

## Obesity & Weight Loss

- The study of obesity is rapidly evolving and is incredibly complex including
  - Gut microbiome
  - Inflammatory processes
  - The math of calories
  - Effects on vitamin metabolism, insulin sensitivity, bone metabolism and heart
- So far we have not identified a “magic bullet” to cure obesity with a medication
- **Basic Principles of Energy Metabolism**
  - Our ability to glean energy from ingested food was perfected eons ago when food was SCARCE
  - We developed an amazingly efficient way to preserve our energy stores
  - Even though we have an overabundance of energy available to us, we have NOT lost our inherent abilities to maintain our energy stores.
  - We take in food which is broken down by enzymes into its components and absorbed in the digestive tract to enter the bloodstream
    - Carbohydrates
    - Fats
    - Protein
    - Minerals/vitamins
  - Energy is extracted from these component molecules to operate cellular processes, build/repair tissues and transport various substances.
  - Any excess energy (from any component) is stored as FAT (1 lb = 3500 Calories)
  - Anytime there is an energy deficit, we mobilize energy from the fat stores by alternative metabolic pathways. We can also break down protein stores (i.e., muscle) to produce energy.
- **Studies have shown that there are no long term differences in terms of weight loss among different diets: low carb, low fat, calorie restriction, etc.**
  - Low carb diets will have an early drop in weight, but eventually the other diets catch up.
    - **So the only diet that matters is one that makes sense to you and works with your lifestyle!**
  - Weight loss is a MATH PROBLEM: calories in vs. calories out
  - **Here’s the rub:** because Nature is so good at self preservation, whenever the body loses weight, it becomes MORE EFFICIENT at preventing additional losses.
    - Your heart rate & cellular processes slow down, everything reduces in order to keep you alive.
    - So we hedge our bets by exercising more, and by weight training to build a larger muscle mass which requires MORE calories to maintain.

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- But every time you hit a plateau, you know that's where your body has become efficient enough to stop weight loss.
- **Example:**
- If your BMI is  $\geq 40$  (or  $\geq 35$  with at least 1 other obesity-related diagnosis) you are eligible for bariatric surgery, which is the MOST effective means for weight loss.
- If your BMI  $\geq 30$  (or 27 with at least 1 other obesity-related diagnosis) you are eligible for medical therapy to treat obesity.
  - Medications are selected based on the what is contributing to your obesity.
- Obesity Medications
  - Plenity - Approved by FDA in April 2019, it is the only medication that is not absorbed in the GI tract; it is a form of plant fiber that expands in the stomach leaving only a small amount of room for the meal, and passes through much like Metamucil.
    - Expected 10% weight loss from baseline
  - Contrave - combination of extended release naltrexone (which treats opiate addiction) and extended release bupropion (an antidepressant) to reduce the reward associated with food intake and decrease feeding behavior.
    - 8-12% weight loss from baseline
  - QSymia - combination of phentermine & extended release topamax, these drugs work synergistically together to reduce appetite and stimulate metabolism.
    - 9-12% weight loss from baseline
  - Saxenda - the high-dose cousin of the diabetes drug Victoza, is slows down gastric emptying thereby reducing appetite.
    - 9% weight loss, reduces progression from prediabetes to diabetes by 80%.
  - Belviq - stimulates specific serotonin receptors in the brain that affects appetite
    - Average 8% weight loss
  - Orlistat - blocks fat absorption in the gut; very effective but people don't like it because of diarrhea and flatulence.
    - Helps double the effects of lifestyle and behavioral counseling alone
- **How do I start??**
  - **#1, never drink your calories - get rid of soda, juices, sweet tea, lemonades, alcohol, etc.**
  - **#2, consider use of meal replacements to aid in portion control**
    - Premier Protein shake
    - Pure Protein bars
  - **Systematically reduce your caloric intake in 200 calorie increments until you begin to lose.**
- Resources to help the weight loss process
  - Figwee app for calories, portions, etc. - very user friendly!
  - MyFitnessPal for calories (even restaurants), logging exercise, etc.

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- The Calorie King pocket handbook - also is the source for the MyFitnessPal calorie database. <http://www.calorieking.com/>
- Mayo Clinic [www.mayoclinic.com](http://www.mayoclinic.com)
- Obesity Action Coalition <http://www.obesityaction.org/obesity-treatments>

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