

Dazed, Confused and Seeing Stars: Concussion

CARLA FLOYD-SLABAUGH, DR OT, OTR/L, CBIS



PURPOSE

This presentation is designed to educate the
OT practitioner about concussions;
applicable to pediatric, adult, and older
adult populations.

OBJECTIVES

1. Participants will be able to discuss concussion symptoms and OT evaluation and intervention.
2. Participants will be able to identify OT concerns.
3. Participants will be able to explain Second Impact Syndrome, the significance of a client's past medical history as it relates to concussion, and post-concussion syndrome.

POLL EVERYWHERE



1. Download the free Poll Everywhere app

OR

2. Text 37607

3. Then send the message:

CARLAFLOYDSL065



CAUSES: PEDS



- Playground
- Bike Riding
- Falls
- Sports



- Sports overall risk of 25%
- Higher risk: rugby, hockey and football
- Lowest risk: volleyball, baseball and cheerleading

(Cleveland Clinic, 2017)

(Pfister, Pfister , Hagel, Ghali, & Ronksley, 2016)

CAUSES: ADULT



- Sports
- MVC
- Falls

(Cleveland Clinic, 2017)



Military

Concussion “has become a growing public health concern, prevalent in both athletic and military settings.”

(Karr, Areshenkoff, & Garcia-Barrera, 2014)

CAUSES: OLDER ADULT



- Falls #1 cause of injuries and deaths from injury among older Americans (CDC, 2016b).
- 1:4 Americans aged 65+ falls each year.
- Every 11 seconds, an older adult is treated in the emergency room for a fall; every 19 minutes, an older adult dies from a fall (National Council on Aging, 2016).

SYMPTOMS

Physical

Headache
Nausea
Balance
Dizziness
Vision
Fatigue
Light sensitivity
Noise sensitivity
Numbness

Cognitive

Foggy
Slowed
Concentration
Memory
Taking longer
to think

Sleep

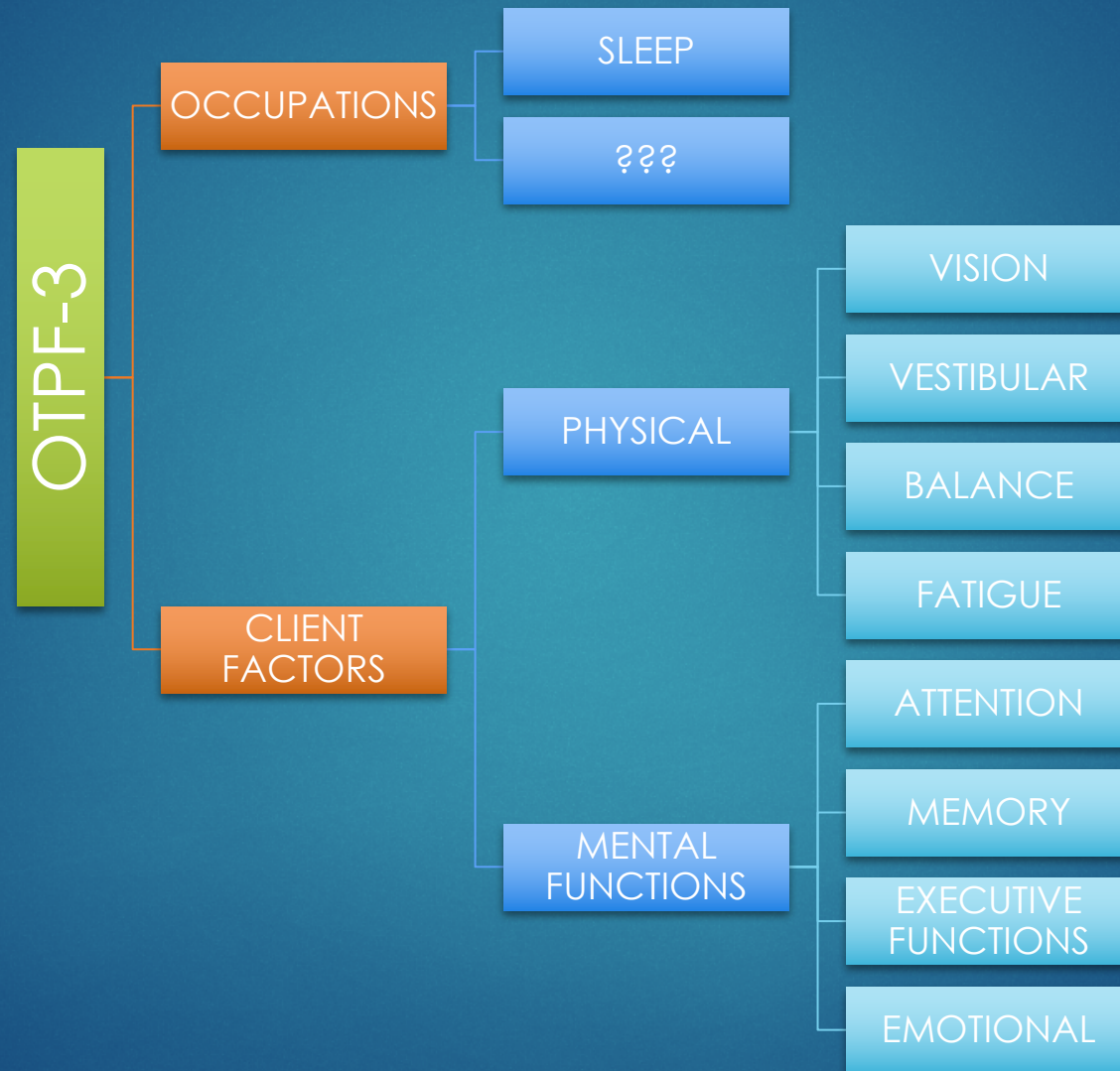
Drowsiness
Sleep less
Sleep more
Trouble falling
asleep

Emotional

Irritable
Sadness
More emotional
Nervous
Frustrated
Impatient
Restless

(CDC, 2016a)

SYMPTOMS: OTPF



(AOTA, 2014)

COURSE

Typical

Spontaneous
recovery 7-10
days

(McCrory, et al., 2013)

Atypical

Post-Concussion
Syndrome

(McCrory, et al., 2013)

2nd Impact
Syndrome

(McLendon, Kralik,
Grayson, & Golomb,
2016)

OCCUPATIONS: KIDS



Basic Care



Meal Prep



Work



Sports



Pet Care



Education



Chores



Driving

ADULTS



Driving



Shopping



Socialization



Leisure



Financial Management



Medication Management

OCCUPATIONS: OLDER ADULTS



Basic Care



Medication



Finances



Mobility



Shopping

OT ROLE: EVAL AND TREAT

ACE: Acute Concussion Evaluation.

CDC.gov

CDC, 2016a

ACUTE CONCUSSION EVALUATION (ACE)
PHYSICIAN/CLINICIAN OFFICE VERSION

Gerard Gioia, PhD & Micky Collins, PhD
Children's National Medical Center
University of Pittsburgh Medical Center

Patient Name: _____
DOB: _____ Age: _____
Date: _____ ID/MR# _____

A. Injury Characteristics Date/Time of Injury _____ Reporter: ___ Patient ___ Parent ___ Spouse ___ Other _____

1. Injury Description _____

1a. Is there evidence of a forcible blow to the head (direct or indirect)? ___ Yes ___ No ___ Unknown
1b. Is there evidence of intracranial injury or skull fracture? ___ Yes ___ No ___ Unknown
1c. Location of impact: ___ Frontal ___ Lt Temporal ___ Rt Temporal ___ Lt Parietal ___ Rt Parietal ___ Occipital ___ Neck ___ Indirect Force
2. Cause: ___ MVC ___ Pedestrian-MVC ___ Fall ___ Assault ___ Sports (specify) _____ Other _____
3. **Amnesia Before (Retrograde)** Are there any events just BEFORE the injury that you/ person has no memory of (even brief)? ___ Yes ___ No Duration _____
4. **Amnesia After (Anterograde)** Are there any events just AFTER the injury that you/ person has no memory of (even brief)? ___ Yes ___ No Duration _____
5. **Loss of Consciousness:** Did you/ person lose consciousness? ___ Yes ___ No Duration _____
6. **EARLY SIGNS:** ___ Appears dazed or stunned ___ Is confused about events ___ Answers questions slowly ___ Repeats Questions ___ Forgetful (recent info)
7. **Seizures:** Were seizures observed? No ___ Yes ___ Detail _____

B. Symptom Check List* Since the injury, has the person experienced any of these symptoms any more than usual today or in the past day?
Indicate presence of each symptom (0=No, 1=Yes). Lovell & Collins, 1998 JHTR

PHYSICAL (10)		COGNITIVE (4)		SLEEP (4)	
Headache	0 1	Feeling mentally foggy	0 1	Drowsiness	0 1
Nausea	0 1	Feeling slowed down	0 1	Sleeping less than usual	0 1 N/A
Vomiting	0 1	Difficulty concentrating	0 1	Sleeping more than usual	0 1 N/A
Balance problems	0 1	Difficulty remembering	0 1	Trouble falling asleep	0 1 N/A
Dizziness	0 1	COGNITIVE Total (0-4) _____		SLEEP Total (0-4) _____	
Visual problems	0 1	EMOTIONAL (4)		Exertion: Do these symptoms <u>worsen</u> with: Physical Activity ___ Yes ___ No ___ N/A Cognitive Activity ___ Yes ___ No ___ N/A Overall Rating: How <u>different</u> is the person acting compared to his/her usual self? (circle) Normal 0 1 2 3 4 5 6 Very Different	
Fatigue	0 1	Irritability	0 1		
Sensitivity to light	0 1	Sadness	0 1		
Sensitivity to noise	0 1	More emotional	0 1		
Numbness/Tingling	0 1	Nervousness	0 1		
PHYSICAL Total (0-10) _____		EMOTIONAL Total (0-4) _____			
(Add Physical, Cognitive, Emotion, Sleep totals) Total Symptom Score (0-22) _____					

C. Risk Factors for Protracted Recovery (check all that apply)

Concussion History? Y ___ N ___	Headache History? Y ___ N ___	Developmental History	Psychiatric History
Previous # 1 2 3 4 5 6+	Prior treatment for headache	Learning disabilities	Anxiety
Longest symptom duration Days ___ Weeks ___ Months ___ Years ___	History of migraine headache ___ Personal ___ Family	Attention-Deficit/ Hyperactivity Disorder	Depression
If multiple concussions, less force caused reinjury? Yes ___ No ___		Other developmental disorder	Other psychiatric disorder

List other comorbid medical disorders or medication usage (e.g., hypothyroid, seizures) _____

D. RED FLAGS for acute emergency management: Refer to the emergency department with sudden onset of any of the following:
 * Headaches that worsen * Looks very drowsy/ can't be awakened * Can't recognize people or places * Neck pain
 * Seizures * Repeated vomiting * Increasing confusion or irritability * Unusual behavioral change
 * Focal neurologic signs * Slurred speech * Weakness or numbness in arms/legs * Change in state of consciousness

E. Diagnosis (ICD): ___ Concussion w/ LOC 850.0 ___ Concussion w/ LOC 850.1 ___ Concussion (Unspecified) 850.9 ___ Other (854) _____
 ___ No diagnosis

F. Follow-Up Action Plan Complete ACE Care Plan and provide copy to patient/family.
 ___ No Follow-Up Needed
 ___ Physician/Clinician Office Monitoring: Date of next follow-up _____
 ___ Referral:
 ___ Neuropsychological Testing
 ___ Physician: Neurosurgery ___ Neurology ___ Sports Medicine ___ Physiatrist ___ Psychiatrist ___ Other _____
 ___ Emergency Department

ACE Completed by: _____ © Copyright G. Gioia & M. Collins, 2006
This form is part of the "Heads Up: Brain Injury in Your Practice" tool kit developed by the Centers for Disease Control and Prevention (CDC).

ASSESS OCCUPATIONS

- Varies by age
- Sleep



CLIENT FACTORS

Cognition

- Attention
- Memory
- Executive Function
- Emotional

Sensory

- Vision
- Vestibular

Balance

Fatigue

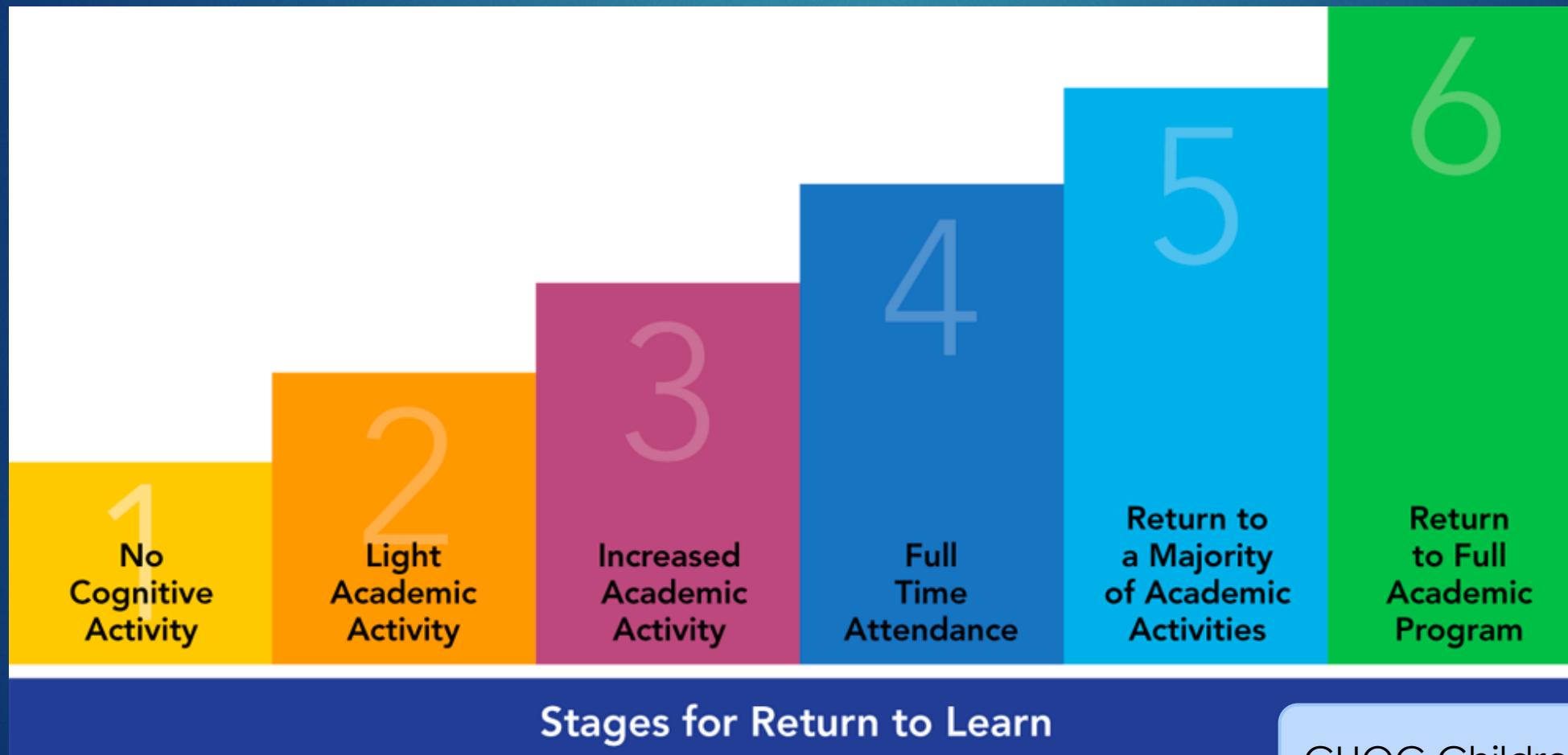


RETURN TO ACTIVITY

- Progressive return to activity (McCulloch, et al., 2015)
- Controlled activity - physical and mental
 - Avoid exacerbation of symptoms
- Provide education
- Avoid prolonged rest (Leddy, Hines, Sirica, & Willer, 2016)



PROGRESSIVE RETURN



MANAGEMENT

- OT: remediation and compensation
- Multi-disciplinary team (Aligene & Lin, 2013)
- Prolonged recovery: depression, anxiety, ADHD, pre-injury oculomotor deficit, prior concussions (Corwin, et al., 2014)
- Convergence insufficiency prolonged recovery in athletes (DuPrey, et al., 2017)



2ND IMPACT SYNDROME (SIS)

- Second concussion occurs before symptoms from the first concussion have resolved
- Rare
- Diffuse cerebral swelling
- Syndrome disputed by some
- Death or permanent disability

(McLendon, Kralik, Grayson, & Golomb, 2016)

WRAP UP

OT uniquely positioned to assess and/or
address the majority of limitations that result
from mTBI

POLL EVERYWHERE



1. Download the free Poll Everywhere app

OR

2. Text 37607

3. Then send the message:

CARLAFLOYDSL065

QUESTIONS???



REFERENCES

Aligene, K., & Lin, E. (2013). Vestibular and balance treatment of the concussed athlete. *NeuroRehabilitation*, 32, 543-553.

American Occupational Therapy Association [AOTA]. (2014). Occupational therapy practice framework: Domain and process. *American Journal of Occupational Therapy*, 68(Suppl 1), S1-S48.

Center for Disease Control and Prevention [CDC]. (2016a). *Acute Concussion Evaluation (ACE)*. Retrieved from HEADS UP to health care providers: Tools for providers: www.cdc.gov/headsup/providers/tools.html

Center for Disease Control and Prevention [CDC]. (2016b). *Fall are leading cause of injury and death in older Americans*. Retrieved from www.cdc.gov/media/releases/2016/p0922-older-adult-falls.html

Center for Disease Control and Prevention [CDC]. (2017). *What is a concussion?* Retrieved from www.cdc.gov/headsup/basics/concussion_what.html

REFERENCES

CHOC Children's. (2017). *Concussion program*. Retrieved from www.choc.org/neuroscience/concussion-program/

Cleveland Clinic. (2017). *Concussions*. Retrieved from my.clevelandclinic.org/health/articles/concussions

Corwin, D. J., Zonfrillo, M. R., Master, C. L., Abrogast, K. B., Grady, M. F., Robinson, R. L., . . . Wiebe, D. J. (2014). Characteristics of prolonged concussion recover in a pediatric subspecialty referral population. *Journal of Pediatrics*, *165*(6), 1207-1215.

DuPrey, K. M., Webner, D., Lyons, A., Kucuk, C. H., Ellis, J. T., & Cronholm, P. F. (2017). Convergence insufficiency identifies athletes at risk of prolonged recovery from sports-related concussion. *American Journal of Sports Medicine*, *45*(10), 2388-2393.

Karr, J. E., Areshenkoff, C. N., & Garcia-Barrera, M. A. (2014). The neuropsychological outcomes of concussion: A systematic review of meta-analyses on the cognitive sequelae of mild traumatic brain injury. *Neuropsychology*, *28*(3), 321-336.

REFERENCES

Leddy, J., Hinds, A., Sirica, D., & Willer, B. (2016). The role of controlled exercise in concussion management. *Physical Medicine and Rehabilitation*, 8, S91-S100.

McColloch, K. L., Goldman, S., Lowe, L., Radomski, M. V., Reynolds, J., Shapiro, R., & West, T. A. (2015). Recommendations for progressive return to activity after military mild traumatic brain injury: Guidance for rehabilitation providers. *Journal of Head Trauma Rehabilitation*, 30(1), 56-67.

McCrary, P., Meeuwisse, W. H., Aubry, M., Cantu, B., Dvorak, J., Echemendia, R. J., . . . McCrea, M. (2013). Consensus statement on concussion in sport: The 4th International Conference on Concussion in Sport. *British Journal of Sports Medicine*, 47, 250-258.

McLendon, L. A., Kralik, S. F., Grayson, P. A., & Golomb, M. R. (2016). The controversial second impact syndrome: A review of the literature. *Pediatric Neurology*, 62, 9-17.

National Council on Aging. (2016). *Falls Prevention Facts*. Retrieved from www.ncoa.org/news/resources-for-reporters/get-the-facts/falls-prevention-facts/.

REFERENCES

Pfister, T., Pfister, K., Hagel, B., Ghali, W. A., & Ronksley, P. E. (2016). The incidence of concussion in youth sports: A systematic review and meta-analysis. *British Journal of Sports Medicine, 50*, 292–297. doi:10.1136/bjsports-2015-094978

Ropper, A. H., & Gorson, K. C. (2007). Concussion. *New England Journal of Medicine, 356*, 166-172.

slabaugc@gvsu.edu

