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## The Role of Taste in Long-Term Sugar Intake in Mice

Three factors are known to influence intake of foods: olfaction, oral stimulation, and post-ingestive feedback from the gut. In this study, we examined the effect taste has on daily intake of sugars, as previous studies do not rigorously test this relationship. We expected to see a reliable correlation between taste and daily intake. Two quantitative measures of taste were obtained through chorda tympani nerve responses and short-term licking rates in C57BL/6yJ mice in response to various sweetened solutions: 38 mM saccharin (S), 167, 250, and 333 mM glucose (G) or fructose (F), and binary mixtures of S+G and S+F. With glucose and fructose testing delivering comparable results, taste responsiveness exhibited a pattern of  $G < S < S+G$  (and  $F < S < S+F$ ). However, these data did not reliably predict daily intake; F, S, and S+F intake did not show great variation, whereas G and G+S solutions stimulated much more intake than any of the S or F solutions. Therefore, our hypothesis that taste drives daily intake remains unsupported. An alternate explanation may rely more heavily on post-oral mechanisms that reinforce feeding in mice.