

A pilot study: Neurophysiological Study on the Effect of Chronic Ankle Pain Intervene with Video Assisted Mindful Deep Breathing

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Abstract

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Abstract:

Chronic ankle pain are reasonably common among sports injuries that leads to chronic ankle instability (CAI). When ankle gives way, pain and recurrent sprains are the characteristics of CAI reported among repeated ankle injuries. This situation may bring down life's quality that possibly leads to neurophysiological changes due to depression, anxiety and stress. Mindfulness for pain management has been popular in recent decades. Here, we aim to employ a new and standardization on the tool for the recruited participants to do the mindful deep breathing. Therefore, a validated method video assisted mindful deep breathing (VAMDB) can improve on conflict monitoring, to modulate brain network dynamics underlying in the pain waves experience in this study. Characterization on brainwaves changes with electroencephalogram (EEG) study for the pre- and post-intervention on the neurophysiological response of brain among collegiate athletes are reported here. A total of 12 participants aged between 18 and 25 years were recruited. 8 participants with chronic ankle pain from INTI physiotherapy centre were grouped into intervention (INT) n=4, and nonintervention (NINT) n=4 respectively. Another 4 participants without pain and intervention was assigned as control group (CONT). The data was processed with MATLAB and analysed by ANCOVA within the group (INT, NINT and CONT). The pre- and post-treatment effect was significant within the subject factor. Delta, theta, alpha, beta and gamma bandwidths in occipital region shows significant effect on VAMDB between pre and post intervention. This pilot study is the first to explore the 3-min short duration VADMB among ankle pain participants.

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I. Introduction

Repeated sprain is the principal risk factor for an ankle sprain, which accounts between 30 % and 70 % of initial ankle sprains that results in the development of chronic ankle instability (CAI) [1],[2]. It has been estimated that around 3000 cases of ankle injuries are expected every day in Malaysia,