

NEUROPLASTICITY FOLLOWING QUADRATO MOTOR TRAINING: NEURONAL AND EDUCATIONAL PERSPECTIVES

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Meditation and attention practices are known to alter cerebellar activity. Interestingly, cerebellar activity has been found to be reduced in several learning disabilities, such as dyslexia. In addition, dyslexic participants are known to suffer from motor skills deficits. This has led to the cerebellar deficiency hypothesis of dyslexia, which is supported by imaging results [1]. If these findings are causally related to dyslexia, then a motor training regimen may enhance cerebellar activity. Methods: eighteen adult readers (9 dyslexics and 9 controls) were recruited. Magnetoencephalography was used to measure cerebellar alpha changes following *Quadrato Motor Training* (QMT). QMT is a new whole-body training paradigm, which has been recently found to improve cognitive performance and enhance neuronal function [2]. Results: dyslexic participants showed increased cerebellar activity and reading capacity following training. As reading is a basic ability, failure to become literate can have serious consequences on well-being. Thus the current study may aid in the understanding of ways increasing cognitive functions and well-being in learning disabilities and its underlying mechanisms.

[1] Eckert, M.A., et al (2003). Anatomical correlates of dyslexia: frontal and cerebellar findings.

Brain 126, 482-94.

[2] Ben-Soussan, T. D., et al. (2013). Into the Square and out of the Box: The effects of Quadrato Motor Training on Creativity and Alpha Coherence. *PloS one*, 8(1), e55023.