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Medical Director of Concussion Research



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- Dr. Burns is board certified in Clinical Neuropsychology, Clinical Psychology and holds board certification as the Pediatric Neuropsychology as a subspecialty.
- He received his Bachelor of Arts from the University of Pennsylvania with a major in the Biological Basis of Behavior in 1989. Specialty training in Neuropsychology was completed at the Medical College of Pennsylvania and St. Christopher's Children's Hospital in Philadelphia, PA.

Return to School Strategies

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Conflicts in Interest

1. *Disclosures:*

Dr. Burns is a member of the ImPACT Research Advisory Board but holds no financial obligations or conflicts in interest as part of this role



Outline

1. Cognitive Rest
2. Educational Accommodations
3. SST vs. 504b Plan vs. IEP at School
4. School Transition
5. 5 Steps to School

How Long?

When to start?

Which One is best?

How Soon & How fast?

Who to contact?

Ref: www.choa.org/medical-services/concussion/concussion-toolkit



Cognitive Rest

Cognitive Rest –

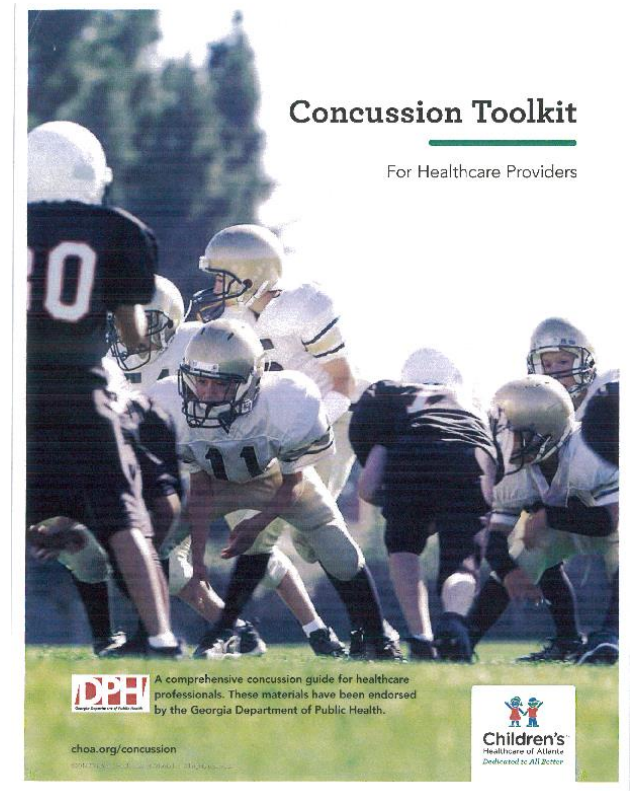
What is the expected period of time for recovery ?

- Time for healing
- Reduced Stimulation
- Symptom Recovery
- Screen time usage

Recent Research & Cognitive Rest

“There is no clinically significant difference in neurocognitive or balance outcomes between 1-2 vs. 5 days of rest.”

Recommending strict rest for adolescents immediately after concussion offered no added benefit over the usual care.”



Ref: Thomas, D.G., Apps, J.N., Hoffman, R.G., McCrae, M., Hemmeke, T. (2015). Benefits of Strict Rest after Acute Concussion: A Randomized Controlled Trial. *Pediatrics*. DOI: 10.1542/peds.2014-0966.

Risk Factors Influencing Recovery

Pre-Existing Impact on Recovery from Concussion

Learning Disability

Attention Deficit / Hyperactivity Disorder

Anxiety

Depression

Previous Concussion History

Ref: Max, JE, Pardo, D., Hanten, G et.al. (2013). Psychiatric Disorders in Children and Adolescents Six to Twelve Months After Mild Traumatic Brain Injury. *Journal of Neuropsychiatry and Clinical Neuroscience*, 25(4), 272-282.



Acute Concussion Evaluation (ACE)

1. Continuity in Care
2. Monitoring of Concussion Recovery
3. Ease of Use Across Disciplines
4. Capacity to Revise Treatment Plan
5. Assists with Future Planning

Ref:

Gioia, G., & Collins, M. (2006). Acute Concussion Evaluation (ACE). Physician/clinician office version. *Brain Injury*, 2-3.

Acute Concussion Evaluation (ACE)

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*

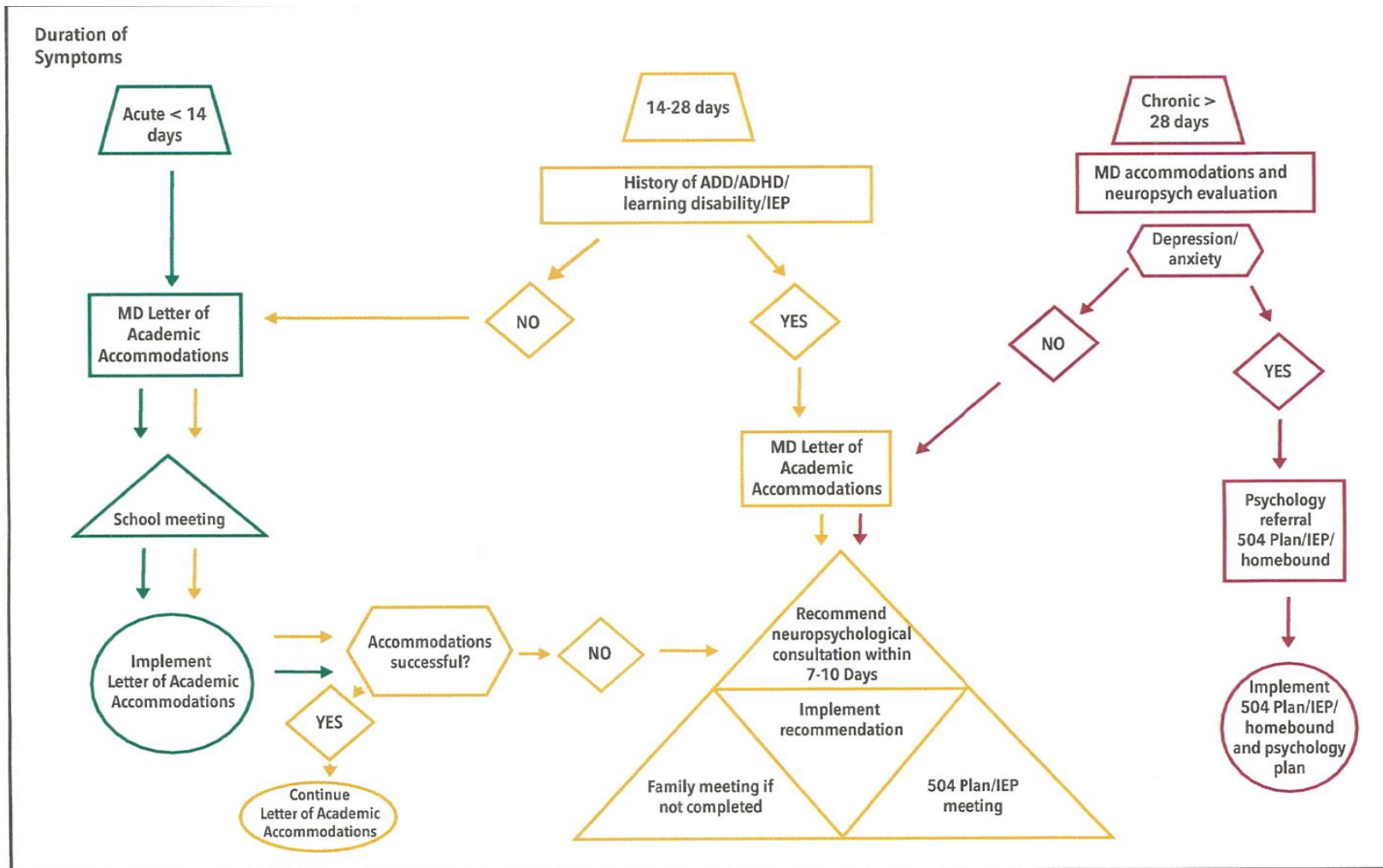
PHYSICAL (10)		COGNITIVE (4)		SLEEP (4)	
Headache	0 1	Feeling mentally foggy	0 1	Drowsiness	0 1
Nausea	0 1	Feeling slowed down	0 1	Sleeping less than usual	0 1 N/A
Vomiting	0 1	Difficulty concentrating	0 1	Sleeping more than usual	0 1 N/A
Balance problems	0 1	Difficulty remembering	0 1	Trouble falling 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)			

Ref:
 Gioia, G., & Collins, M. (2006). Acute Concussion Evaluation (ACE). Physician/clinician office version. *Brain Injury*, 2-3.

Educational Accommodations



Ref: Popoli, DM, Burns, TG, Meehan, WP, Reisner, A (2014). CHOA Concussion Consensus: Establishing a Uniform Policy for Academic Accommodations. *Clinical Pediatrics*, 53(3), 217-224.

Concussion guidelines for your child's return to school, bookwork and studies

Stage of healing	Home activity	School activity	Physical activity
Stage 1 —Your child still has many symptoms and problems	<ul style="list-style-type: none"> • Complete rest in a quiet room • Allow as much sleep as possible • Limit things that require your child to think, focus, reason or remember • Remove any electronics and computers from your child's room • Remove any activity planners and to-do lists from your child's room • Give your child plenty of fluids to drink • Feed your child small, frequent meals during the day and at bedtime • Give your child plenty of carbohydrates to eat, such as whole grain breads and cereals, pasta and rice 	<ul style="list-style-type: none"> • Your child may not go to school. It is typical to rest for 24 to 48 hours and monitor if symptoms improve 	See Stage 1 in next chart
Stage 2 —Your child still has some symptoms and problems	<ul style="list-style-type: none"> • Stay in quiet rooms • Allow for enough sleep—at least eight hours • Allow your child to use TV, video games, texting, social media and email for a short time—fewer than two hours a day, for example, he might have 20 minutes of brain work followed by a one-hour brain break • Help your child to not stress over missed school work • Continue with fluids, small, frequent meals and carbohydrates, as in Stage 1 • As your child has less symptoms, begin adding homework in short sittings to avoid falling behind 	<ul style="list-style-type: none"> • Return to school for half days • Attend core classes only or have shortened class time • Rest in the nurse's office between classes and as needed • Your child may not take tests or quizzes • Use preprinted class notes • Complete short homework assignments—work 20 minutes at a time with rest breaks in between • Talk with the school nurse or teacher about academic accommodations from your doctor, and create a plan • Avoid very loud noises like music and noise in cafeterias, at PE and at recess 	See Stage 2 in next chart
Stage 3 —Your child's symptoms and problems have gone away	<ul style="list-style-type: none"> • Slowly return to watching TV, playing video games and texting • Allow family interactions again • Continue with fluids, small, frequent meals and carbohydrates, as in Stage 1 	<ul style="list-style-type: none"> • Your child may gradually return to a full day of classes • He may need to schedule make-up work, tests and quizzes • He may take one test or quiz a day with extra time as needed, to complete • Tell the school nurse or teacher if any symptoms or problems return 	See Stages 2-4 in next chart
Stage 4 —Your child seems back to normal	<ul style="list-style-type: none"> • Your child may have near normal home and social interactions 	<ul style="list-style-type: none"> • Your child may begin to complete past assignments to catch up on school work 	See Stages 5 and 6 in next chart
Stage 5 —Your child may return to full activities	<ul style="list-style-type: none"> • Your child may return to normal home and school interactions after five days of no symptoms 	<ul style="list-style-type: none"> • Your child may return to normal school function without the need for extra accommodations or restrictions 	See stage 7 in next chart

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Screen time / Exercise / Sleep

- LCD Screens
- Screen flickering / strobe effect on eye muscles
- Cold Cathode Fluorescent Lamp (CCFL) have pulsing bulbs
- Brightness plays a key role for contrast

- Routine is key for returning to physical activities
- Sleep should be regular and consistent

General Considerations / Parting Thoughts

Gradual Return after concussion

- i. Structured Sleep
- ii. Diet
- iii. Exercise / Physical Activities
- iv. Screen Usage

What is the **Average** Recovery time from concussion?

How do you prioritize classes when you return to school ?

Questions ?

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