

Influence of a self-regulated cognitive dual task on time to failure and complexity of submaximal isometric force control

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© 2018, Springer-Verlag GmbH Germany, part of Springer Nature. Purpose: To determine the effects of performing a self-regulated cognitive dual task on time to failure and neuromuscular force control during submaximal isometric contractions. Methods: Fifteen young sedentary males performed isometric contractions at 50% of each individual's maximal voluntary contraction (MVC) under single-task (without cognitive load) and dual-task (with self-regulated mathematical task) conditions. Force signal complexity and biceps brachialis muscle activity were determined at the start, middle, and end of each trial. The slope of the linear regression of median frequency determined the rate of muscle fatigue. Force-task error was established as any amplitude percentage greater or less than 50% MVC. Results: The dual-task condition resulted in a 42 s longer time to failure than the single-task condition. EMG amplitude did not differ between conditions. The rate of muscle fatigue was higher in the singl