ACADEMY OF FINLAND

Research project of the Human Mind Research Programme

THE CONSCIOUS MIND: INTEGRATING SUBJECTIVE PHENOMENOLOGY WITH OBJECTIVE MEASUREMENTS

MIELI MIND

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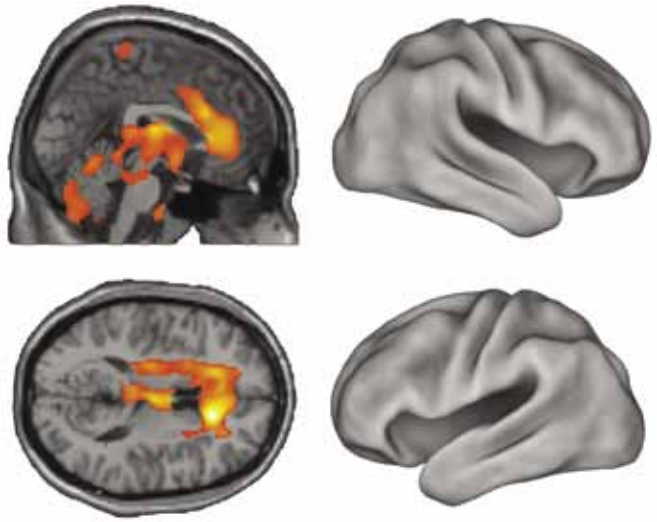
Consciousness is considered one of the last remaining mysteries in current science. It remains unclear what consciousness is and how it emerges from brain activity. This project studies different states of the conscious human mind: anesthesia, sleep, dreaming, hypnosis, and meditation. By studying anesthesia, we aim to reveal what happens in the brain when consciousness is lost or when it returns after a period of unconsciousness, and whether consciousness actually is lost or it continues internally even when the person appears externally unconscious. By comapring anesthesia and normal sleep, we aim to understand how similar these two states are. By studying the contents of large samples of dreams in detail, we aim to test the theory that dreaming functions as a preparatory simulation of waking life. In our studies of hypnosis, we aim to clarify whether hypnosis is an altered state of consciousness, and our study of meditation charts what kind of changes happen in the subjective contents during meditation.

Our main research questions are: (1) How to define and measure consciousness during anesthesia? How does the state of being conscious emerge following the unconscious state? Is anesthesia different from physiological sleep and dreaming in terms of objective brain mechanisms or as subjective states? (2) Do the subjective contents of dreaming support the evolutionary hypothesis that dreaming functions as a preparatory simulation of waking life; for example, as a simulation of evolutionarily important human social interactions? (3) Do some highly hypnotizable subjects enter an altered state of consciousness during hypnosis? (4) What happens to the subjective contents of consciousness during meditation?

The major objective methods that we will use include the pharmacological manipulation of consciousness by anesthetic agents; high-resolution imaging of brain activity, and electrophysiological measurements during anesthesia, sleep, dreaming, and hypnosis. Data concerning the subjective contents of consciousness is collected as written and oral verbal reports, structured diaries, interviews and questionnaires, and content analysis methods are used to quantify the contents of consciousness.

These studies thus shed light to fundamental questions concerning the different states of consciousness and their relationship to the brain.



PET findings showing that the emergence of consciousness after anesthesia is associated with activation of deep, phylogenetically old brain structures rather than the neocortex (Långsjö et al, J Neurosci 2012;32:4935-43).

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