

ScholarOne - Development and test-retest reliability of an effector-specific stop signal task in young, healthy and active adults

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Abstract

Inhibitory control has high significance in sports context in terms of performance and injury prevention. Although it steps in during complex maneuvers such as change of direction and deceleration, it is vastly tested using computerized tests which require a simple finger movement. This study aims to develop and assess the test-retest reliability of an alternative stop signal task which is specific to lower extremities and may provide an example in transition to mobile settings. Ten healthy and physically active participants performed the effector-specific stop signal task developed with the Fitlight System with a one-week-interval. Four different stop signal delays were adopted which were constant within the blocks. The main outcomes were determined as reaction time, stop signal reaction time and response accuracy. The effect of delay and time was explored using a 4x2 ANOVA. The test-retest reliability of each outcome was assessed using intraclass correlation coefficient. The findings showed a significant main effect of delay and a significant interaction of delay and time. The overall reliability of the reaction time, stop signal reaction time and response accuracy was substantial, whereas differences were observed among stop signal delays. Our findings may show that the suggested effector-specific stop signal task may provide a reliable SSRT estimation during a stepping movement. Further studies should consider different positions and tasks to increase ecological validity.

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Ethical Statement

All participants were informed extensively about the study and gave a written consent prior to participation in experiments. The study was conducted in accordance with the declaration of Helsinki and approved by the ethical committee of the affiliated university.

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