

## **How to discover your personal best diet from moment to moment**

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It makes sense that typical dieting ultimately causes weight gain. The body is an engine. Fall short on anything maintaining the engine and it sputters, meaning metabolism drops. When our car's fuel tank empties or an engine part fails, we supply what is needed to keep it going. Pushing harder on the pedal to keep going won't help, and yet that is what the calorie-balance concept tells us to do with our bodies: if cutting calories and exercise doesn't work, diet and exercise harder. This disregards how our body responds to starvation, shutting down its own metabolism to work against us. Unlike our car, our body still has some function when metabolism drops (a car just stops), but weight loss becomes difficult to impossible.

The 500-Calorie metabolic suppression per day 6 years after being on the "Biggest Loser" television show mirrors the pattern in modern hunter-gatherers where food is periodically scarce. It is the relative nutrient supply compared to the body's needs that determines metabolism. Overfilling your car's gas tank spills gas onto the pavement, and overfilling your body spills calories into fat. But the opposite extreme of insufficient fuel keeps both a car and your body from operating well. The body has sophisticated ways of shutting down to maintain most every-day functions, so you don't even realize how hard it is fighting your weight loss unless you get your metabolism measured.

In 2014 I published research related to how muscle naturally shuts itself down without losing function. This is likely regulated as much by the brain and hormones as it is by muscle itself. Whichever body system most detects or experiences starvation will dominate the drive to suppress metabolism. Understanding how the body plummets metabolic rate to survive starvation provides a path for developing a solution. The calorie-cutting approach implies a potential benefit from skipping meals, carbs, fats, or starving yourself after hard workouts. In all cases, you might think the less you eat the better, which has led to strong public interest in ketosis, intermittent fasting, and cleanses to counteract the SAD (standard American diet) extreme opposite.

Ketosis is a starvation response, so the name implies some form of starvation (either carbohydrate specifically, or total calories including carbohydrate more generally). "Intermittent fasting" and "cleanse" indicates periodically eating something (perhaps something very specific). Most diets propose cutting out specific things more than others, implying that starving your body of one thing (but not other things) might be healthier and generate faster weight loss than simply cutting calories randomly. A metabolic approach focuses explicitly on meeting your cells' needs, continuously, avoiding both starvation and excess at the same time. While optimizing metabolism might sound like an on-going daunting task of estimating your body's needs continuously, it is no more difficult than managing the fuel tank and maintenance of your car.

To minimize the body's perception of starvation, breakfast and refueling right after exercise would rescue your most depleted moments. On the other hand, natural unprocessed food, particularly vegetables, would rescue your hunger and nutrient needs when calorie needs are low. Protein would be needed in each meal to supply amino acids, maintaining and building your engine i.e. lean tissue, instead of breaking down lean tissue to get the protein to maintain vital organs. And water would be needed steadily throughout the day. But the balance between "carbs" (plant parts higher in calories) and vegetables (plant parts lower in calories) would change dramatically from meal to meal based on needs. A sedentary person would avoid fuel levels seen in the SAD, whereas an athletic person would refuel right after physical activity. The sedentary SAD results in the body experiencing starvation due to insulin depleting blood sugar right after an overload, just as carb-restriction after exercise generates physical starvation (even if not perceived consciously) via a more obvious mechanism (not eating). Both suppress metabolic rate as a result of a mismatch between what is supplied to the body and what the body needs.

Coordinating nutrition with activity, or the lack of activity, results in very different eating patterns from day to day and even meal to meal. You increase maintenance and fueling of your car when you drive it more. Putting your car on a diet when having it do more work avoids overflowing the tank, but the wider the divergence between your car's needs and what you supply it, the worse it functions, lowering its metabolic rate. "Dieting" is hit-and-miss dependent on what guru, particular research paper, or dogma you temporarily buy into, and its benefit will be hit-and-miss depending on how well your average activity levels match that particular diet. At first all diets work as the body is relieved of the SAD, but within a few months the divergence between what the body needs and what it receives shuts it down.

Metabolism depends on anything that drives cell growth and function, starting with deep rest-full sleep, natural anti-oxidants (from fresh food) instead of free radicals or pollutants (from processed food), healthy gut bacteria (from fresh food), healthy psychological stress response, and genetics, which control the relative impact of these various factors. Without considering the entirety of your “health” (medical profile) and wellness (more subtle aspects of health), you might be on target with your nutrition and exercise, but fail to succeed because sleep is poor (no wheels on the car) or stress response is poor (no steering wheel). Nutrition can dramatically reduce weight gain, but by the time you feel a need to lose significant weight loss, metabolism is likely low enough that exercise is required to actually lose body fat. You cannot sleep, diet, or exercise your way to long-term healthy weight loss, but you can combine these to dramatically increase your health while cutting calories so that weight loss does not hurt you as much. The ketosis, caloric restriction, and intermittent fasting approaches to health and weight loss are irrefutably healthy with low activity levels, but can hurt you on hard exercise days. Treat your body like you would your car; engage common sense.

The reason we have to apply common sense instead of just relying on our perception of hunger to tell us when to eat is that we perceive hunger the least at the two time in the day when the body is the most depleted: after waking and after exercise. And then hunger perception is the highest when we need calories the least, towards both the end of the day and the end of the workday. We tend to overestimate how much we need when we need the least, and underestimate how much exercise depletes us. This flip-flops us back-and-forth between starvation and over-flow, with the over-flow insulin response ironically leading to another starvation episode as mentioned before. The result is constant starvation whether you eat or not; yikes!

Your diet therefore is not only personal and individual to you in terms of what you like to eat and what your body needs, but both of these things change from day to day, meal to meal, hour to hour, and even minute to minute (such as the minute you start exercising). Since the research is so abundantly clear that mild starvation generates a profoundly healthy response in the body, I absolutely recommend using mild starvation to your health advantage. But I recommend against pushing the restriction to its extreme where the benefits are reversed into reduced health, not just reduced performance and a lack of weight loss.

In summary, use common sense engagement at the same level you apply to your car. This replaces all the calorie counting, exercise testing, phone apps, math equations, stressful weight measurements, and fat measurements (calipers, impedance, etc.). If you are motivated by using one or more of these things, great! But trying to use them to manage your nutrition and exercise would imply that a measurement tells you what to do in the gym or what to eat the next day, or at least right after the measurement was taken, and it does neither. Measurements give you a basic framework of where you are, giving you a sense of your starting point and how far to your goals, but that’s it. How you use that information from moment to moment for the rest of your life is based on the engagement of your common sense hour by hour as you live your life. If you feel that an indefinite on-going engagement with your life is a bit much, consider how engaged you are from day to day taking care of your pet, your car, other people, your job and other things important to you, instead of expecting that feeding them correctly for a one-month “diet” is enough and then just leave them all to their own devices.

Perhaps it all comes down to where we derive our self worth, meaning how highly we regard ourselves compared to things that matter enough for us to take action. My personal experience is that discovering self worth is a long process, so in the meanwhile it can help to take care of your self for *them*. The fact that you might take care of yourself for others you love says a lot about your recognizing your value even if you might not have realized that. And it is helping you achieve your goals regardless. And that is what matters ultimately: you are taking action on and moving towards the fuller life that you want to live. Good work on engaging in that process, as we are all on the *same* team without always realizing it.

I propose that discovering your personal best diet from moment to moment is nothing more than a deliberate, conscious engagement with your life, using no more effort and common sense than we use for all the things we consider important, like our pets, car, and other people we are trying to help. In my view, our sometimes falling short of engaging in our own lives as much as in helping others is testimony to how much we are for others more than a statement of any laziness or gluttony, so it is a good thing! But can hurt our ability to love others in the long run if we keep neglecting the engine that is us.