

# Dynamical Considerations Underlying EEG Modification Training

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This talk will consider the dynamical processes underlying EEG signals, and their implications for EEG modification training. The following issues arise: EEG signals are, in and of themselves phenomenological in nature, and reflect certain types of physiological, anatomical, and dynamical properties and activities of the brain tissue. By training and modifying EEG phenomena, we induce changes in the nervous system, hopefully toward some desired end. On the other hand, mental functioning, intellect, behavior, and other properties of interest (attention, awareness, attitude, etc), are emergent properties of the brain/mind, which arise in a complex way, from lower-level activities in the nervous system.

We specifically address EEG phenomena such as the generation (or suppression) of specific frequency bands, training for generalized EEG suppression, training with complex feedback (phase-space, other displays), and DC or slow brain potentials. Each of these has a particular constellation of effects that it produces in the neural tissue. Overall, it is important to distinguish localized vs. diffuse brain phenomena, and to address the relationship between EEG functional topography and EEG training in a physiologically sound, yet general manner.

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