

Clinical Medicine

CHRONIC EXERCISE DIFFERENTIALLY IMPACTS PERCEPTUAL OR MOTOR INHIBITION AS A FUNCTION OF AGE: A CROSS-SECTIONAL STUDY

Cedric T. ALBINET¹, Geoffroy BOUCARD¹, Fabienne COLLETTE², Cedric A BOUQUET¹ and Michel AUDIFFREN¹

¹ CerCA, CNRS, University of Poitiers, France

² Unite de Neuropsychologie, Universite de Liege, Belgium

Introduction : The objective of this study was to evaluate the influence of age and regular physical activity (PA) on the performance of cognitive tasks differentially assessing perceptual and motor inhibition.

Method : Twenty-six young (Y, 20±2 yrs) and 24 older (O, 72±3 yrs) were classified as physically active (A) or sedentary (S), according to measures of past (hours/week and METs-h/week) and present (steps/day and time spent/day in moderate to vigorous PA) PA. They performed the tasks developed by Nassauer and Halperin (2003), which assessed perceptual and motor inhibition. Performance in the inhibition tasks was assessed by Reaction Time (RT in ms) and response accuracy (% of correct responses) as a function of condition (no conflict vs. perceptual or motor conflict).

Results : Overall, older were slower than young adults, and active people were faster than sedentary people. The results showed that PA impacted perceptual inhibition of the young participants and motor inhibition of the older participants. In the perceptual conflict condition, YA were significantly ($p<0.05$) faster (485 ± 64 ms) than YS (550 ± 69 ms), although there was no RT difference in the no-conflict condition. In the motor conflict condition, the OA group was significantly ($p<0.05$) more accurate (95%) than the OS group (91%) and tended to be faster (693 ± 154 ms vs. 734 ± 84 ms; $p=0.09$).

Conclusion : The effects of PA on inhibition appears to be moderated by both age and type of inhibition measured, deserving future research to understand the functionality of this dissociation.

Keywords : *Physical activity, cognition, aging*