



## Weight Loss Surgery Reduces Susceptibility to Food Marketing

**Behavioural and neuroscience research by INSEAD and Sorbonne Université suggest bariatric surgery does a lot more than just help patients lose weight.**

Food companies often try to present food as **healthier than it really** is to speak to health-conscious consumers. The way they label or package a product can change how consumers perceive its healthiness and in turn, how much calories they think it contains, what packaging size they choose and how much of it they consume. As we have **previously reported**, research conducted at INSEAD showed that people routinely underestimate the calories of food framed as healthy or those of dishes served in restaurants that brand themselves as healthy.

Our **earlier research** has demonstrated health framing and other such food marketing tactics to be effective at influencing both people with a healthy weight and the overweight. But what about people with obesity? They differ from the rest of the population on a host of medical and socioeconomic dimensions.

Consumers with obesity are known to have the reward receptors in their brains numbed to a degree. This means that they need to eat more food to derive the same pleasure from it as other people do. Other research and lay intuition suggest that consumers with obesity might have a “lack of willpower”. So where does that leave them in terms of their responsiveness to food marketing tactics?

In **research** published in the *Journal of Consumer Psychology*, we and our co-authors\* from the Nutrition department of the Pitié-Salpêtrière hospital, part of Sorbonne Université, compared the responses of three groups of individuals to food marketing tactics. The first group was 73 women with obesity, before and after they underwent bariatric surgery. The second group included 41 lean women (i.e. with a body mass index of about 22). The third group comprised 29 women with obesity who were not trying to lose weight. We measured their responsiveness to food marketing tactics, at the start of the study, then three months and a year after the first group underwent bariatric surgery.

### **Weight loss decreases responsiveness to food marketing**

Compared to lean individuals, participants with obesity did respond more strongly to food marketing tactics. For instance, they systematically underestimated the calorie count of snacks that were framed as healthy. In a virtual setup, they ordered more fries when the portion descriptions minimised their actual size. However, in the group of obese patients who underwent bariatric surgery, that difference attenuated 12 months after their operation, down to the level of the people with a normal weight.

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This shows that their original higher response to food marketing is not a stable individual predisposition. In reality, there might be a reinforcement loop between the poor metabolic state of consumers with obesity and their responsiveness to food marketing tactics.

That reinforcement loop goes both ways. Once obese people start losing weight following the surgery, their responsiveness to food marketing tactics diminishes. This may be caused by changes in their metabolic parameters – such as cholesterol levels, blood pressure, blood sugar and satiety signalling – and by the life-changing experience of signing up for and undergoing weight-loss surgery.

### The brain connection

However, this feedback loop remains a speculation on our part at this point. Why bariatric surgery is associated with a decreased response to food marketing will require more studies. In a related **research** collaboration\*\* between INSEAD and the Nutrition department of the Pitié-Salpêtrière hospital, changes in how the brain's reward system is connected at rest – when a person thinks of nothing specific – predicted post-bariatric surgery weight loss and correlated with the changes observed in the satiety hormone leptin after the surgery.

Interestingly, in the consumers with obesity, the surgery restored connectivity within the brain's reward system but not within another related system that differed between lean participants and those with obesity.

Collectively, these findings suggest that bariatric surgery has a much more beneficial impact on obese patients beyond helping them lose weight.

### A strong research connection to foster interdisciplinary research with societal impact

This research highlights how the **Alliance Sorbonne Université** between INSEAD and Sorbonne University has inspired interdisciplinary research that improved our understanding of societal issues such as obesity and what role business tactics might play in improving them. It was facilitated by the **INSEAD-Sorbonne Université Behavioural Lab**, a research platform where researchers from all the institutions linked to Sorbonne University can conduct behavioural experiments. It was also funded by resources linked to the Alliance.

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