



NUTRITION METABOLISM & THE PERFECT DIET

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WHAT IS METABOLISM?

- Metabolism describes the chemical reaction that occur in the body which are vital for keeping us alive
- The process of metabolism converts food into energy that's used to provide fuel to our cells
- Metabolic rate is influenced by various factors
 - Age
 - Gender
 - Weight
 - PA
 - Medical health state





CAN I DAMAGE MY METABOLISM?

- Despite working out consistently and intensely, plus eating carefully, you're not losing weight (or not losing it as fast as you'd like or expect).
- Or you were losing weight consistently... until recently. Now you're stuck — even though you're working as hard as ever.
- Or when you were younger, you were super fit. Maybe you did fitness competitions. Maybe you did some crash diets. But now, even when you put in the same effort, you just can't seem to get as lean.
- The laws of physics still apply
- **Gaining & losing fat *can* change the way your brain regulates your body weight**



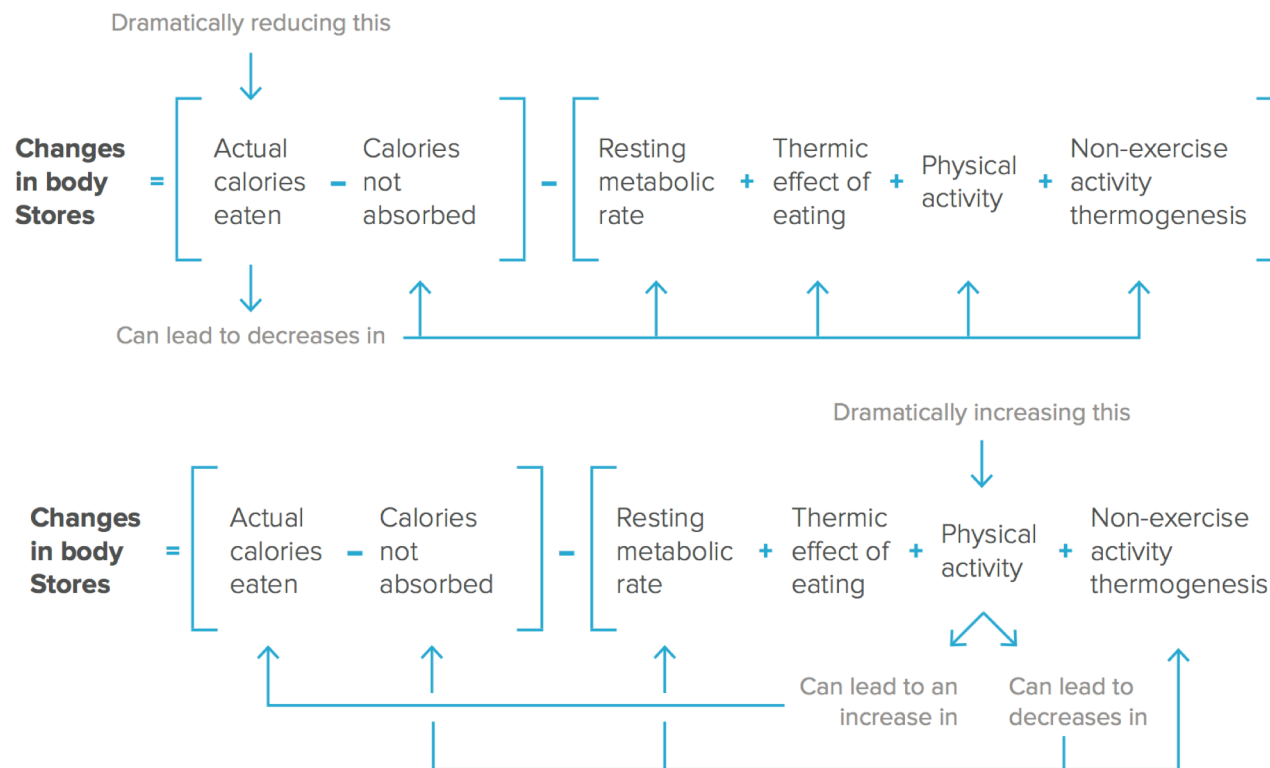
THE ENERGY BALANCE EQUATION

- Simple in principle, yet all these variables make it hard to know or control exactly how much energy you're taking in, absorbing, burning, and storing.
- When you try outsmart your body, it outsmarts you back.

$$\text{Changes in body Stores} = \left[\text{Actual calories eaten} - \text{Calories not absorbed} \right] - \left[\text{Resting metabolic rate} + \text{Thermic effect of eating} + \text{Physical activity} + \text{Non-exercise activity thermogenesis} \right]$$



ADAPTIVE THERMOGENESIS



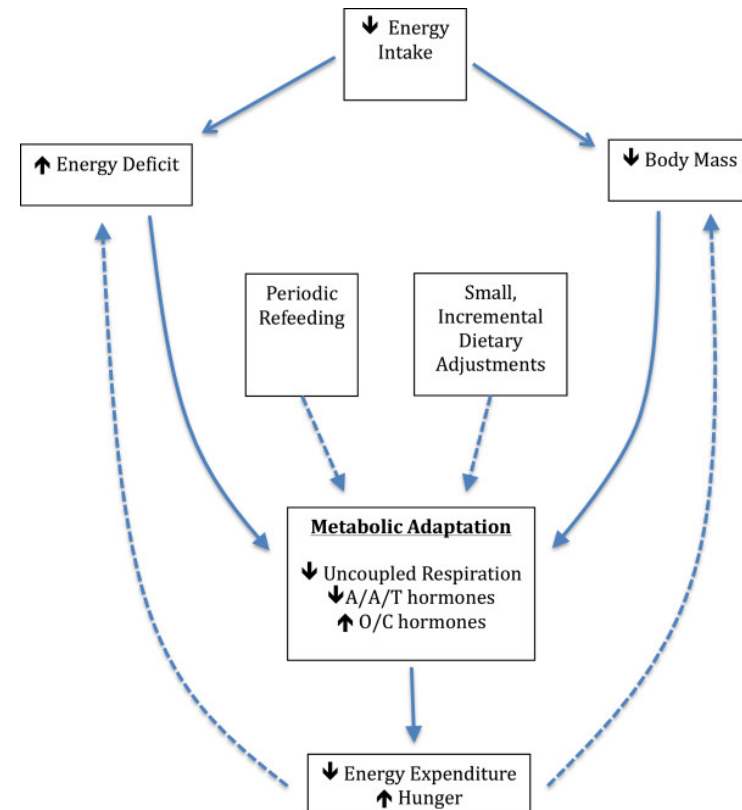
Losing weight, and keeping it off, is accompanied by adaptive, metabolic, neuroendocrine, autonomic, and other changes.

These changes mean that we expend less (up to 15% energy) than what would be predicted based on just weighing less.



ENDOCRINE RESPONSE TO FATLOSS

- ↓ Leptin
- ↓ Insulin
- ↓ Testosterone
- ↓ T3/4
- ↑ Ghrelin
- ↑ Cortisol
- Unfavourable changes in circulating hormone levels persist as subjects attempt to maintain a reduced body weight, even after the cessation of active weight loss





METABOLISM IS COMPLICATED

- Understanding energy balance means setting better expectations about body change
- **Losing weight won't “damage” your metabolism.**
- But because of the adaptations your body undergoes in response to fat loss, **body change is going to be harder for some people, and easier for others.**
- Even if your body might resist weight loss, you can still lose weight, gain muscle, and dramatically change your body.
- Weight loss can and should be relatively slow, so **aim to lose about 0.5-1 % of your body weight per week.**

