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Decoding gut feelings: linking gastric activity to perceived emotional experience

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Gastrointestinal (GI) signals have long been hypothesized to contribute to emotional experiences. However, empirical evidence directly linking gastric activity to subjective emotional states remains sparse and inconsistent. In a recent study conducted in our laboratory, an ingestible capsule measuring pH, pressure, and temperature within the GI tract, was used, together with a single-channel electrogastrogram (EGG), to investigate this relationship in male participants observing emotional video-clips. Results demonstrated that changes in stomach pH, but not in gastric myoelectrical rhythm, were associated with increased reports of disgust, fear, and happiness. Expanding upon these findings, we conducted a follow-up study involving both female and male participants, implementing a more sophisticated multi-channel EGG setup and adding electroencephalography (EEG) recordings to provide a more comprehensive assessment of GI and brain activity during emotional processing. Preliminary data form 40 participants indicate that the emotional induction procedure did not significantly modulate gastric frequency. However, stomach pH was significantly more acidic during fearful video-clips compared to happy ones, replicating previous observations. Additionally, stomach temperature ìdecreased during exposure to disgust-inducing stimuli relative to the neutral control condition. To further elucidate the dynamic interaction between gut physiology and neural activity during emotional experiences, we are analyzing EEG data. These findings contribute to a growing body of research suggesting a role of GI signals in emotional experience, highlighting the importance of considering visceral physiology in the study of emotions.

If you're submitting a symposium talk, what's the symposium title?

Embodied emotion and motivation: interoception, physiology, and brain dynamics in affective experience

If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?

No

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