

The Comparison Between Skilled Vestibular Therapy and Neuromuscular Reeducation Following a Mild Traumatic Brain Injury: A Critically Appraised Topic

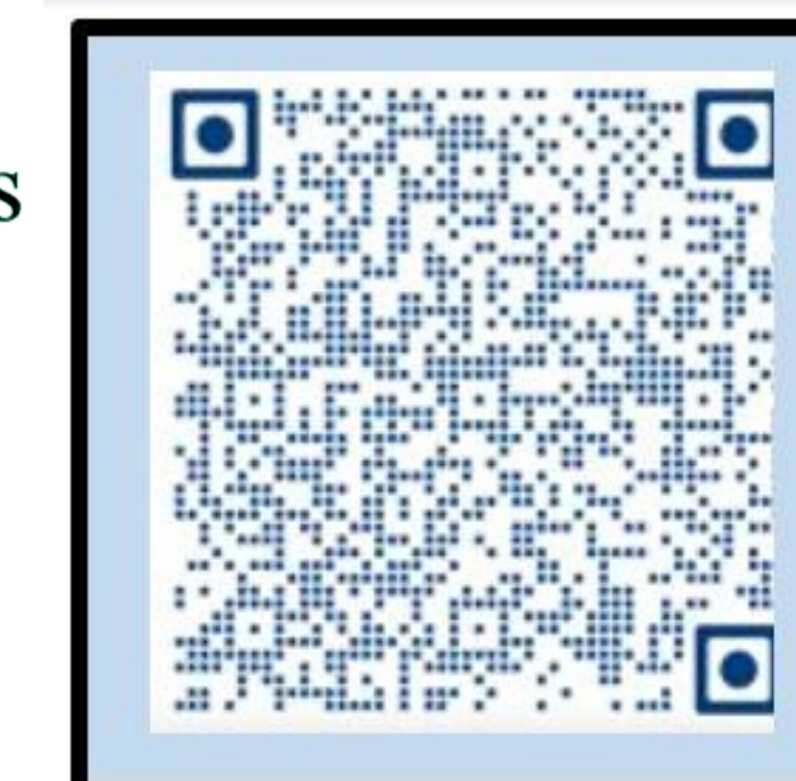
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MISSION STATEMENT

The Messiah University Doctor of Physical Therapy program graduates ethical, compassionate, autonomous doctors of physical therapy who are competent to practice in diverse settings. Graduates are life-long learners informed by evidence-based practice who exemplify the values of Messiah University and the physical therapy profession.

REFERENCES



INTRODUCTION / PURPOSE

- Vestibular therapy is a specialized form of physical therapy used to treat vestibular disorders or symptoms, characterized by dizziness, vertigo, and trouble with balance, posture, and vision.
- CDC reports from 2001-2009, the estimated number of ER visits for sports and recreational related concussions increased 62% in those 19 years old or younger¹.
- Abnormal vestibular information affects the position and movement of the head in space. Inaccurate vestibular input requires the brain to rely on the visual system which can result in fatigue and difficulty performing activities of daily living².
- Traditional concussion management consists of rest until complete resolution of symptoms, resulting in slower recovery and prolonged symptoms.
- The purpose of our research is to determine the effectiveness of skilled vestibular therapy or neuromuscular rehabilitation to reduce symptoms following a mild traumatic brain injury.

METHODS

- A critically appraised topic was conducted. Electronic databases (MEDLINE, PubMed, CINAHL, Cochrane, Sports DISCUSS, Academic Search Ultimate) were searched.
- Search key words for our PICO question included: mild traumatic brain injury (mTBI), concussion symptoms, concussion therapy, and vestibular therapy.
- Criteria for eligible studies included full texts published between the years of 2010-2021.
- 12 articles that met inclusion criteria and provided clear evidence to answer PICO question were selected to be appraised.
- Level of evidence, quality score, primary outcomes and key findings were assessed using an appraisal table.
- Outcomes, key findings, and best evidence of all 12 studies were summarized and synthesized in the literature to prove or disprove our PICO question.

RESULTS

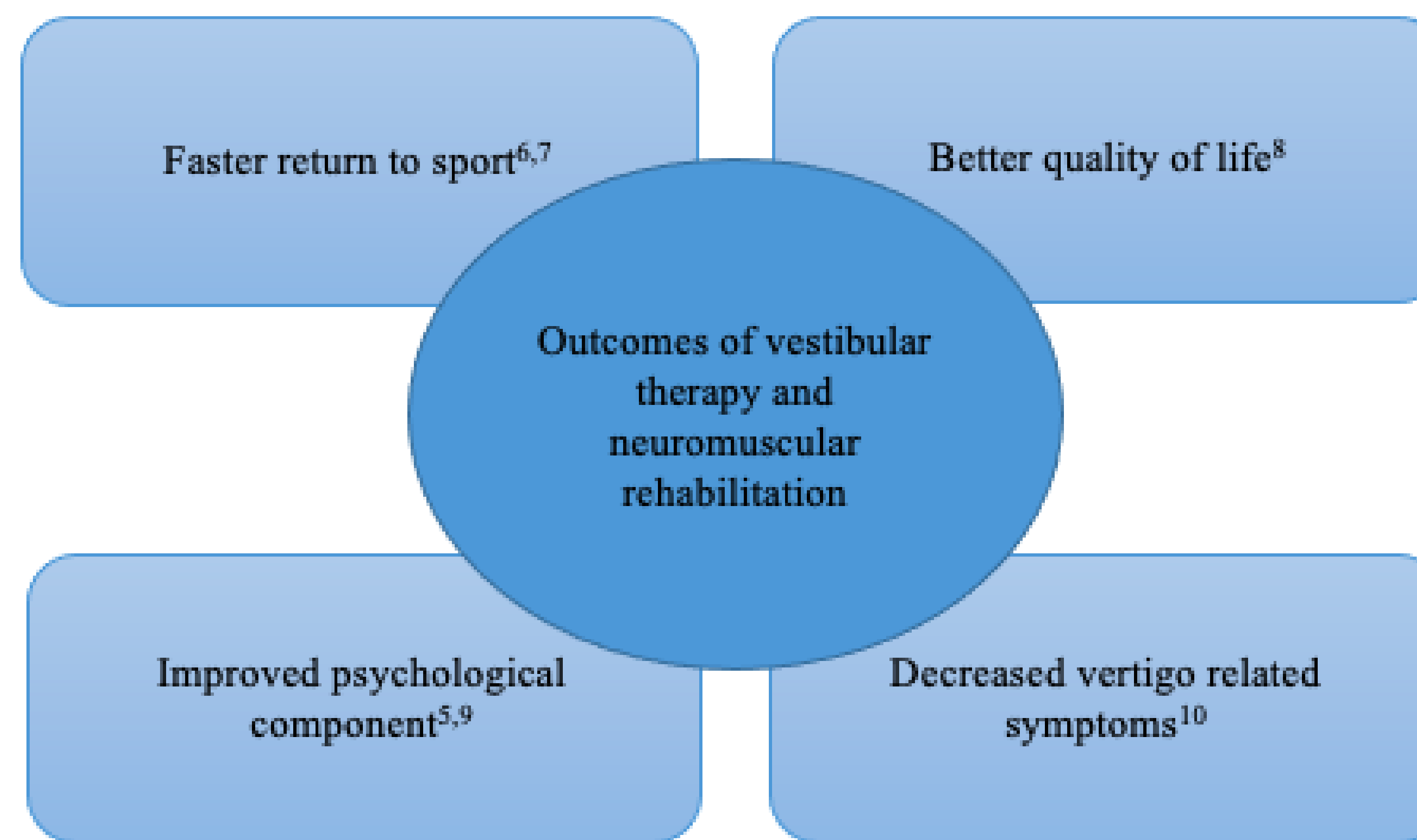


Figure 1. Outcomes from Vestibular Therapy and Neuromuscular Reeducation

Figure 1. describes the outcomes of vestibular therapy and neuromuscular reeducation. Four key outcomes have emerged such as, faster return to sport, better quality of life, improved psychological component, and decreased vertigo related symptoms^{5,6,7,8,9,10}. The return to sport timeline was routinely tracked in patients suffering from post-concussive symptoms following a sport-related injury and vestibular therapy proved to be effective in decreasing the time for athletes to return to the field^{6,7}. Reports of decreased quality of life are prevalent in this population and following vestibular-focused treatment sessions, self-ratings of symptoms and function improved⁸. The psychological component is commonly high in this patient population and the integration of hand-eye vestibular motion exercises promoted positive changes in mental and physical health^{5,9}. The last key outcome supports the effectiveness of vestibular rehabilitation to be used to treat vertigo related dizziness associated with mild traumatic brain injuries¹⁰.

CLINICAL RELEVANCE

Figure 2. describes the clinical profiles a patient can be categorized into based on their post-concussion symptoms¹³. Our research supports the use of an individualized treatment program based on the patient's symptoms¹³. Once the clinician evaluates the patient's symptoms, they can use the recommended treatment strategies to direct their treatment plan. Limitations include small sample sizes and researcher bias. Future research should focus on further

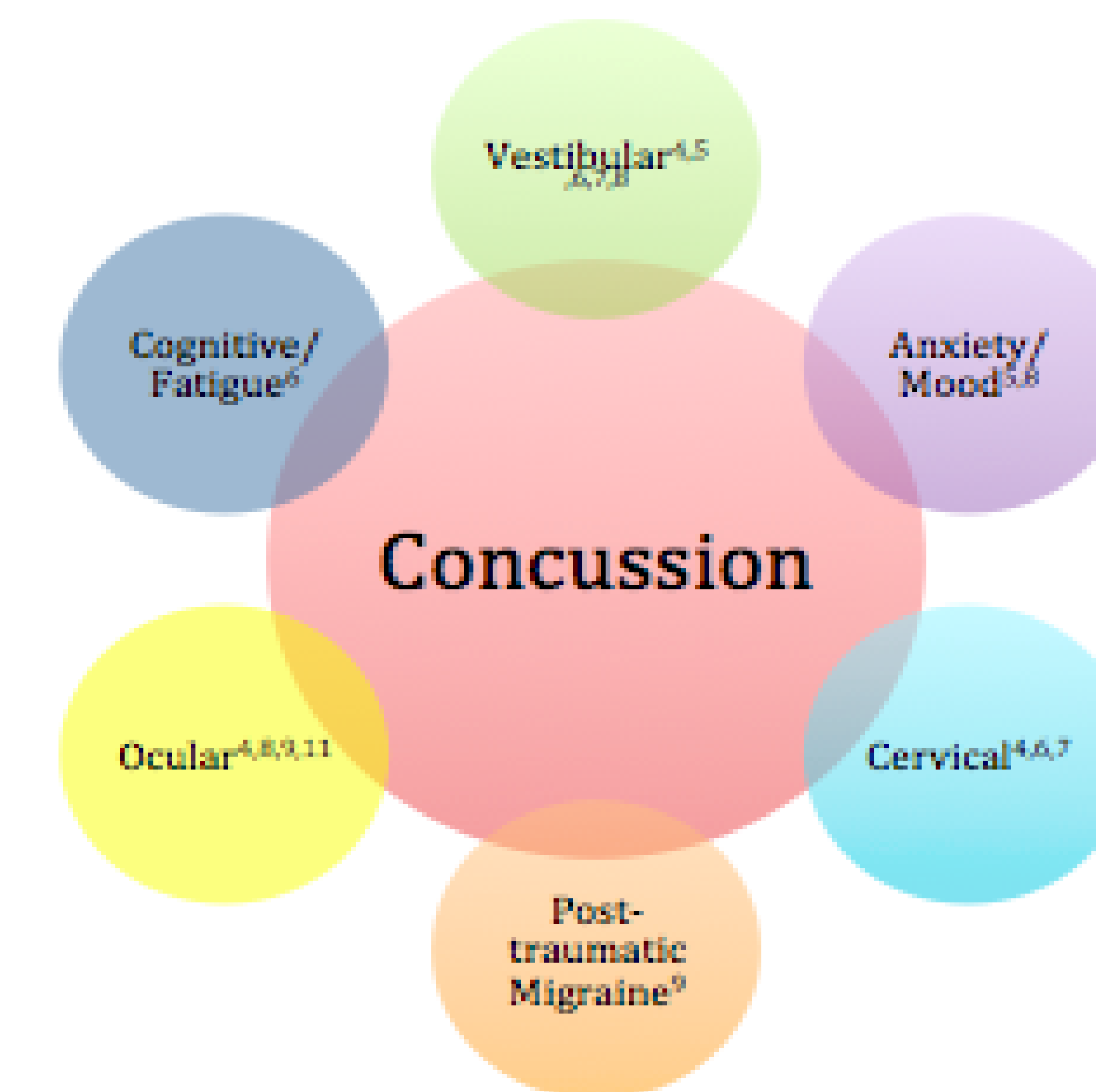


Figure 2. Concussion Clinical Profiles

investigation of life after successful vestibular rehabilitation discharge due frequent return of symptoms after vestibular rehabilitation being discontinued¹². This raises further questions that possibly patients are being discharged too quickly due to their greater improvement in dizziness severity reports and balance performances¹³.

CONCLUSION

Based on the results of the studies that we have compiled and analyzed, there is a significant amount of evidence that supports the use of vestibular rehabilitation as a viable and efficacious treatment for patients with post-mild traumatic brain injury, with notable positive outcomes to include faster return to sport, improved quality of life, improved psychological components, and decreased vertigo related symptoms. Thus, these interventions can be deemed appropriate and should be considered for the management of this population. Clinically, the bottom line of this clinically appraised topic offers support to our PICO question and the use of vestibular rehabilitation in physical therapy practice for patients following mTBI.