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Cortical Circuits of Context Adaptability: Understanding Neurobehavioral Mechanisms Underlying Flexible Behavior

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Abstract

This study explores how brain activity in response to positive, negative, and neutral contexts affects confidence during a decision-making task. Focusing on emotional and cognitive processing, the investigation examined variations in power in the delta, theta, alpha, and beta frequency bands. Participants showed consistent power distribution patterns within frequency ranges. Correlational studies of participant ratings revealed confidence levels for distinct graphic stimuli in each scenario. A significant correlation between positive stimuli indicated participants' persistent confidence and adaptable decision-making processes In contrast, the absence of correlation between negative stimuli revealed different confidence levels across individuals, suggesting a more varied decision-making process. A substantial correlation between neutral stimuli showed participants' constant confidence and a trustworthy decision-making process. These findings contribute to our understanding of the interplay between brain activity, emotional processing, and decision-making, highlighting the impact of emotional context on participants' confidence levels.

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