

## CASE SERIES

PHYSICAL THERAPY INTERVENTION STRATEGIES  
FOR PATIENTS WITH PROLONGED MILD TRAUMATIC  
BRAIN INJURY SYMPTOMS: A CASE SERIESJason A. Hugentobler, PT, DPT, SCS, CSCS<sup>1</sup>Meredith Vegh, PT, DPT, CSCS<sup>2</sup>Barbara Janiszewski, PT, DPT, SCS, ATC<sup>1</sup>Catherine Quatman-Yates, PT, DPT, PhD<sup>1,3,4</sup>

## ABSTRACT

**Background And Purpose:** Although most patients recover from a mild traumatic brain injury (mTBI) within 7-14 days, 10-30% of people will experience prolonged mTBI symptoms. Currently, there are no standardized treatment protocols to guide physical therapy interventions for this population. The purpose of this case series was to describe the unique, multimodal evaluation and treatment approaches for each of the patients with post-concussion syndrome (PCS).

**Case Description:** Six pediatric athletes with PCS who had participated in physical therapy and fit the inclusion criteria for review were retrospectively chosen for analysis. Patients received a cervical evaluation, an aerobic activity assessment, an oculomotor screen, and postural control assessment. Each patient participated in an individualized physical therapy treatment plan-of-care based on their presentation during the evaluation.

**Outcomes:** Patients were treated for a mean of 6.8 treatment sessions over 9.8 weeks. Four of six patients returned to their pre-injury level of activity while two returned to modified activity upon completion of physical therapy. Improvements were observed in symptom scores, gaze stability, balance and postural control measures, and patient self-management of symptoms. All patients demonstrated adequate self-management of symptoms upon discharge from physical therapy.

**Discussion/Conclusions:** Physical therapy interventions for pediatric athletes with PCS may facilitate recovery and improve function. Further research is needed to validate effective tools for assessment of patients who experience prolonged concussion symptoms as well as to establish support for specific post-mTBI physical therapy interventions.

**Level of Evidence:** Level 4

**Keywords:** Concussion, post-concussion syndrome, physical therapy

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