

Vibration as a tool to understand sensorimotor integration

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Muscle vibration is often used to study proprioception, since this is an adequate stimulus for selectively activate the muscle spindle receptor, thereby inducing a vibration-frequency entrained excitation of the primary endings and a train of action potentials in the large-diameter group Ia afferent fibres. Vibration has been applied to various body muscles under various behavioural conditions, including postural and locomotor tasks. Vibration can induce simple reflex effects or more complex effects such as proprioceptive illusions which can produce a change in the egocentric body-centred co-ordinate system during quite upright stance and locomotion.

In this presentation, an overview on this technique will be given and some example of possible applications will be showed. Future implications of neuroengineering in designing new devices for muscle vibration to be used in basic and clinical neurophysiology research will be discussed.