



## How We Are Different

**All humans have physiological similarities**, which is why we are all humans. We also have differences that lead to slightly different eating required eating patterns to achieve the same level of physiological function. Those differences are not just based on slight variations in our genes, but even more so on how environmental input (our movement, nutrition, sleep and stress) pattern impacts gene expression. For example, eating fast food for years will shift gene expression towards metabolic disease such as type 2 diabetes. The underlying sequence in the DNA has not changed, but the genes making up that DNA are being expressed at different rates because of poor lifestyle habits. The result is that the genes need fewer carbs in the diet. This would have happened with any human on a poor diet, so the individual differences did not stem from DNA being different but from the environment the DNA was exposed to. These differences are not just short-term. They include chemical modifications to the DNA such as methylation, or changes in how DNA is packaged or stored, which dramatically change gene expression for extended periods of time. We do not know how completely these “epi-genetic” changes are reversible within a lifetime. Brain signaling patterns generating personal preference, habit, and in extreme form addiction, are also difficult to change for health improvement. Gut bacterial profile also changes with environmental input and take time to shift back. So there are several mechanisms driving our differences that are ultimately driven by our own past input into our body. Recent research has made it clear that separating out how much of our differences stem from true nature (genetics) versus nurture (environmental input) is not possible because they are intertwined at the molecular level. Fortunately, finding the most probable solution for whatever barrier we are struggling to personally overcome is enough, regardless of how different we are.

**Don't try to change who you are:** As if that is even possible. It is surprising how many people have asked me to just tell them what to eat, as if their personal preferences don't play a role in their long-term success. Happiness is sustainable, and our authentic selves tend to increase the possibility of happiness. If you like pizza, a nutrition program that includes pizza is more sustainable than one without. Adding salad to the pizza slows its digestion so that even if pizza is not healthy, at least it is not hurting you, and at the next meal you can re-engage with health without having gone backwards with the pizza and having to make up for that with dieting. Start with what you want, and then figure out how to make it healthier if possible. At the very least, slow the digestion rate to minimize the damage. Asking yourself what you want is connecting to your authentic self, and eating that is acknowledging your own internal value at this moment. Then, to that, add healthy foods like salad to validate your future value, meaning your long-term health, longevity, and your physical and mental energy levels in the next several hours.

- **Protein:** Low protein consumption increases the body's efficiency of protein use, reducing how much protein is needed. An efficiency shift is by less than half of protein needs, so it is unlikely that 2 people of similar body weight and activity levels would be different by more than a factor of 2. The biggest protein difference between people is how much they enjoy protein foods, and how active people are (requiring more recovery protein).
- **Carb:** Some people don't enjoy carbs as much as others, but those same people might be the most physically active, requiring more carbohydrate. On the flip side, there are sedentary people who love carbs. Studies with new-born infants shows that crying is reduced nearly twice as much with sugar sucker than with maternal breast feeding, so all of us have a powerful reward response to sugar or “carbs.” Long-chain (complex) carbohydrates, which are not detected as sweet on the tongue e.g. bread, potato, rice and pasta, are broken down into simple sugars in the intestine and from there also drive a reward response in the brain. Hunger is partly driven by low blood sugar, and cravings are partly driven by your brain's memory of earlier low blood sugar. A large healthy balanced meal will only reduce hunger, not cravings. To reduce afternoon and evening cravings, have a healthy balanced breakfast and an immediate glucose (starch e.g. bread, potato, rice, pasta, oats, granola, crackers) within 10 min after exercise. What will be left is neither hunger nor cravings, and almost always becomes manageable.
- **Vegetables:** The more inflammation the more important phytonutrients from vegetables. The more important weight loss and reducing metabolic related disease risk, the more important are phytonutrients and the amount of vegetables consumed. Vegetables amount impacts satiety and the digestion rate of meals. It is common for body fat and metabolic disease risk to accumulate from fast-digesting meals and snacks, even without over-eating.
- **Fats:** The minimum recommended amounts of omega-3 and omega-6 are based on the apparent health level of people eating roughly 1 and 3 dozen calories of each, respectively. The longest-lived people eat more than these amounts. The body can make omega-9 (mono-unsaturated) fats, but lifespan increases when they are consumed. The difference between minimum needs and increasing lifespan makes it impossible to precisely define an optimum amount. This is why, beyond basic needs, dietary fat intake becomes an issue of personal preference.