# Phenomenological experience and neurophysiological correlates of shamanic trance in healthy individuals

## ABSTRACT:

**Background**
Shamanic trance is a volitional modified state of consciousness characterized by lucid but narrowed awareness of external surroundings with hyper-focused immersive experience of flow, expanded inner imagery, and altered sense of self. Despite being one of the most ancient spiritual traditions, little is known about the scientifically-based phenomenology and electrophysiological correlates of shamanic trance.

**Aims**
The goal is to characterize the phenomenological experiences of shamanic trance and measure its electrophysiological brain signatures.

**Method**
We conducted a group study on 27 experts in cognitive trance who underwent high-density EEG during rest, auditory stimulations, and imaginary task, as well as during trance with and without auditory stimulations. Behavioural assessments were conducted after each condition (free recall and questionnaires).

**Results**
Participants felt more awake, more absorbed, and more dissociated in trance. Their trances were comparable to a near-death experience, with mystical-type experiences. Trance condition presented a specific speech and higher total words counts compared to the other conditions, which reflects a class of discourse on its own with more richness and vividness. EEG results showed that trance was associated with increased power spectral density in various frequency bands and increased functional connectivity. Auditory event related potentials showed increased P300 amplitude during trance. Body parameters (e.g., heart rate) were also modified in trance.

**Conclusions**
These results indicate major changes in trance, both at the phenomenological and neurophysiological level.

**Keywords**
Shamanic trance, Modified states of consciousness, Phenomenology, Neurophysiology

## Published Work:

Gosseries, O., Fecchio, M., Wolff, A., Sanz, L. R. D., Sombrun, C., Vanhaudenhuyse, A., & Laureys, S. (2019). Behavioural and brain responses in cognitive trance: A TMS-EEG case study. *Clinical Neurophysiology, 131*(2), 586-588. doi: 10.1016/j.clinph.2019.11.011

Grégoire, C., Sombrun, C., Gosseries, O., & Vanhaudenhuyse, A. (2021). La transe cognitive auto-induite : caractéristiques et applications thérapeutiques potentielles. *Hegel, 11*(2), 192-201. doi: : 10.3917/heg.112.0192

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