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Repeated sprints in fasted state impair reaction time performance

Anissa Cherif
Aspetar-Orthopaedic and Sports Medicine Hospital, Qatar

Objective: The aim of this study was to assess the effects of 3-day Islamic intermittent fasting (3d-IF) on cognitive performance and serum levels of neurotrophic factors [(brain-derived neurotrophic factor (BDNF) and vascular endothelial growth factor (VEGF)] during repeated sprints.

Methods: Twenty-one physically active male Muslims (29.8±5.9 years, exercising 4±1.5 times/week) were randomly assigned to one of two experimental sessions: the control or non-fasting session (CS) or the fasting session (FS). These two sessions occurred 7 days apart in a counter-balanced cross-over design. In both conditions, the test was performed at the same time of day, approximately 1 h before sunset. In the FS, the test occurred on the 3rd day of the 3d-IF and involved the participants' performance of the following: (a) two series of five maximal 5 s sprints and (b) two cognitive tasks: One Touch Stockings (OTS) and Reaction Time (simple and complex-RTI).

Results: In both conditions, the participants' reaction times during the RTI-test were similar at the pre- and mid-exercise points, but post-exercise, simple and complex reaction times were higher in FS compared to CS (p=0.045, ES=0.21 and p =0.006, ES=0.41, respectively). However, OTS performance and serum levels of neurotrophic factors were not influenced by the 3d-IF.

Conclusion: Simple and complex reaction times during the RTI-test were negatively affected by the 3d-IF after two bouts of intensive repeated sprints.

anissa.cherif@aspetar.com