FITNESS NUTRITION 101 SERIES: NUTRIENT TIMING

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Timing matters with everything in life. A second too late can cost you a championship. A day early can save your life. Six numbers can be meaningless one day and win you millions of dollars the next. We've all heard the old saying, "being in the right place at the right time." This universal law holds true in every aspect of our lives -- career development, financial decisions, dating, social relationships, and most importantly for us, nutrition.

Total calories and food selection will always be the two most important factors in a structured eating plan, but there is much more to the fat loss story. It's not just about what you eat, it's about when you eat it.

Nutrient timing basically refers to the process of how you divide your calories and macronutrients up over the course of the day. It is a system where you maximize nutrient absorption, utilization, energy levels, muscle building/fat burning hormones, and minimize hunger cravings, energy crashes, and fat storing/catabolic hormones.

Here are the key nutrient timing principles a fitness athlete should implement in their fat loss plan:

1. Spread calories and macronutrients out over 4-6 meals/snacks a day.

This is probably one of the best steps you can take to prevent your body from storing fat. The body can only digest, absorb, and use (for energy or tissue construction) so much food at one time. If you eat only 1-2 large meals a day, you are outpacing your body's ability to efficiently use the calories you are consuming. And if the body can't use it, it's going to store it. Spreading your calories out over smaller, more frequent meals/snacks will go a long way in ensuring the quality foods you eat are used to provide energy and build lean muscle, and less likely to be stored as body fat.

Lets play a game. Imagine a cup with a tiny hole poked into the bottom. We're going to pour water into that cup from a large pitcher. The object of the game is to make sure all of the water that goes into the cup drains through that tiny hole without any spilling over the sides.

If you try to pour all of the water from the pitcher into the cup all at once, a large percentage will spill over the sides. Game over, you lose. That's what large meals are like. Too many nutrients are entering the bloodstream at once, and the body can't handle it. There is spillover, and in the human body, excess calories (both per day and per meal) spill over into fat cells.

Lets try the game again. This time we'll fill the cup just up to the brim and then wait. The water in the cup slowly drains through the whole in the bottom. As it nears empty, we fill the cup back up again, repeating the process until the pitcher is empty. No water spills over the sides, and we win the game.

That's what smaller more frequent meals are like. We give the body a small amount of nutrients it can efficiently use without excessive amounts spilling over into body fat stores. This way, the body receives all of the nutrients it needs to function properly without anything being wasted. Smaller, more frequent meals are the best way to go for the fitness athlete trying to build lean muscle and slash body fat.

2. Eat a meal or snack every 3-4 hours.

Imagine you are in charge of a fireplace or a campfire. How are you going to keep the fire going strong without letting it burn out? If you want a fire to burn efficiently, you put small logs on every so often. The fire can handle the small logs and burns red hot. However, if you let the fire go a long time without attention, and then put a huge log on, you smother the fire and it goes out. The log sits there, and doesn't burn.

Your body's metabolism is much like that fire. If you want it to run efficiently as a fat burning machine, you have to frequently put small meals and snacks into it. However, if you go long stretches without fueling the machine and then try to put a huge meal into it, the fire is put out. You've overloaded the machine's ability to burn the log, and the huge meal just sits there (in your fat cells).

It sounds counterintuitive to eat more often to lose weight, but that's how our metabolism works. We're meant to be grazers -- eating small meals throughout the day - not gorgers -- eating 1-2 supersized meals a day. The small frequent meals give us the steady stream of nutrients we need without overloading the body's capability to digest and absorb those nutrients.

If you look at the dietary patterns of top-level fitness athletes, you will see they all eat 5-6 meals a day spaced 2-4 hours apart. This is how they attain such low levels of body fat. They give their body's what they need to build/maintain muscle while virtually eliminating any potential for fat storage. Too many calories per day, or PER MEAL, can be stored as fat.

Compare that with the typical overweight American's diet. They wake up and have coffee and a pastry for breakfast, or skip it all together. They then have huge lunches (burgers and fries, sandwich w/ chips and soda, etc.) and even bigger dinners. They follow that with a trail of sugar-loaded snacks right up until bedtime. They're putting huge logs into a slow burning metabolism -- virtually guaranteeing fat storage.

When we go long hours without food, our metabolism slows down to compensate for the lack of nutrients entering the system. The body enters what many fitness folks refer to as a "mini-famine stage." Nutrients are not entering in on a steady basis, and as a survival response the body slows down the rate at which it burns through calories.

As another survival mechanism, the body also alters metabolic processes to more efficiently store fat the next time you do eat. When this happens, the body stores fat at a higher percentage than normal in order to prepare for the next long stretch without food. We are meant to be grazers, or eat a little bit frequently throughout the day as we go. Its not natural to go long hours without food, and the only way the body can respond is to store more fat in order to assure it has plenty of reserves during times of famine.

The bottom line is this: smaller, more frequent meals turn you into a fat burning machine. Long hours between large meals turn you into a fat storing machine. Which would you rather be?

But wait, Da Da Da Dat's Not All Folks…

3. Smaller frequent meals prevent energy crashes, hunger cravings, and binges.

I want you to think about the last time you pigged out. A time where you really went crazy, chowed down, and let your bloated gut flop out. A time where you said, "screw you Nate, I'm going to town on the junk food and I don't give a shit what your stupid fitness-ass says!" Chances are this moment came after a long period without food.

Small, frequent meals keep blood sugar and insulin levels in check, and provide you with an even release of energy. When many hours pass between meals, blood sugar levels dip below their normal range. When blood sugar drops, your energy crashes, you become tired/fatigued, and your body craves something that will quickly elevate it back to its normal range. This something is either sugar loaded, refined foods, or large, oversized meals in general.

This is why you are most likely to cheat on your diet, overeat, or make unwise food choices after a long drought without food. Its not a lack of willpower, it's a physiological response to an incorrect eating pattern. Grazing will help avoid these strong cravings. You should eat on schedule whether you are hungry or not to prevent ravenous, uncontrollable binge eating.

4. Have a post workout meal or snack within 30 minutes of finishing exercise.

"The post workout meal is the most important meal of the day." This maxim is repeated more than any other in the fitness and bodybuilding communities. There is an almost mythical status associated with the post workout meal. It is regarded as having the biggest impact on your physique goals. Both scientific research and anecdotal evidence among athletes proves the validity of this belief.

Here are just some of the benefits of a postworkout protein and carbohydrate meal or recovery drink:

- It refills glycogen stores. Adequate glycogen stores are a prerequisite for intense exercise. Because glucose is the preferred energy pathway during exercise, glycogen stores are depleted during the workout. The post workout meal refills glycogen stores, aids recovery, and starts the early preparation process for your next workout.

- It shuttles amino acids into muscle cells. This very process is why the post workout protein and carbohydrate combo is considered highly anabolic. Insulin clears nutrients from the blood and sends them to be used or stored in the body's tissues. Insulin carries amino acids from the blood stream and deposits them into the muscle cells. Once in the muscle cells, the amino acids can be used to repair and rebuild the damaged muscles stronger (and bigger) than before. You want this repairing process to begin as soon as possible after you finish your workout. Research has shown that waiting two hours to consume a post-workout meal drastically reduces protein synthesis compared to having one immediately after training.

- It decreases cortisol. Exercising releases hormones that positively alter body composition, including growth hormone and testosterone. Exercising, however, can also

cause increases in hormones that negatively effect body composition, particularly the stress hormone cortisol. Although exercise is a good type of stress on the body, it is a stress nonetheless. Cortisol can have all kinds of negative effects, including forcing the body to burn muscle and store fat. Post-workout meals of protein and carbohydrates supresses cortisol and minimizes some of these negative effects. In essence, the postworkout meal is both anabolic and anti-catabolic, a powerful one-two punch for your physique enhancement goals.

- It supports the immune system. Cortisol can also suppress your immune system. Athletes who neglect the post workout meal tend to have higher rates of colds and flu's. You can't train hard and change your body if you are sick all of the time.

- It does NOT inhibit fat burning. All carbohydrates eaten during the post workout period have priorities – the least of which is to be stored as fat. The top priority is to refuel a depleted body. Carbohydrates will first be used to elevate blood sugar levels. The next priority is to refill glycogen stores, which helps prepare your body for the next workout. Postworkout carbs are not likely to be stored as body fat. They have specific jobs to do, and can't just sit around dormant in fat tissue. Carbs are more than welcome in this time frame because they will be utilized efficiently.

5. Eat breakfast.

Breakfast means to break the fast after a long night without food. It's cliché, but is valuable advice nonetheless. You've essentially gone 6, 9, maybe even 12 hours without food. Your body basically wakes up in starvation mode, and if you don't feed it to start the day, bad things can happen.

The body's top priority is to fuel itself, not to look aesthetically pleasing. If you don't give it the fuel it needs, it will scavenge around and find a way to continue powering on. One of those back up plans is to break down its own muscle tissue and convert it to usable energy. Breakfast kickstarts your metabolism, gives it the nutrients it needs to power through the day, and prevents any muscle loss due to catabolic activity.

Research has shown that those who eat a decent breakfast eat fewer calories during the rest of the day. This, of course, is the best pattern for fat loss. Breakfast can prevent you from exceeding your daily calorie totals and overeating at night.

6. Don't eat large meals or a lot of carbohydrates before bed.

Nutrient timing in the morning helps you avoid losing muscle. Nutrient timing at night helps you lose fat.

Growth hormone is the most potent fat burning hormone in the body. If you can maximize the natural secretion of this hormone, you will make it much easier to get lean. Exercising increases growth hormone release. The biggest surge in GH levels, however, comes as a natural nocturnal secretion within the first four hours of sleep. What and when you eat at night can affect this spike in fat burning GH levels.

Growth hormone is inversely related to insulin. When insulin is high, growth hormone is suppressed. When insulin is low/controlled, growth hormone can rise, and the body can shift into a fat burning mode. If you eat a large carbohydrate meal at night, or late night snack on high sugar/high carb foods, insulin will rise and you will limit the effectiveness of your natural growth hormone peak.

While carbohydrates in particular raise insulin levels, it's important to remember that large meals in general (regardless of macronutrient content), can raise insulin levels. It's important to keep portions under control at night. Large meals at night are not conducive to your fat burning goals.

Besides the hormonal effects, both energy requirements and metabolism decrease at night. Your body doesn't require a lot of food. Have your last meal 2-3 hours before you go to bed, keep portions under control, and keep a good carb-to-protein ratio. Ditch the late night sugar or refined carbohydrate snacks.

Finally, alcohol can inhibit your secretion of growth hormone at night. You should get out of the habit of finishing off the day with a drink with dinner or to unwind with while you watch TV. Nightly drinks will inhibit your fat loss goals, not necessarily just because of the calories, but because of the hormonal effects. Sometimes, you have to sacrifice a little bit to get what you want.

STRUCTURED VS. HAPHAZARD APPROACH

Now you can see the importance of a structured eating plan versus a haphazard approach to eating whatever you feel like, whenever you feel like it. Obviously the former can have a dramatic impact on your physique goals. The timing of your food intake impacts body composition changing hormones and enzymes, and protein and fat synthesis.

This is why I believe that those who are not willing to implement sound nutritional strategies are really just wasting their time in the gym.

NUTRIENT TIMING IN REAL LIFE

How does one juggle a career, school, family, a social life, and exercising itself with fitness nutrition principles? Well, its not easy, but this isn't a bullshit infomercial giving you false promises. It takes some planning ahead -- cooking multiple meals in advance, packing your own lunches, finding quality snacks with little clean-up or prep time, and making wise choices at restaurants.

Here's how a typical day might look: Get up, eat breakfast -- simple enough. Somewhere in the middle of the morning in between meetings or classes (for students), eat a snack. If you're too busy, eat at your desk. Bring your own lunch with you to work (maybe last night's leftovers) to control exactly what goes into your food. Sometime in the middle of the afternoon eat another snack, change it up so you don't get bored. After work, go exercise. Get home, eat dinner -- simple enough. Avoid late night alcohol and sugar cravings, which will disappear after a small

period of hard work establishing new, healthy habits and patterns. If you eat out, make wise food choices and control portions.

The theory is simple; it's the implementation that is difficult. Like with most things in life, the hardest part is making a change, breaking bad habits and eating patterns, and starting new ones based on effective nutrient timing principles. It WILL be difficult in the beginning, but trust me, it does get easier. If you work hard to stick to the plan while you are making the transition, you'll soon be automatically eating this way without even thinking about it.

My wife just asked me what time it is. It's probably time to eat!!