

How does the brain encode distinct values? Electrophysiological evidence for the common currency hypothesis.

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Social decision-making is the most complex cognitive function performed by the human brain (Seo & Lee, 2012) but there is little research on the temporal mechanisms of decision-making. The current study examined the temporal properties of preference choices in social and non-social domains using event-related potentials (ERP). Participants (N = 24) made attractiveness choices between pairs of faces or landscapes (each pair depicted one happy and one sad image). Results indicate that the amplitudes of the N1, N2 and early late positive potential (LPP) components were modulated by stimuli type. N1 and N2 were found to have enhanced activation for social stimuli (faces) compared to non-social (landscapes), indicating that early ERP components are sensitive to the properties of social stimuli. Whereas, the early LPP component (400-600 ms) was strongly sensitive to non-social stimuli than social, illustrating a distinctive allocation of attentional and motivational resources to non-social stimuli. Finally, during the later LPP (600-800 ms) findings suggest that there is a temporal overlap in the mechanism that processes social and non-social preference judgements. The results indicate that although initially there are temporal differences in the neural mechanisms supporting the “social-specific” hypothesis, during the later processing stages there is an overlap in temporal activity suggesting a common mechanism by which participants make choices, supporting the “common currency” hypothesis.

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