



The Role of Nutrition in a Weight Loss Program

It's important to understand that any weight loss, muscle gain, or toning program is a lifestyle change. Each of these programs involves more than just the evil four-letter word “diet.” Effective, healthy programs must include elements of exercise, nutrition, knowledge, and rest. An absence of one of those four fundamental components dooms weight loss before it begins:

- Lack of knowledge will lead to bad food and/or exercise decisions that will stifle your progress.
- Different exercises serve different purposes. Performing the wrong exercises can actually work *against* your goals and/or reach a point where the same exercises are no longer effective (referred to as the plateau effect).
- Inadequate rest promotes weight gain. You see, all sorts of hormones are released during sleep including an appetite suppressing hormone known as leptin. When you don't get enough sleep your body lowers its leptin levels. Lower leptin means the brain is slow to determine when the stomach is full. Therefore, you eat more. Additionally, the body releases a growth hormone during sleep which promotes the development of muscle (note, ladies, this does not mean you get “bulky”). Lack of sleep prevents your body from developing attractive, calorie-burning muscle. Besides hormone imbalance, sleep deprivation may impact your mood and lead to emotional eating.

In the fitness community, there is a generally accepted law that I refer to as the “Rule of 80.” That is, 80% of your results are due to your nutrition. There's an understanding that your physique is made in the kitchen. While many people understand that nutrition is an essential component to any fitness program, people often fail to realize that it's more than just *what* you eat. Sound nutrition is also about *when* you eat (nutrient timing) and *what foods you eat in what combinations*. This is the secret to maximizing your results. Did you know that what you eat ½ hour before a slow paced jog should differ from what you eat prior to playing 90 minutes of soccer? Did you know that your muscles are starving for nutrition immediately after lifting weights and that to maximize your results you should consume a protein drink and a carbohydrate drink within 30 minutes of completing the workout? Did you know that not all carbohydrates are bad? Did you know that people who gain muscle through weightlifting and nutrition are actually more successful in losing weight? As counterintuitive as it is, gaining weight *can* speed weight loss and help overcome the plateau effect.



The importance of nutrition isn't to say that exercise should be placed on the back burner. Quite the opposite actually. Having a nutrition program that complements your exercise program is truly what will help you achieve your goals. The correct combination of the two is the key.

Food and Physiology

Think of food as fuel. Just as your car needs fuel to get you to work, your body needs fuel to power it through everything you do whether that be a vigorous activity like shoveling snow or exercising or a biological activity like digesting food. Every activity, both controllable (e.g. typing, walking) and uncontrollable (e.g. heart beat), causes the body to burn fuel. Fuel comes from one of three sources (listed in the body's order of preference for usage):

1. The food you eat
2. The muscle on your body
3. The fat stored on your body

Regardless of your goals, you must understand three critical points:

Muscle is more metabolically active than fat

Huh? This simply means that muscle burns more calories at rest than fat. While there are conflicting results, *every scientific study has shown that a pound of muscle burns between 10 and 50 calories per day simply to maintain.* Adding 5 pounds of lean muscle to your body means that you will burn anywhere from 50 to 250 extra calories without lifting a finger. A common myth is that lifting weights (building muscle) builds mass and makes a person bulky. This is wrong. *A weightlifting routine, as well as the diet, for mass-building is different than that for toning and/or fat loss!!! You can gain muscle without gaining bulk if you so desire!!!* **Adding muscle is the key to all fitness goals as well as sustaining all your results.**



Excess calories are stored on the body

The question is, is the excess stored as muscle or fat? This depends on food composition, combinations, and timings. Excess carbohydrates and fats, both necessary in your diet in controlled amounts, are more likely to be stored as fat when inadequate cardiovascular (e.g. jogging, biking, etc.) exercise is performed. Excess lean protein is more likely to be stored as muscle when regular, weight lifting exercise is performed. Hopefully you can draw your own conclusions regarding weight training, cardiovascular exercise, and diet requirements. To understand how many calories your body requires each day to function, visit our BMR/BMI calculator under the “Tools” section of our website (www.goalfitnessandnutrition.com).

The less calories you consume the more likely your body will hold onto its fat stores

This is counterintuitive. Several thousand years of evolution doesn't change the fact that, like our caveman ancestors, our bodies are built for survival. Our bodies react to starvation by rationing energy stores in such a way as to prolong our survival. When we consume too few calories our body enters “starvation mode.” In this state the body has little or no ingested food (the preferred energy source) to use for fuel so it goes to the second source: muscle. The body tries to prevent the unnecessary consumption of energy by burning the most metabolically active tissue. For each pound of muscle lost the body's metabolism drops by 10-50 calories per day. Big deal, right? Wrong! It's hard to maintain a very restrictive diet for an extended amount of time (remember, it's starvation). When you finally reach your weight loss goals or tire of the starvation (whichever occurs first) you'll go back to eating the same amount of food as before your diet began. Thus, your body is burning some 100-1000 less calories per day than before (your metabolism has dropped). Your previous metabolic rate (which had an extra 10 pounds of muscle included) is no longer the same – you burn less calories per day which means you're more likely to consume excess calories without knowing it. Reread the above points. These excess calories get stored on the body. This is the story of yo-yo dieters and those individuals that lose a lot of weight by starving themselves!



Macronutrients

Macronutrients are the three major components of foods: protein, carbohydrate, and fat. You're likely already familiar with the three.

Protein

Protein is the primary building block of muscle. Muscle cannot be built without adequate protein consumption. Inadequate consumption can cause muscle to be destroyed. Every gram of protein you ingest is 4 calories. However, the body raises its core temperature to digest protein (known as the thermogenic effect). The thermogenic effect of protein consumption actually causes the body to burn roughly 1 calorie per gram (25%). Compare this with fats (5%) and carbs (15%) and you see why protein consumption helps you achieve your goals. Still not clear? 1. Protein consumption causes the body to burn significant calories just to digest which means you've raised your metabolism, and 2. Protein helps build muscle.

However, many protein sources are high in fat (particularly bad, saturated fat) and cholesterol. You must be cautious in your protein selections. It is generally recommended that you consume roughly 1 to 1.5 grams of protein for every pound of lean body mass (LBM). To calculate your LBM, you must know your body fat percentage. Let's assume a 160 pound individual with 25% body fat. $LBM = (1.0 - BF) \times \text{weight}$. For our example that would be $.75 \times 160$ or 120. So this individual should consume roughly 120 to 180 grams of protein daily (480 to 720 calories). It is difficult to meet these requirements. To achieve this recommended intake, consider supplementation using whey or casein protein shakes or protein bars (but watch the fat!). They are a cheap, quality, readily-available source of protein.

The following are some examples of good, lean protein sources:

- λ Skinless poultry (chicken, turkey, etc.)
- λ Fish (salmon, tilapia, tuna, crab, etc.)
- λ Low fat or fat free cottage cheese
- λ Eggs (limit yolk consumption as it's high in cholesterol)
- λ Lean hamburger and lean cuts of beef
- λ Whey and casein protein supplements



Always remember that a food can be healthy but the way it is prepared may not be. How it's cooked as well as what sauces it's served with can make a healthy food unhealthy.

Carbohydrates

Carbohydrates are the most misunderstood and mistreated of the macronutrients. Low-carb diets are the recent fad. I'm sure you know someone who "lost a ton of weight" on a low-carb diet. To be fair, yes, you can lose weight on a low carb diet. But before you jump on that band wagon, hear me out.

Carbohydrates are sugars. They come in a number of varieties – simple, complex, starchy, fibrous. Regardless of the variety or classification a carb is sugar. And sugar, regardless of the form, is energy. Therefore, carbs are fuel. Carbs are the most readily available forms of fuel our body uses. Carbs, when digested, enter the blood stream as blood sugar (a.k.a. glucose), are stored in the muscles or liver as glycogen, or are converted and stored as fats.

The primary difference between all carbs is the rate at which they enter the bloodstream. Carbs that enter the bloodstream quickly will give an immediate, short boost of energy (e.g. the sugar in soda, candies, pastries, white bread/pasta, etc). Carbs that enter the bloodstream slowly will provide steady energy levels for a long period of time. The rate at which a carbohydrate enters the bloodstream is known as the glycemic index (GI). You see, carbs, depending on their form, cause a release of the hormone insulin. Insulin, in simplest terms, causes the body to uptake digested food substances. This means proteins will be stored (as muscle), fats will be stored (as fat), and carbs will be stored (as glucose, glycogen, and/or fat). Controlling the release of insulin (by understanding the glycemic index) is important for maximizing and maintaining results. Google "glycemic index" for more information.

Again, carbs are energy. They prevent us from feeling sluggish, they fuel our workouts, they help us focus at work, they help our exercise endurance, and can be used to build muscle. Whoa! That last point: carbs "can be used to build muscle." I thought protein was the source of muscle!? Yes, that's true. However, ingesting the correct carbs at the correct times can encourage your body to release insulin and store more protein as muscle. Eating carbs in combination with protein actually enhances the effectiveness of protein. It's a double-edged sword though. Eating carbs with fats increases the effectiveness of fat storage. Thus, you should always eat carbs with protein and not with fat.



Additionally, muscle glycogen (sugar stored in the muscles) allows us to lift heavier weights and/or perform more repetitions thus making our weight training exercise more effective. It also helps with endurance making it easier to perform extended durations of cardiovascular exercise. Sources of such carbs are whole wheat pasta, brown rice, oats, sweet potatoes, and whole grain breads. These should be consumed no later than 5:00pm to prevent them from being stored as fat while you sleep.

On top of that, liver glycogen (sugar stored in the liver) fuels the brain which makes us more alert and increases our capacity for thought. Sources of these carbs are primarily fruits and have the highest uptake rate if eaten first thing in the morning.

So we've discussed fruits and starchy carbs. What about vegetables? Vegetables have a plethora of health benefits and, when eaten without sauces/cheese, are very low in calories but also very filling. Green vegetables should be consumed often and without as much caution as other carbs. Many vegetables have what's known as a negative net effect on the body which means it takes more calories for your body to digest them than is actually contained in the food itself. Eat green vegetables liberally.

Like protein, 1 gram of carbohydrate contains 4 calories. It is recommended that you consume roughly 1 to 1.5 grams for each pound of LBM.

The following list contains some examples of carbs as well as recommended consumption times:

- λ Starchy, low GI carbs (e.g. brown rice, whole wheat pasta, whole grain bread, sweet potatoes, oats) should be consumed prior to 5:00pm. You should always consume at least a serving for breakfast to provide energy for the day. However, do not overeat as this will lead to fat storage and reduced energy levels.
- λ Starchy, high GI carbs (e.g. bananas, apples, grapes, 100% fruit juice, low fat yogurt) should be consumed with breakfast.
- λ Simple, high GI carbs (sports drinks, sugary fruit juice) should be consumed immediately after weight training and in combination with a fast digesting (i.e. liquid) protein source (e.g. whey protein shake). Limit consumption of these carbs as they cause insulin spikes that induce fat storage and can lead to Type II Adult Onset Diabetes. Many candies, pastries, desserts, and sodas fall into this carb category and have little or no nutritional value.



- λ Fibrous, low GI carbs (broccoli, asparagus, leafy greens, beans, cauliflower, carrots, etc). Eat regularly and often. Try to avoid eating past 7:00pm.

Fats

Also a misunderstood macronutrient, fats are vital to your health. Certain vitamins (A, D, E, and K) require fats in order to be absorbed in your system. Additionally, healthy fats act as a lubricant to prevent certain cardiovascular diseases and also add satiety to foods. Not all fats are created equally and you must be cautious of how much and what types you consume. In general, you should limit your intake of saturated fats (e.g. those that stay solid at room temperature) and focus on the unsaturated kind.

A single gram of fat contains a whopping 9 calories. Fat intake should be roughly 20% of your total calories. To determine your personal requirement you must find your BMR. Then, take 20% of your BMR to determine how many calories should come from fat. Divide that number by 9 to determine the number of grams of fat you should consume in a day. For example, if your BMR is 2,000 then your fat requirement is $(2,000 \times .20)/9$ or about 45 grams.

Examples of healthy, unsaturated fats include:

- λ Natural peanut butter
- λ Almonds, cashews, peanuts, walnuts, pistachios, etc. However, opt for low/no salt versions
- λ Fish oil (either as a supplement or from consumption of fish)
- λ Olive oil

Try to avoid fat consumption after 7:00pm as it'll be more readily stored as body fat while you sleep. And to reiterate, avoid eating fat with carbs. Carbs cause the body to release insulin which will promote the storage of fat as fat on your body.



Tips and Rules

Do...

- Know your BMR. Use it as a baseline for gaining muscle, losing fat, and/or maintaining weight.
- Keep a food journal to determine your actual macronutrient and caloric intakes. I suggest using a free site such as FitDay.com.
- Aim to consume 40% of your calories from protein, 40% of calories from carbohydrates, and 20% of calories from fats.
- Eat protein with every meal
- Try to eat 6-8 small meals per day rather than 2-3 larger meals. This will keep your metabolism elevated, prevent snack-inducing hunger pangs, and prevent the body from entering starvation mode.
- Eat breakfast. It stokes your metabolism and prevents overeating and snacking
- Eat a bed time snack. However, keep it low-fat and low-carb. Perhaps a protein shake, some lite/fat-free cottage cheese, or an egg white omelet.
- Eat as many fresh, green vegetables as you like. Feel free to enjoy leafy greens (spinach, romaine), broccoli, green beans, peas, asparagus, etc. as often as you like. Your body burns more calories digesting these foods than are actually contained in them. Onions and peppers are also great foods to add to meals for additional flavors.
- Make an effort to use fat free and low fat versions of dairy products and dressings.
- Choose alternative, low calorie flavoring options such as adding dry spices (but avoid salt), yellow mustard, Worcestershire sauce, salsa (in moderation), or tobasco sauce.
- Give yourself one cheat meal per week where you eat whatever you want
- Focus on lifting weights more often and with heavier weights. This will help you build muscle and stoke your metabolism. After performing vigorous weight training, your metabolism is boosted for up to 48 hours. During this time you may actually burn more calories than jogging for 45 minutes.
- Drink plenty of water. Digesting large amounts of protein creates bi-products that must be flushed with the water. Try to consume 96+ oz per day. Additionally, drinking lots of water actually helps rid the body of water weight. Yes, it's counterintuitive. Yes, you'll urinate every 45 – 60 minutes. But try to drink a gallon (128 oz) in a day and you'll see that your rings and bracelets fit more loosely – proof that it works.
- Listen to your body. No exercise or nutrition plan is worth risking your health.
- Keep an open mind. Intuition says that eating more is counterproductive to weight loss. However, highly restrictive diets actually lower your chances of success because it destroys muscle and lowers your metabolism.



Fitness & Nutrition

- Don't feel like you can't add flavor or variety to your meals. Eating the same thing every day will kill your motivation. Finding healthy flavor options is part of making a healthy lifestyle change.
- Read our blog at www.goalfitnessandnutrition.com/blog. It has all sorts of information geared towards maximizing your results.
- Contact me with any questions: kottmann@goalfitnessandnutrition.com. Your success is important to me. If you feel you need help or you just want to discuss the science behind my recommendations, I'd be more than happy to address your concerns and questions. There is no such thing as a dumb question.

Don't...

- Turn your weekly cheat meal into a cheat day (or weekend).
- Neglect cardio. Even though I encourage you to pursue weightlifting, cardio plays an important role in burning stored fat, strengthening your heart, boosting your immune system, and bettering your health.
- Add unhealthy sauces/seasonings to your meals or snacks (e.g. full-fat cheese or dressing, cream sauces, etc)
- Drink alcohol. Ok, more realistically make an effort to avoid it. Alcohol is poison. It removes your inhibitions making you more susceptible to late night snacking and will decrease your exercise performance (meaning you gain less muscle and lose less fat). Plus, it's empty calories with no nutritional value. It'll help you pack on pounds of fat.
- Forget that drinks contain calories. Alcohol, soda, latte, tea, milk, juice, etc. all have calories.
- Mix carbs and fats in the same meal
- Be overly restrictive on your carb intake. Carbs are vital to your energy. Low carb diets result primarily in water-weight loss.
- Be afraid to research alternative food and snack options. It builds knowledge and increases the likelihood that you succeed. As always, call or email your questions.
- Be overly restrictive on your calorie consumption. Check out the BMR/BMI calculator on our website to determine how many calories you burn in a day. On a fat-loss plan, consume no fewer than 300-500 calories less than your BMR per day. This will prevent muscle loss which prevents a drop in your metabolism.
- Be overzealous on calorie intake when trying to add muscle mass. Muscle is built slowly. Consume no more than 200 to 400 calories above your BMR if your intention is to gain lean muscle mass. Consuming more than that will almost guarantee fat gain.



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Goal Fitness and Nutrition provides personal training, nutrition coaching, and health education services both in-person (Omaha, Nebraska) and online. Its members run multiple group-oriented fitness bootcamps (<http://www.onehourbootcamp.com>) and actively participate in the fitness community through freelance writing for the company blog (<http://www.goalfitnessandnutrition.com/blog>) as well as other article hosting web sites.

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