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Rock steady boxing and procedural memory: Can boxing improve learning in Parkinson's disease?

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Introduction: Defect in procedural memory has been observed in patients with Parkinson's Disease (PD), however there is little research into how this can be treated clinically. This pilot study aims to investigate if consistent participation in Rock Steady Boxing, a non-contact boxing program specifically tailored towards PD, can have a positive influence on procedural memory.

Methods: A modified Serial Reaction Time Task (SRTT) was used to assess procedural memory in 22 patients diagnosed with PD. This included seven blocks of ten stimuli with 30 seconds break between each block. After an initial block of random stimuli, subjects were repeatedly exposed to a set sequence over the course of four learning blocks. The sixth block presented a random set of stimuli, followed by the previously repeated sequence in the final block. A control group (n=11) of subjects not involved in Rock Steady Boxing was compared to an experimental group (n=11) including subjects who had been regularly attending classes for the last 6 months.

Findings: A two-way ANOVA with repeated measures revealed moderate effect of group over the four learning blocks (p=.18) indicating that subjects participating in Rock Steady Boxing tended to demonstrate faster reaction. Another two-way ANOVA with repeated measures analyzed changes between the fifth and sixth block. No statistical significance was observed; but it should be noted that when exposed to the random sequence control subjects showed on average an 80.86ms decrease in median reaction time, while subjects participating boxing showed an increase in median reaction time of 37.5ms.

Conclusion: Despite the lack of statistically significant data, this study indicates that exercise programs such as Rock Steady Boxing may help to improve procedural learning in patients with PD. Due to the lack of literature currently available, these results may prove clinically relevant to health care providers treating PD.

Biography

Christopher McLeod is a second-year medical student at the New York Institute of Technology College of Osteopathic Medicine. He is currently working with Dr. Adena Leder, faculty neurologist and movement disorder specialist, in studying the benefits of Rock Steady Boxing in patients with Parkinson's Disease. He also volunteers to help run the NYIT chapter of Rock Steady Boxing in Old Westbury, NY.

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