

CORTICAL INTEGRATIVE THERAPY EFFECTIVENESS IN THE TREATMENT OF POST-CONCUSSION SYNDROME AND MILD TRAUMATIC BRAIN INJURY

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<https://doi.org/10.34107/BiomedSciInstrum.57.04191>

ABSTRACT

Post-Concussion Syndrome (PCS) is a relatively prevalent condition that emerges after sustaining a head injury. Individuals with PCS experience prolonged impairments and distress associated with the injury which can impact the individuals' quality of life experiences. In this retrospective chart review of refractory adult patients diagnosed with PCS and mild Traumatic Brain Injury (mTBI), the effectiveness of Cortical Integrative Therapy (PedroCIT®) was investigated by comparing measures of postural stability, brain sequencing and timing, and self-reports of physical and psychosocial symptoms of PCS obtained before and after PedroCIT®. Multivariate and Repeated Measures General Linear Models showed improvements across the measures from before to after treatment in all subjects, highlighting the effectiveness of PedroCIT®. To further underscore the capacity of PedroCIT® to elicit improvements in patients who have been resistant to treatment prior to PedroCIT®, the duration of time that the subjects underwent PedroCIT® was compared to the duration of time since the injury to the subjects' first PedroCIT® intervention session. The findings of this study showed significant improvements from pre- to post-treatment in postural stability, brain sequencing and timing, and self-reported symptoms for patients affected by PCS and mTBI, and treatment outcomes were largely not contingent upon the severity of the condition at the beginning of treatment. Altogether, this retrospective study suggests that refractory individuals affected by PCS and mTBI can benefit from undergoing PedroCIT® and their treatment outcomes may not be related to the degree of impairment presented at the beginning of treatment.

Keywords: Practice-based clinical research, Cortical integrative therapy, Computerized dynamic posturography, Post-concussion inventory, Interactive metronome, Brain sequencing and timing

INTRODUCTION

Traumatic brain injury (TBI) is an injury to the central nervous system that is caused by external impact. TBI causes cognitive impairments often accompanied by physical impairments [1]. It affects over 2.5 million people in the United States and is the leading cause of non-fatal injuries [2]. Mild TBI (mTBI) or concussion is the most common type of TBI [3]. mTBI can manifest as acute and chronic neurological damage due to pathophysiological damage [2]. Neurological deficits result from maladaptive circuitry that the brain creates to repair and re-connect disrupted circuits. The primary and modulatory neurotransmitter systems serve as the primary target for repairing complex neurological processing [2]. mTBI can cause cervical soft tissue damage leading to a host of symptoms including dizziness, balance impairment, and cognitive, vestibular and visual dysfunction [4]. Other symptoms of mTBI include headaches, fatigue, depression, anxiety, irritability, impaired cognitive function, and ocular dysfunction.