

TITLE: The Event Related Desynchronisation of the
Electroencephalography (EEG) with Music and Counting

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In this investigation, the assessment of different facets of the EEG was undertaken through the desynchronization of the EEG signal on the application of fixed stimuli. It was found to be a time series and a graphical depiction of the gross fluctuations of electric potentials between different cortical areas under the electrodes. The scalp electrodes were strategically placed for approximately fifteen normal human subjects using the Cadwell Industries EEG software, in accordance with the International 10-20 System of placement of electrodes for measurements of the maximum electrical signals. The experiment was subdivided to involve the recording of the subject's baseline EEG before and after the stimuli by spurts of both relaxing and energizing Mozart music as well as reverse counting. Neurometric measures (using Fast Fourier Transforms and Spectral Analysis), and Chaos (correlation dimension approximations), were the analytical techniques chosen to investigate the changes in the EEG signals due to the applied stimuli. These indicated the changes in the EEG signal.

The cognitive process of reverse counting was observed to produce event related desynchronization of alpha rhythms. Classical music generated increased alpha power in the parietal and occipital areas resulting in less complex EEG signals and an increased neuronal synchronization. Topographic maps were produced illustrating the coherence and absolute power of the spectral properties (α , β , θ , δ bands) of the EEG. These analyses were used in the explanations of the states of consciousness before and after each task.