

The Influences of Impressed Electrical Fields at EEG Frequencies on Brain and Behavior

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Abstract

In the search for functional correlates of information processing in brain tissue, early interest in the electroencephalogram proved disappointing. Although phenomena such as blocking of the alpha rhythm with eye closing and visual attention (Berger 1929, Adrian 1947) were quickly recognized, it has remained for much later studies with sophisticated computer analyses and pattern-recognition techniques to reveal EEG correlates of decision-making (Elazar and Adey 1967; Hanley, Walter, Rhodes, and Adey 1968), of psychological stress in hostile questioning (Berkhout, Walter, and Adey 1969), and of difficult perceptual tasks (Walter, Kado, Rhodes, and Adey 1967). Even though the latter studies have revealed EEG signatures for groups of subjects as well as for individuals, clear evidence has been lacking that would assign a causal role to the EEG in information processing. Indeed, it has been widely considered as a “noise” in cerebral tissue, having no direct physiological role, even though it could be correlated with specific behavioral states, including the brief epochs that accompany decision-making and perception, and even though these correlates might be reliable indicators of quite subtle differences, such as correct versus

incorrect task performance at a later time (Hanley, Walter, Rhodes, and Adey 1968), or of opening versus closing of the hand in a phantasied motor performance (Nirenberg, Hanley, and Stear 1971).

Keywords

Intracellular Record Cerebral Tissue Interresponse Time
Frequency Electric Field Transmitter Substance

These keywords were added by machine and not by the authors. This process is experimental and the keywords may be updated as the learning algorithm improves.

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