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Estimation of subsensory somesthetic stimulation based on somatosensory evoked potentials

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Human somatosensory system is information consisting of senses of touch, pressure, temperature, pain and movement obtained from the receptors distributed on muscles, joints and skin. As somatosensory system is basic information formed in the human body to maintain a stable posture together with visual and vestibular senses, attempts to improve the postural equilibrium of the body by stimulating somatosensory system continue. In the meantime, some studies reported that a greater somatosensory stimulation than the threshold stimulation of individuals reduces postural equilibrium as the movement system for postural equilibrium in the body is disturbed. This study performed an objective measurement of personal threshold for somatosensory system from outside, and estimated the intensity of a sub-threshold stimulation that may have an effect on the body by analyzing the somatosensory evoked potentials (SEPs). It supposed that there will be an intensity of a sensory stimulation that may influence the body in spite of sub-threshold values among threshold intensities measured on fingers and the tibialis anterior tendon and evaluated the effect of the sensory stimulation on the body by analyzing the EEG when the subdivided somatosensory stimulation was applied to the body. It is expected that the objective threshold estimates of the somatosensory stimulation and the results on the setting for the sensory stimulation intensity drawn by this study, which may influence the body in spite of sub-threshold values, can be used to set a personal specific somatosensory stimulation intensity to be applied to the body to improve postural equilibrium in the next studies.

Biography

Kim Dong-Wook received PhD degree in Biomedical Engineering from Hokkaido University, Sapporo, Japan in 1995. Now he is a Professor at Division of Biomedical Engineering in Chonbuk National University, Jeonju, Republic of Korea. He has been serving as an Editorial Board Member of *Journal of Biomedical Engineering Research* and has been Board of Directors of KOSOMBE. His current research interests include biomechanics, rehabilitation engineering, sensory-motor integration, diagnosis and healthcare system.

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