Pediatric Post-Concussive Management

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Pediatric Concussion: A Growing Concern

- Pediatric Traumatic Brain Injury (TBI) responsible for:
  - Over 640,000 Emergency Department visits per year
  - Over 17,000 Hospitalizations per year
  - Approximately 1500 deaths per year
- In the United States, TBI management guidelines for pediatrics are not well established
  - NCAA and CDC leading contributors toward development of standardized care protocol
- Developing standards revolve around:
  - Assessment in the immediate post-concussive period
  - Management of return to learn and return to play progressions
  - Referral to specialist, rehabilitation, or imaging for persistent issues

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What Now?

The Immediate Post-Concussive Period

- Physical Examination looking for:
  - Signs of Severe TBI:
    - Hemotympanum, Pupillary Asymmetry
  - Concurrent Injuries
  - Other Contributors to symptoms:
    - Scalp hematoma, dehydration, cervical tenderness

- Use of a Validated Clinical Decision Scale
  - SCAT-3 (Used By FIFA, IRB, Olympics, IIHF)
  - Post-Concussion Symptom Scale
  - Health and Behavior Inventory
  - Post Concussion Symptom Inventory
  - Acute Concussion Evaluation

The Short-Term Post Concussive Period

- Counseling of parents/guardians on:
  - Signs indicating likelihood of more serious injury
  - Typical recovery course
  - Preventing further injury
  - Gradual re-introduction of activity
  - Need for social and emotional support
- Clear Instruction on:
  - Gradually reintroduce activity (not including sport) after 2-3 days that does not worsen symptoms
  - Assess school-related needs with help of school professionals
  - Once back to regular non-sports activity, return to sports progression can begin

Return to Play

- Return-to-play protocol begins when an athlete returns to their baseline without adverse symptoms related to concussion.
- Modifiers such as prior concussion, migraine, ADHD, depression, anxiety, or vestibular/oculomotor deficits at baseline will all impact recovery time and progression.
- Those with minimal concussive symptomatology, minimal symptom duration, and few modifiers may return on a rapid progression.
- Those with concussion history, increased symptom burden or duration, and significant modifiers may have a more cautious return to activity.

Return to Play

- Return-to-play protocol is mainly unchanged compared to adult guidelines.
- Protocol begins when an athlete returns to their baseline without adverse symptoms related to concussion.
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Return to Play

Progression to next step is based on asymptomatic activity at previous level.

1) Light Aerobic Exercise
2) Sport-Specific activity with no head impact.
3) Non contact drills and progressive return to resistance training
4) Unrestricted training
5) Return to Competition

Note: Mild symptomatology may result in progression through 1 step per day. Persistent symptoms should be evaluated and referred as necessary

Return to Learn – A Parallel Concept

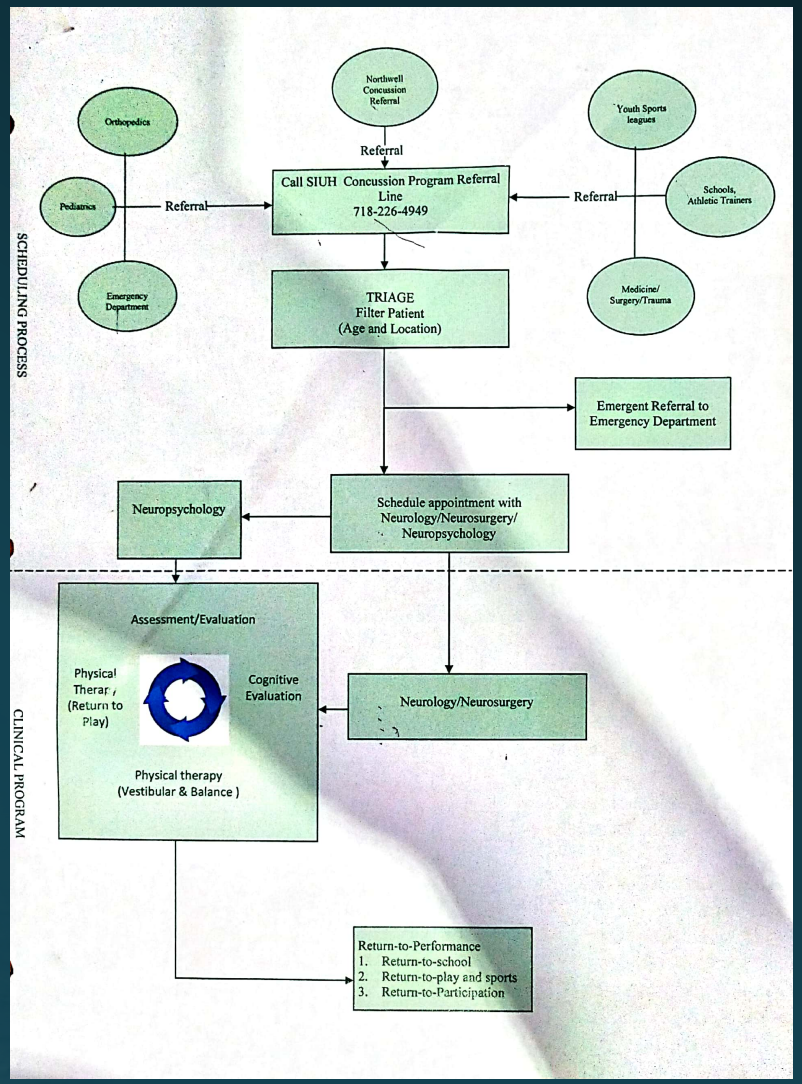
1) Cognitive Rest Period
    1) Minimize Cognitive Stressors
2) Light Cognitive Activity
3) Return to class and academic responsibility

- Considerations:
    - Physical stress of return-to-learn
        - Loud hallways, cafeteria, social events
    - Mental stress of return-to-learn
        - Social isolation, anxiety, mental deconditioning, low self-esteem
- For recoveries longer than 2 weeks
    - Some may need special consideration for tests and projects
    - For prolonged cognitive difficulties, a neuropsychological evaluation may:
        - determine nature of impairment
        - identify extent of psychological issues

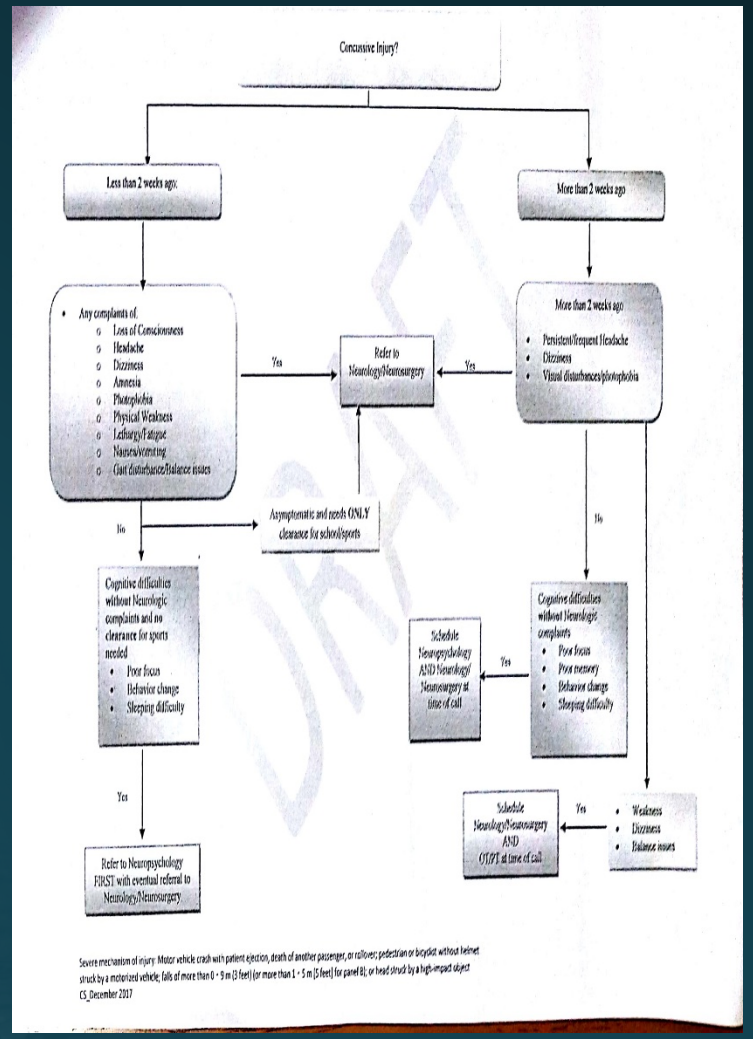
Successful Return-To-Learn Protocol

- Concussion symptoms vary widely among student-athletes, and even within the same individual with repeat injuries.
- An effective case manager who can help the student-athlete navigate the obligations of return to academics and athletics
  - Medical staff should have contact with this person to ensure return-to-learn is not under managed or under addressed.
- Identification of medical issues that complicate recovery such as mood disorders or comorbid conditions
- Identification of campus or community resources that provide the best chance at full support during transition.
  - Learning Specialists – Many certified learning specialists have specific knowledge in post-concussion learning
  - Disability Services – Concussion and mTBI are covered under the ADAAA
- Students with a proactive and well-integrated management plan are more likely to experience successful return to full classroom activity.

Staten Island University Hospital Protocol



Staten Island University Hospital Protocol



Considerations

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