



# e-quilibrium

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## Shakes

Research participants for a study at Yale University were recruited with a flier entitled, “Shake Tasting Study.” Participants were to be paid \$75 for two 2.5 hour sessions in which they would be tasting milkshakes with different nutrient contents. Sounds great! Perhaps the monetary compensation was necessary in that an IV catheter would be in place during the sessions so that blood samples could be drawn.

Participants were told that a different milkshake would be tasted at each of the two sessions, and that investigators wanted to determine both how the shakes varied in taste and whether the body reacted differently to the nutrients in the two shakes. At the first session, approximately one half of the participants were given a milkshake that was labeled high fat and high calorie (“indulgent” shake), while the others were given one labeled low fat and low calorie (“sensible shake”). At the second session a week later, participants were given the other shake, so that all participants tasted both milkshakes. Unbeknownst to the participants, however, the content of each of these two shakes was identical! The only difference was labeling.

The investigators were specifically interested in the gut hormone ghrelin, as it is instrumental in signaling the brain to either increase hunger (if the stomach is empty or energy intake has been low) or the sense of satiety (if the stomach is full or energy intake has been plentiful). The secretion of ghrelin decreases as calories are consumed. Given that the two shakes in this study were identical in nutrient and caloric content,

ghrelin activity would be expected to be the same in both conditions.

Not surprisingly, participants rated the “sensible” shake as healthier. As should have been the case, they found the shakes to be no different in taste (which makes sense given that the shakes were identical). The most interesting result, however, is that ghrelin levels fell much more sharply after participants drank the “indulgent” shake than the “sensible” shake, the pattern that would be expected if the “indulgent” shake actually had more calories. In other words, ghrelin secretion was affected more by expectations of caloric content than actual nutritional content. Although subsequent reports of hunger were no different in these two conditions (which the investigators believe to be a result of when measurements were taken), the differences in ghrelin would typically be expected to leave individuals less satisfied and more hungry after drinking the “sensible” shake than the “indulgent” shake.

Consider the implications of this study. Mindset is affected by knowledge of what one is eating. Could it be that calling attention to the healthiness of a given food actually has a paradoxical effect by leaving people feeling hungrier than they would otherwise be from eating low-calorie food? Perhaps this is an additional contributor to the phenomenon whereby persons often consume more food if it is known to be (or believed to be) low-fat or low-calorie.

The processes involved in hunger, eating, and satiety are affected by many factors beyond those mentioned here. And, of course, more research is needed to better understand these highly complex processes. However, this study (published this year in Health Psychology) is yet another indicator of how beliefs/expectations can have a profound effect on physiology. The saying “you are what you eat” should perhaps be modified to say, “you are what you think you eat.” Imagining that one is eating food that is very high-calorie and high-fat, when in fact the food is low-calorie and low-fat, might be the best case scenario for weight management.

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