling like “in a fog”
  - Difficulty concentrating
- Fatigue or low energy
- Drowsiness
- More emotional
- Sadness
- Pressure in the head

- Nausea or vomiting
- Blurred vision
- Sensitivity to light
- Feeling slowed down/Slowed processing speed
- “Don’t feel right”
- Difficulty remembering
- Confusion
- Trouble falling asleep
- Irritability
- Nervous or anxious
- Poor attention and concentration
Post-concussive Headaches

• Migraine headaches are usually unilateral and pulsating.
  – Moderate severity.
  – Exercise may increase symptoms.
  – May have nausea and light or noise sensitivity.
• Tension-type headaches are the most common. They are usually bilateral and described as pressure or a squeezing sensation.
  – Moderate severity.
  – Exercise does not increase the symptoms.
  – No nausea or light/sound sensitivity.
Dizziness, Vertigo, and Tinnitus

- Balance is a complex process and relies on input from the visual, vestibular, and proprioceptive systems.
- Dizziness and balance problems are a frequent complaint after mTBI.
  - Dizziness: light-headedness, an unstable feeling, or clumsiness.
  - Vertigo: the sensation that the individual or the environment is moving.
- Tinnitus: ringing in the ears.
Additional Concussion Symptoms

- Temporary Loss of Consciousness (LOC) or Posttraumatic Amnesia (PTA)
  - Not a requirement
  - Seen in ~10% of concussions
- May see delayed onset of symptoms (“bruising” of the brain)
- Symptoms may be similar to those associated with depression, anxiety, ADHD, LD, and cognitive delays
  - In individuals with preexisting conditions, concussion may exacerbate those symptoms, making them more difficult to control
Typical Symptom Recovery: Children & Adolescents

• The majority of concussions are uncomplicated and mild in nature
  – Most children will recover relatively quickly, without extensive evaluative or educational services.
  – 7-10 days is the typical recovery progression
• Children may still be mildly symptomatic one week following injury, but able to meaningfully participate in academics and social activities.
Typical Symptom Recovery: Adults

• Typically 1-2 weeks
• Dependent on several factors
  – Slower for adults over 40 years of age and those who have sustained a previous concussion
Concussion Treatment

Rationale for Rest:

- Concussions are assumed to cause complex, interwoven cellular and vascular changes; resting the brain may help to facilitate the healing process.
- Individuals may experience headaches, dizziness, nausea, light and noise sensitivity, fatigue, hypersomnia/insomnia symptoms in the acute postinjury period; rest can be helpful in managing these symptoms.
Concussion Treatment

Risks of Prolonged Rest:

- Research suggests that complete rest exceeding 3 days is not helpful.
- Gradual resumption of preinjury activities should begin as soon as tolerated (with the exception of activities that have a high MTBI exposure risk), and supervised exercise may benefit patients with persistent symptoms.
Post-concussion Syndrome

- Persistent set of nonspecific symptoms (1-3 months post-injury)
  - Psychological: irritability, anxiety, depression
  - Cognitive symptoms: poor focus/attention, slowed processing speed and reaction time, memory impairments
  - Interrupted sleep pattern, fatigue
  - Migraines/Chronic Headaches
  - Chronic pain (cervical)
  - Ocular and vestibular difficulties: poor balance, dizziness, light and sound sensitivity
Prolonged Recovery

- As time passes the strength of the association between the neurobiology of the original injury and the ongoing symptoms diminishes.
- Need to consider the importance of preexisting/premorbid factors (mental health problems, ADHD, social-emotional adjustment) & current non injury factors (disposition, mental health, situational/environmental problems).
- It can become very difficult (nearly impossible) to determine what is causing, maintaining, or exacerbating the symptoms.
Role of Neuropsychology in Treatment

• Neuropsychological Assessment:
  – Baseline assessment (e.g., ImPACT pre-injury)
  – Sideline or brief screening assessments (SCAT3, ImPACT post-injury)
  – Comprehensive assessments (Full or half day of testing, various measures)
    • Establishes strengths and challenges
    • Provides recommendations to manage symptoms
      – Neuropsychological Therapy (psychotherapy)
      – Speech Therapy
      – Physical Therapy
      – Vision Therapy
      – Accommodations in school/workplace
    • Provides information on prognosis
Neuropsychological Treatment

• Provide psychoeducation regarding:
  – Symptoms
  – Recovery Patterns
  – Rest Protocols
  – Various treatment options

• Research suggests that simply providing education on the trajectory of recovery improves outcomes
  – Simply reviewing discharge instructions detailing the symptoms and course of concussion has been shown to decrease the incidence and severity of symptoms
Neuropsychological Treatment

Psychotherapy:

- Psychotherapy to provide support, address changes in emotional functioning and help individuals navigate recovery process.
  - Cognitive Behavioral Therapy
  - Mindfulness
  - Biofeedback
  - Cognitive Rehabilitation
Neuropsychological Treatment

- Cognitive Behavioral Therapy
  - Structured treatment aimed at evaluating the relationship between thoughts, emotions and behaviors. Modify unhelpful thinking patterns.

- Mindfulness
  - *Mindfulness means paying attention in a particular way; On purpose, in the present moment, and nonjudgmentally.* Jon Kabat-Zinn

- Biofeedback
  - Learn how to change physiological activity for the purposes of improving health and performance

- Cognitive Rehabilitation
  - Focused on improving cognitive deficits and/or developing strategies to compensate for areas of weakness
Role of the Speech-Language Pathologist in Concussion Treatment

- Education for patient, family, teachers and peers
- Assess and direct treatment of deficit areas
  - Speech
  - Language
  - cognition/cognitive-communication
- Teach and implement strategies
  - Disfluencies
  - Organization
  - Memory
SLP: Education

- **Recipients**
  - Children
  - Adults
  - Parents
  - Caregivers (home nurse aids, other educators, nurses)

- **Environments**
  - Schools
  - Workplace
  - Nursing Homes
  - Hospitals/outpatient centers
SLP: Assessment and Treatment

- Observation/interviewing
- Standardized assessments
- Rating scales

- Treatment approach is dependent on the area that is impaired
- Cognitive rehabilitation treatment
  - Restoration, compensation, adaptation
SLP: Assessment and Treatment in Medical Settings

• Acute
• Inpatient rehabilitation
• Outpatient rehabilitation
Treatment approaches

• Dependent on area(s) of impairment
• Evidenced-based practice
• Goal-setting with patient input
• Functionally based strategies
Potential Barriers to Treatment

• Cognitive exertion
• Cognitive overload
• Triggering symptoms
References

References


