

Obesity

Results from an excess of Caloric intake over Caloric expenditure

obesity causes in modern life

- ❑ Sedentary lifestyle
- ❑ Physical labor not primary component of employment
- ❑ Low stress (vs. hunter gatherer)
- ❑ Unlimited, tasty, calorically-dense food

Food and body weight

- ❑ "Thrifty phenotype"
- ❑ Remnant of hunter-gatherer physiology
- ❑ Large amounts of food could not be stored, might spoil (e.g. big kill)
- ❑ Ability to store excess calories an adaptive advantage
- ❑ Carry the calories with you as fat

Modern life and food

- ❑ In general, high food security
- ❑ Excellent food quality, palatability
- ❑ Modern diet the hunter-gatherer's special find. But it's always there
- ❑ Body thinks it's a good idea to store those extra calories
- ❑ Stored as fat, becomes increased weight

Modern life and food

- ❑ Trouble is, in ~60% of humans, the brain thinks the increased weight is the new "normal"
- ❑ When you try and lose weight, your body tells you it's starving
- ❑ Body tells you to:
 - Stop expending energy
 - Find food!

Diet-induced obesity

- ❑ This physiology is why it's hard for majority to lose excess weight, and keep it off
- ❑ This can happen in adults, but also in children
- ❑ Problem is an interaction between brain and food

Diet induced obesity

- Mechanisms are not known, but will not go away
 - Problem remains as long as food and lifestyle remain the same.
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What to do?

- Research into the brain to see what changes
 - Understand more about the interactions between people and food
 - What is the nature of “physiological” hunger (to replace lost calories, maintain energy balance)
 - What is the nature of “hedonic” (pleasurable) eating (independent of energy balance)
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Research Groups (1)

- CIHR new emerging team (NET) on the neurobiology of obesity
 - Neuroscience of obesity in adult animals and humans
 - University of Alberta
 - University of Calgary
 - Queen's University
 - University of Laval
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Research Groups (2)

- AHFMR Interdisciplinary Team on Early Life Events and Obesity (application stage)
 - Prenatal and early life influences on healthy body weights in animals and humans
 - University of Alberta
 - University of Calgary
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For Agriculture

- Caution!
 - Advertising “unhealthy” products may have consequences for a segment
 - We don't yet know everything that is healthy and unhealthy
 - Opportunity!
 - Potential for new products based on new discoveries i.e. satisfying but healthy
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