The Role of the Physical Therapist as Part of a Multimodal Team Approach in Treating Youth Athletes with Post-Concussion Syndrome: A Case Report

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Introduction

- Post-concussion syndrome affects between 5 to 43% of concussed individuals.
- Physical therapists play an important role as part of the post-concussion care team through integration of vestibular rehabilitation therapy, manual and therapeutic interventions, and implementation of a prescribed, submaximal exercise program.
- Physical therapists are in a position to communicate with a variety of healthcare professionals to treat the variety of symptoms that may present in an individual with PCS.
- Physical therapists possess the capacity to educate the athlete on proper post-concussion management.

Clinical Impression

- Diagnosis: Post-Concussion Syndrome
- Prognosis of the patient was complicated secondary to multiple concussions in the past three months, younger age, family history of migraines, personal history of motion sensitivity, cognitive workload from school, and limited ability to study, read, or engage in athletics.

Intervention

- Treatment initially prioritized non-exertional oculomotor, adaptation, and convergence training, VOR habituation, static balance training, and cervical strengthening with instruction to complete the exercise as part of the home exercise program.
- Oculomotor Training: a sequence of vision training focusing on improving oculomotor skill
- Adaptation Training: exercises that induce a brief and temporary change in sensitivity or perception when exposed to a new stimulus
- Convergence Training: exercises that aim to improve the eyes’ ability to turn inward to fixate on a nearby target
- Once the patient was asymptomatic at baseline, a Buffalo Concussion Treadmill Test was administered to determine the patient’s submaximal threshold for aerobic exercise.

Patient History/Systems Review

- 14-year-old female softball athlete with a recent history of multiple blows to the head.
- Symptoms include impaired balance, dizziness upon standing, difficulty falling asleep, excessive fatigue upon awakening, sunlight sensitivity, irritability, impaired processing time, blurred vision, intermittent upper cervical pain, and eye strain and fatigue with reading.
- Headaches intermittently triggered by riding in an automobile, with phone and computer use, and while completing schoolwork.

Examination

- Impaired oculomotor function with saccadic smooth pursuits, slow and uncoordinated saccades, and impaired near point convergence.
- Impaired balance as noted by a score of 22/24 on the Dynamic Gait Index.
- Pain and wincing with palpation to the suboccipital region.
- Problem List: saccadic smooth pursuits, slow and uncoordinated saccades, impaired near point convergence, cervical soft tissue dysfunction, and impaired balance.

Outcome Measure: Evaluation (10/27/18) Discharge (1/16/19) Percent Improvement

- Dynamic Gait Index: 26/24 24/24 +79%
- Balance Error Scoring System:
  - Near Point Convergence: 26/24 24/24 +87%
  - Saccades: Positive: Slow, involuntary eye movements during reading
  - Suboccipital Palpation: Positive, +3 cm

Clinical Implications

- Physicians, physical and occupational therapists, speech-language pathologists, and school administrators and athletic trainers provided collaborative care in the rehabilitation of the individual.
- This case is limited by restricted access to patient records upon discharge to the athletic trainer initiating the RTP protocol.
- Further research is needed to:
  - establish protocol for interdisciplinary communication
  - develop a protocol that governs the need for referrals and clarifies roles and responsibilities of all members of the post-concussion team
  - standardize return-to-play and return-to-learn policy
  - standardize legislation and policy that educates all individuals involved with the athlete’s plan of care regarding recognition, diagnosis, treatment and management

References: See Handout with Reference List