

Video podcast script: Can the western obesity epidemic be explained evolutionarily?

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Opening title: Can the western obesity epidemic be explained evolutionarily?

Cut to scene with presenter standing beside fast food logos and a display of diseases related to obesity.

Presenter: Obesity has been linked to the development of many health concerns. From an evolutionary perspective, aspects of obesity interfere with survival and reproductive success.

So, why haven't mechanisms evolved to combat obesity?

Cut to scene with food display and a calendar on which food is in a large pile at the beginning of the month. Cut to scene with food display and a calendar on which food is divided into small portions.

Presenter:

Drs. Polivy and Herman in 2006 describe survival mechanisms pertaining to our history as hunter gatherers during periods of inconsistent nutrition. Issues arise when considering our behavior in the presence of food.

During famine if a certain amount of food is available, it might be advantageous to eat smaller portions over time so the food supply lasts longer. Metabolism would slow due to weight loss, conserving calories, thus self-control in this case would have been adaptive.

Cut to presenter next to a winter scene (window), with a sign showing "sensory-specific satiety" and one type of non-perishable food item, for example nuts.

Presenter: Sensory-specific satiety would give an advantage in this situation. With a monotonous diet, satiety is developed more rapidly than when a variety of foods are available. During times of scarcity, variety would have been limited, for example, by what could be preserved. Without nutritional diversity, sensory-specific satiety would facilitate self-control when humans need to resist gorging for food supplies to last.

Cut to kitchen where presenter stabs spoon into a large bucket of ice cream.

Presenter: We enjoy gorging, or self-indulgence. Historically, increased nutritional intake would have been advantageous, because those with greater stores of fat and better nutrition would have survived longer and had the energy for more successful reproduction than those who ate less.

Presenter moves to scene where there are two piles of food, each with a label. One pile represents plentiful and various food items and is labeled "self-indulgence". The second pile has limited amounts and variety of items and is labeled "self-control".

Presenter: Which prevails, self-control or self-indulgence?

Drs. Polivy and Herman propose that the environment determines which evolutionary behavior dominates. During times of abundance, self-indulgence is advantageous as it increases individuals' energy stores for survival. During times of limited resources self-control aided by sensory-specific satiety is adaptive, as the food and energy stores will last longer.

Presenter moves next to scene with a wide variety of foods, take-out menus, and restaurant logos.

Presenter: Today's environment differs drastically from the environment that humans evolved in, where much energy was spent obtaining food. Dr. Lieberman in 2006 described modern

surroundings as an "obesogenic environment", where diverse foods are energy dense and consistently available in large portions.

Dr. Brandel and colleagues in 2009 studied sensory-specific satiety alongside the effect of food diversity on human intake. Monotonous dietary conditions produced a decrease in the feeding time, flavor-pleasure ratings and amount of food eaten, reflecting sensory-specific satiety. Flavor-pleasure ratings increased with the introduction of condiments. This study suggested that even small amounts of variation in food can disrupt sensory-specific satiety and increase food intake. The modern obesogenic environment reflects an ecology of plenty. Modern food availability discourages self-control and promotes self-indulgence.

Since humans evolved in an environment of scarcity, obesity and associated concerns were likely not an issue and preventative mechanisms would not have evolved. As we are evolved for surviving periods of famine and coping with limited resources, the change in our nutritional environment has led to the current western obesity epidemic.

"The End"

Show childhood picture of me indulging in cake.

Cut to screens with article and image references.

References

Articles

Brondel, L., Romer, M., Wymelbeke, V. V., Pineau, N., Jiang, T., Hanus, C., & Rigaud, D. (2009). Variety enhances food intake in humans: Role of sensory-specific satiety. *Physiology and Behavior*, 97, 44-51.

Lieberman, L. S. (2006). Evolutionary and anthropological perspectives on optimal foraging in obesogenic environments. *Appetite*, 47, 3-9.

Polivy, J., & Herman, C. P. (2006). An evolutionary perspective on dieting. *Appetite*, 47, 30-35.

Images

[Untitled digital image of fast food chain logos]. (n.d.). Retrieved from:

<http://thehighfive.libsyn.com/top-5-fast-food-chains>

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