**Does an empty stomach influence the brain’s response to social recognition?**

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Animal research has shown that social interaction is increased by administrating ghrelin, an appetite-stimulating hormone. These findings have inspired the idea of ghrelin’s involvement in the valuation of many types of rewards, not only food. Hence, the aim of this pre-registered functional imaging (fMRI) study was to investigate how variation in ghrelin levels influences neural processing of recognition by others as a social reward in humans.

In a within-group design consisting of two sessions inducing high (no-meal) vs. low (liquid-meal) levels of ghrelin, 48 healthy volunteers performed a reward task. Participants could receive social reward when their music choice was confirmed by an expert, or non-social reward when their music choice was rewarded by a computer algorithm with 1 point.

A regression analysis was conducted with BOLD difference values of liquid-meal minus no-meal conditions. Ghrelin levels served as predictor and mean activity of three ROIs previously found to be implicated in social reward were the outcome variables: left and right ventral striatum, and ventromedial prefrontal cortex.

Contrary to our hypothesis, ghrelin levels were not associated with ROI brain activation to social reward. Thus, either ghrelin’s effects do not extend to social recognition as reward, or naturally varying ghrelin levels are not strong enough to induce a clear effect. Alternatively, the endorsements by putative experts might not have been perceived as sufficiently rewarding.