

Brain function measurements for evidence based occupational therapy practice

Lecturer:

Takamichi Taniguchi (International University of Health and Welfare)

Daisuke Hirano (International University of Health and Welfare)

Huang Fubiao (China Rehabilitation Research Center)

Naotoshi Kimura (International University of Health and Welfare)

Hana Yano (International University of Health and Welfare)

Misaki Wada (International University of Health and Welfare)

Keita Taniguchi (Keio University)

Time: 10:00-11:30

Room: 105

Minimum number of participants: Unspecified

Estimated capacity: 100

Unspecified

Participation fee per person: Free of charge

Learning Objectives

The learning objectives of this workshop are: 1) to understand why brain activity and cerebral blood flow measurements are useful for occupational therapy practice; 2) to review studies that used brain activity and cerebral blood flow for assessments, determination of intervention policies and measures, and evaluation of effectiveness; 3) to understand the concepts of EEG and NIRS from measurement to analysis and to learn specific methods; and 4) to share the utility of EEG and NIRS.

Outline

Recent technical advancements in brain function measurement methods have made it possible to measure brain activity and cerebral blood flow in real time when humans are performing work activities, activities of daily living, or instrumental activities of daily living, such as handicrafts and driving a car. It has also become possible to induce alterations in brain activity noninvasively using transcranial magnetic stimulation (TMS) and other techniques. Electroencephalography (EEG) to measure brain activity and near-infrared spectroscopy (NIRS) to measure cerebral blood flow can be used by occupational therapists themselves without the need for a clinician or radiological technician. Participants will be provided with

the following content: 1) a lecture on the physiology of brain activity and cerebral blood flow; 2) a literature review; 3) hands-on measurements and analysis using EEG and NIRS; and 4) an exchange of opinions. 3) will include a hands-on session using portable devices.