

Separating Myth from Reality – What the Science of Obesity tells us
 Presented by
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Myths and Misconceptions

- **Metabolic Rate**
- **Puberty** and Puppy Fat
- Do **hormones** make you fat?
- Are **popular diets** really good for weight loss?
- Bugs in the **Gut**
- “Why don’t they just come up with a **pill?**”
- The **Biggest Loser** study
- Does dieting cause **eating disorders**
- **Single solutions** are rarely the answer

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Metabolic rate

- Measured in the total number of calories or kilojoules needed every day to maintain body weight and healthy body function
- Tissues that require large energy amounts
 - **Muscle**
 - **Heart & Brain**
 - **Kidneys & liver**
- Metabolic rate is proportional to body size and muscle mass
- The overweight and obese have higher measured metabolic
 - **Larger people need more calories per day to maintain body weight than smaller people**
- **Metabolic rate falls with calorie restriction and weight loss**

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Measuring Metabolic rate

Indirect calorimetry
Measures O₂ and CO₂

Total body calorimeter
Measures heat production

The University of Sydney Both systems mathematically convert what is measured to calories. Page 4

‘Puppy fat’ and puberty

- Female hormones increase fat deposits in hormone responsive areas
- Testosterone reduces fat tissue and increases muscle mass
- Common adolescent habits around eating and activity may predispose to weight gain

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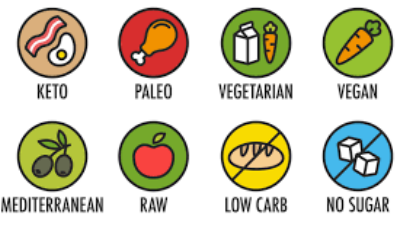
Do hormones make you fat?

ENDOCRINE GLANDS

- An underactive thyroid does not cause obesity
- Replacing thyroid hormone will fix any weight gain
- Hormone conditions that cause obesity are rare and nasty

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Weight loss is about consistently eating less calories



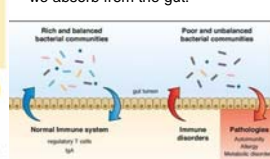
Fad and restrictive (in food type or amount) diets are hard to maintain because of hunger, boredom and social restrictions

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Bugs can be useful

MICROBIOME BY THE NUMBERS

- 10:1 Ratio of nonhuman cells to human cells in your body.
- 100 Trillion Number of microbes in your gut.
- 3 Number of pounds of bacteria cells that live in your intestines.
- 1,000 Number of known bacteria species living in your gut — although only about 50 typically predominate at any one time.
- 0 Number of people who share the exact same composition of gut flora as you. Like fingerprints, every person's microbiome is unique.



- The gut microbiome plays a role in how much nutrients we absorb from the gut.
- Healthy bugs support metabolic health
- Unhealthy bugs can cause the absorption of bad fats & inflammatory proteins which increase the risk of cardio-vascular disease

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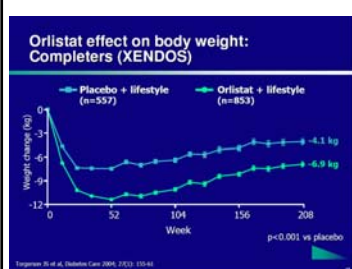
Weight loss OTT and on-line – 'Beware and avoid!!!'

- Miracle
- Secret
- Natural
- New solution or discovery
- Quick and simple
- Any promise of weight loss greater than 1kg in 7 days
- "Dream body"
- No prescription and no side effects
- Doctor or chemist approved
- Customers agree that ...
- Celebrity endorsed
- No need to diet or exercise
- Powerful fat fighter, fat burner or fat melter
- Buy two and get one free – offer ends at midnight

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The reality is different

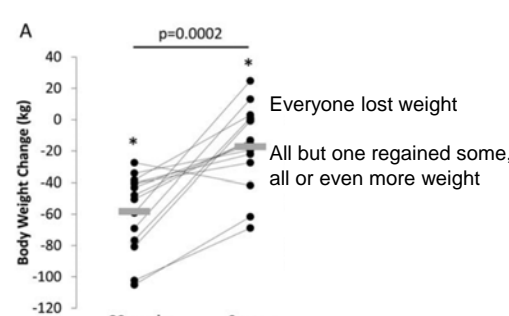
Orlistat effect on body weight: Completers (XENDOS)



- Need lifestyle change
- Current drugs have modest effects 5-10kg
- If stopped their effect stops too

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The Biggest Loser data

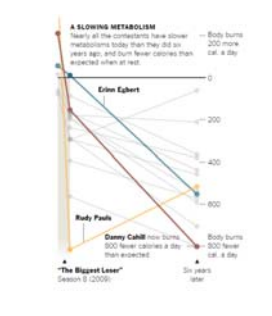


Everyone lost weight
All but one regained some, all or even more weight

$p=0.0002$

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The Biggest Loser Metabolism



- Almost all maintained a slower metabolism than expected for age, sex and weight
- The body remembers what it sees as a disastrous weight loss and uses all its tricks to reverse the situation

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Does dieting cause eating disorders?

- Many overweight and obese persons have disordered eating
- Predominantly binge and restrict
- Sensible weight loss should improve this pattern
- Those who have recovered from AN may gain excess weight because underlying **psychology** and **biology** may favour weight gain



Single solutions are rarely the answer

- Our bodies evolved in times when food was scarce & physical activity was needed to survive
- It's different now
- But we still have old fashioned **bodies which are very good at gaining fat but which have few mechanisms to burn off unwanted calories**

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