

# Relationship between Response Inhibition and Lactate Levels Following Acute Resistance Exercise

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## Abstract

The focus of this research is to investigate the relationship between lactate induced by exercise and inhibition, a key element of executive functions. Lactate is vital for neuronal function as both an energy source and a signalling molecule. The increase in lactate production during exercise is linked to heightened brain uptake, potentially impacting cognitive performance. Through a systematic search, 16 relevant studies were identified. Three, employing cognitive tasks akin to ours, suggested a positive correlation between the changes in cognitive performance and peripheral lactate. However, these studies suffered from methodological limitations such as not having proper non-exercise controls, not manipulating exercise intensity, and having limited analytical robustness. The current study aims to address these gaps by analysing the data from a four-arm randomized crossover trial, incorporating three distinct exercise intensities alongside a control group, focusing on the potential role of lactate in modulating inhibition post-exercise.

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