World Academy of Science, Engineering and Technology
International Journal of Sport and Health Sciences
Vol:18, No:09, 2024

Transcranial Magnetic Stimulation as a Potentiator in the Rehabilitation of Fine Motor Skills: A Literature Review

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Abstract : Introduction: Fine motor skills refer to the use of the hands and coordination of the small muscles that control the fingers. A deficiency in fine motor skills is as important as a change in global movements, as fine motor skills directly affect activities of daily living. Fine movements are involved in some functions, such as motor control of the extremities, sensitivity, strength and tonus of the hands. A growing interest in the effects of non-invasive neuromodulation, such as transcranial stimulation technologies, through transcranial magnetic stimulation (TMS), has been observed in the scientific literature, with promising results in fine motor rehabilitation, as it provides modulation of the corresponding cortical activity in the area primary motor skills of the hands in both hemispheres (according to the International System 10-20, corresponding to C3 and C4). Objectives: to carry out a literature review about the effects of TMS on the cortical motor area corresponding to hand motricity. Methodology: This is a bibliographic survey carried out between October 2022 and March 2023 at Pubmed, Google Scholar, Lillacs and Virtual Health Library (BVS), with a national and international database. Some books on neuromodulation were included. Results: 28 articles and 5 books were initially found, and after reading the abstracts, only 14 articles and 3 books were selected, with publication dates between 2008 and 2022, to compose the literature review since it suited the purpose of this study. Conclusion: TMS has shown promising results in the treatment of fine motor rehabilitation, such as improving coordination, muscle strength and range of motion of the hands, being a complementary technique to existing treatments and thus providing more potent results for manual skills in activities of daily living. It is important to emphasize the need for more specific studies on the application of TMS for the treatment of manual disorders, which describe the uniqueness of each movement.

Keywords : transcranial magnetic stimulation, fine motor skills, motor rehabilitation, non-invasive neuromodulation
Conference Title : ICRTPTRT 2024 : International Conference on Recent Trends in Physical Therapy Rehabilitation Techniques
Conference Location : Prague, Czechia
Conference Dates : September 05-06, 2024

Open Science Index, Sport and Health Sciences Vol:18, No:09, 2024 publications.waset.org/abstracts/170643.pdf