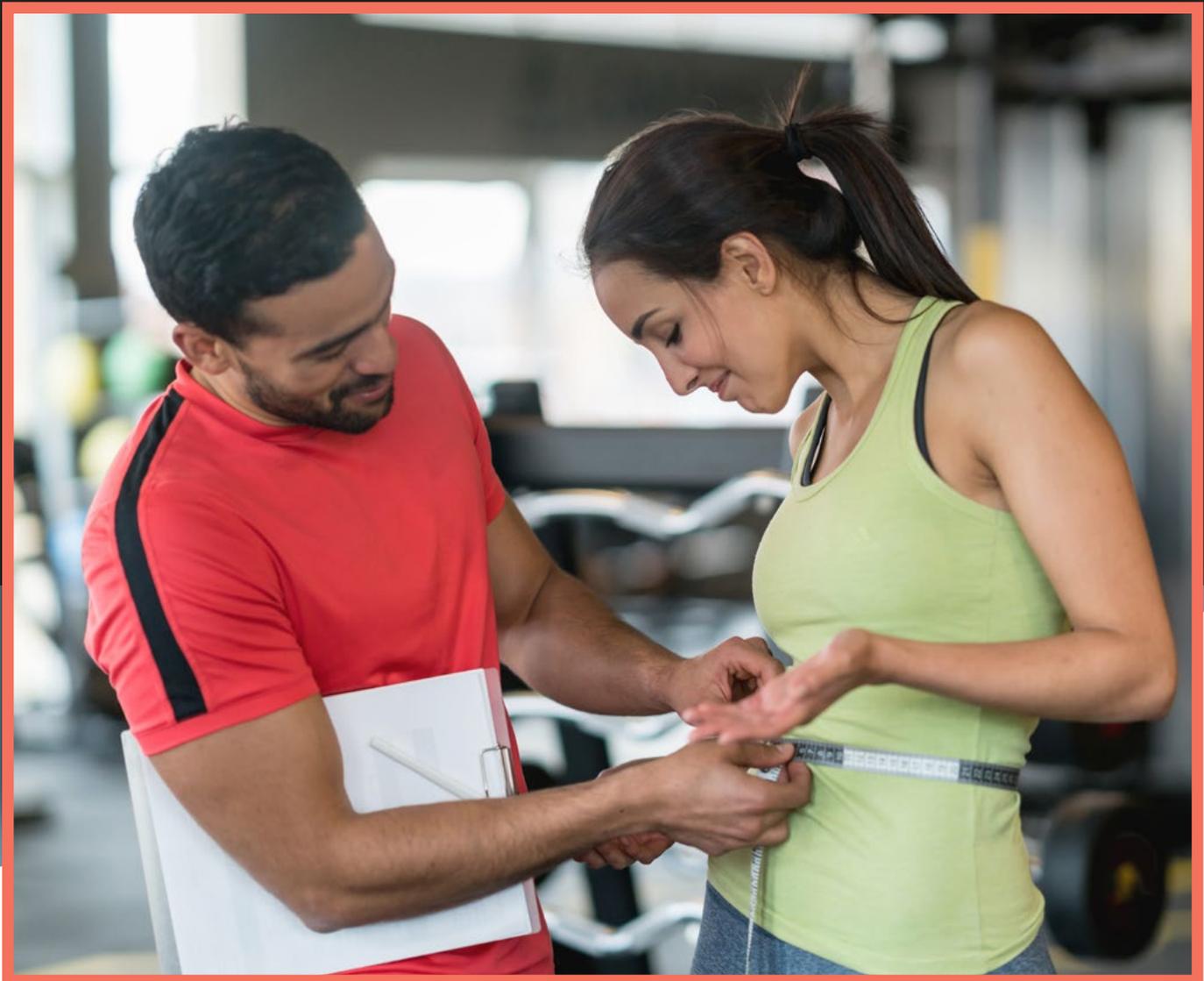


“Fat Burn” Facts and Fiction



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How To Burn Fat Not Muscle



To avoid losing muscle along with fat, you must combine exercise programming with the right strategy for fueling.

As a trainer, you probably already know this, but do your clients? Your recommendations and strategies for fueling must match the goals of your clients. Typically, a client's goal is to lose weight and look better, not to lift a certain amount of weight or be a better endurance athlete.

When you workout to lose weight, without knowing how to do it the right way, you end up creating a smaller version of your unmuscular self. You need to know how to explain to your clients about combining exercise and food to maximize fat loss and minimize muscle loss for optimal body condition. Let's break it down in a way that is easy for your clients to understand.

You don't need a Ph.D. in biology to make sound recommendations to your clients, but you do need a solid knowledge of the basic principles of fueling and working out.

1. THE BODY IS A BIOGENETIC CONTINUUM OF ENERGY SYSTEMS

Adenosine triphosphate (ATP) is our fundamental unit of energy. The body uses ATP to fuel work. The human body has enough ATP to fuel 5 to 10 seconds of work before it starts to break down stored macronutrients to manufacture more ATP.

The easiest macronutrient to burn is sugar. Exercise lasting from 10 seconds to several minutes uses predominantly glucose in the form of pyruvate, and if the exercise is intense enough, in the form of lactate.

After several minutes of work, the body will begin to burn fats for energy use.

The body will burn sugars first, always.

2. EXERCISE INTENSITY DETERMINES HOW YOU FUEL YOUR BODY

High-intensity workouts such as weight lifting, cross-fit, Tabata, high-intensity interval training (HIIT), and sprinting, cause physiological responses that are different from those caused by aerobic training.

High-intensity work is anaerobic, meaning without oxygen. High-intensity work has a lot of unique effects on the body:

- It creates an excess post-exercise oxygen consumption (EPOC) effect—the body burns calories resynthesizing ATP.
- The body burns calories restoring oxygen to myoglobin and the blood.
- The body experiences an elevated core temperature and heart rate, increased respiratory rate, and thermogenic effects of fat-burning hormones such as epinephrine (5).

Lower intensity and endurance workouts are aerobic activities. The primary effect they have on the body is to burn fat as fuel, once you have gotten through the available sugar.

You burn fat during low-intensity, aerobic workouts, but the benefit from high-intensity exercise occurs predominantly after the workout.

For more information on the role fats play, check out the ISSA's article on [Explaining Fats' Function to Clients](#).

FUELING FOR THE WORKOUT: HIGH-INTENSITY DAYS

With these things in mind, the goal of fueling should be to optimize the workout. For example, low-carbohydrate diets can be an effective strategy for weight loss. But on days of high-intensity workouts, low-carbohydrate fueling may not be the most effective strategy, especially post-workout.

The body burns sugars first. Low glycogen levels (stored carbohydrates) combined with high-intensity exercise creates opportunities for the body to burn higher amounts of muscle—not what anyone wants.

As well-known Canadian bodybuilder and strength coach Christian Thibodaux once said, those who burn up both fat and muscle create “smaller versions of their unaesthetic selves,” and this is not the goal of improving body composition (7).

Therefore, on higher intensity days the optimal situation is to create opportunities to consume protein to rebuild muscle and carbohydrates to burn as fuel.

Insulin is a power hormone that stimulates protein synthesis and it also releases blood sugar for energy use. Eating carbohydrates triggers insulin (5). So, you want to eat carbs on those high-intensity days to ensure you have enough sugar to burn. This prevents the body from breaking down muscle to burn protein for energy.

Consume complex carbs well before a workout and especially after. The body needs the insulin for protein synthesis after the workout is complete.

Also, review [popular protein myths](#) with your clients so they know how much protein they need and how it will affect their bodies.

ALTERNATE HIGH- AND LOW-INTENSITY DAYS AND FUEL ACCORDINGLY

The major takeaway—and the basic information you want to relay to your clients—is that to lose weight while gaining, or at least not losing, muscle, you need to alternate your workouts between high-intensity, anaerobic exercises, and low-intensity aerobic work. And then fuel accordingly on those days:

- On high-intensity days, acquire or preserve muscle by eating more and including carbohydrates.
- On low-intensity days, burn fat without losing muscle by truly keeping the workout intensity low and by avoiding carbohydrates, especially simple carbs.

Burning fat and maintaining muscle is both difficult and time-consuming. No quick fix exists. Encourage your clients to use the slow and steady, proven approach and to avoid fad cleanses and other diets based on drastic caloric restrictions.

These types of fueling strategies combined with exercise rich programming can cause immediate drops in clothing size and win on the scale, but over the long-term, they do more harm than good. Always focus on the long, slow, disciplined, and healthy approach to exercise and fueling.

For more information on coaching clients on nutrition, check out the [ISSA's Nutrition Certification Course](#).

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Is Cardio the Secret to Fat Loss?



One of the most talked-about subjects in the fitness industry is this: Cardio and fat loss.

Here's what your clients (and yes, even trainers too) want to know: Is cardio really necessary for fat loss?

Which type of cardio will optimize fat loss? Low intensity steady state cardio (LISS) or high intensity interval training (HIIT)?

The good news is that there is some pretty clear research that can answer these questions. First, let's define cardio and look at what the different types do for your body.

AEROBIC VS. ANAEROBIC TRAINING

There are two basic types of physical training: aerobic and anaerobic. To understand how our bodies lose fat during training, and to be better able to explain it to your clients, you need to know what these terms mean, technically and practically.

Aerobic Activity

Aerobic training requires the presence of oxygen. It is the type of activity that primarily works type I muscle fibers. This helps to increase muscle endurance and capillary size and generally helps the heart muscle to pump blood more efficiently. Aerobic activity is done at a pace you can sustain for an extended period; think 50 to 70 percent of VO₂ max and a heart rate between 120 and 150 BPM: lower intensity jogging, swimming, or biking, for example.

Anaerobic Activity

This is just the opposite of aerobic activity. Anaerobic training is exercise that does not require the presence of oxygen. It works the type II muscle fibers, which leads to greater size and strength of muscles. Sprinting until you gas out or resistance training with heavy weights is anaerobic. When you work at 90 to well over 100 percent of your VO₂ max performing anaerobic activity, oxygen and lactic acid build up, and you start to feel the burn (1). You can't sustain this kind of activity for extended periods like you can with aerobic exercise.

LISS is aerobic activity, while HIIT is anaerobic. Before we answer the question of which is better, why do cardio at all?

DO YOU REALLY NEED TO DO CARDIO TO LOSE FAT?

The quick answer is no. You do not need to do cardio exercise to lose fat. You can lose fat by restricting caloric intake, by doing resistance training, or by a combination of both.

The main factor in losing bodyfat is taking in fewer calories than you expend. Cardio can help you expend more calories but is not absolutely necessary.

Restricting caloric intake is an obvious solution to fat loss. If you consume fewer calories, you will burn and lose more fat. But, what about resistance training? How does that help with fat loss?

[Resistance training](#) is one of the best ways to get lean because it builds muscle (2). When you add muscle, you raise your resting energy expenditure (the number of calories you burn when you're just sitting still).

Muscle tissue requires more calories to function than fat tissue, even at rest. The more muscle mass you have, the more calories you burn per day.

WHICH TYPE OF CARDIO MAXIMIZES FAT LOSS?

Just because cardio isn't necessary for fat loss doesn't mean you shouldn't do it. [Cardio has other benefits](#), especially for health, and can contribute to your calorie deficit. So, which is better, aerobic LISS or anaerobic HIIT?

A traditional outlook on cardio and fat loss is that a good, long, low-intensity workout on an empty stomach will lead to the greatest fat loss. A long, slow run first thing in the morning is the go-to daily workout for a lot of people.

Views on this are changing, though, with research to back it up. What the current research tells us is that HIIT is a powerful way to lose fat, as compared to LISS training. Lower-intensity aerobic cardio leads to less fat loss and may even hinder muscle growth when compared to HIIT workouts (3).

For example, one study found that fat oxidation, the use of fat molecules for energy, was significantly higher after six weeks of interval training (4). Carbohydrate oxidation, the use of sugar for energy, was lower. In other words, HIIT caused the body to target fat stores for energy, which means greater fat loss.

In another study, researchers compared individuals doing LISS for several weeks to those doing HIIT over the same period. Fat loss in the HIIT group was up to nine times greater than in the LISS group (1).

One reason that may help explain the greater fat loss experienced with HIIT is that this type of exercise may increase EPOC, excess post-exercise oxygen consumption (1). After a HIIT session, you continue to oxidize fat, more so than after a LISS workout.

Researchers have also found that HIIT workouts can increase the levels of growth hormone in the body, which also may contribute to fat loss (5).

THE BOTTOM LINE

There is a time and a place for all types of exercise and both types of cardio. Both aerobic and anaerobic training provide a lot of benefits. The definitive answer, for now, is that HIIT is the front-runner when it comes to burning fat.

So, if your client's number one goal is to lose weight, focus on HIIT, but don't leave out other types of training. Also, remember that if your client is a beginner, HIIT may not be the right method of training right out of the gate. They may need time to work up to a fitness level where they feel comfortable enough to start performing interval workouts. Resistance training builds muscle and leads to higher resting energy expenditure.

LISS training also has benefits, including increased muscle mass in the heart, better disposal of metabolic waste, more use of fat as a fuel instead of sugar, and in fact, increased fat oxidation. LISS may not burn as much fat as HIIT, but it does the job and it provides health benefits and a little variety (4).

Now that you have the answers to the most pressing questions about cardio workouts and fat loss, you can better plan a fitness schedule for yourself and your clients.

Ready to add more to your bank of knowledge and skillset for personal training? [Sign up for the ISSA's Strength and Conditioning course!](#)

Coffee and Fat Metabolism



Everyone wants to get rid of fat but there are many varied opinions about how best to achieve that goal. Many fitness professionals are touting the benefits of coffee for losing unwanted fat, but they're not telling the whole story.

We're going to dig into the concept of fat loss via caffeine consumption or coffee and its impacts on fat metabolism.

FUELING FOR THE WORKOUT: LOW-INTENSITY DAYS

On days you do a lower intensity, aerobic workout, fueling will be different. On these days the goal is to burn fat, so everything put into the body should be to induce lipolysis—the burning of fat for energy.

In other words, these are your low-fat days. Total fat intake should not exceed 20% of total calories and the same goes for carbohydrates. There are two enemies of lipolysis and fat burning:

1. Insulin. Remember that the body's natural response is to burn sugar first. It may be helpful to think of fat and sugar use for energy as two separate faucets: when sugar is available, the body will turn down the volume of fat burn on one faucet and increase the sugar burn of the other faucet. This is related to insulin. When the pancreas releases insulin, it inhibits lipolysis (4).
2. Lactate. According to research, another inhibitor of lipolysis and fat burn is lactate (4). Lactate is present in muscles for energy use at rest and during high-intensity exercise. Lactate is either used by slow-twitch muscles for energy or it recycles in the liver for glycogen storage (4). The body prefers to reserve it for energy use. So, the more lactate has accumulated in the body, the less fat burned during aerobic exercise. High-intensity exercise causes large increases in lactate production and therefore should be avoided on low-intensity days designed to burn fat. The lower the exercise intensity, the higher the percentage of fat that is burned (5). Sure, higher aerobic intensity will cause fat to be burned but also will cause higher amounts of muscle to be burned.

THE TRUTH BEHIND THE CLAIMS

Coffee alone does not cause fat loss.

Research studies have found that caffeine enhances the mobilization of fatty acids during the process of fat loss during aerobic exercise. It moves more fatty acids out of storage and into the mitochondria for energy, thus promoting the loss of fat (1, 2, 3, 4).

If you slam a coffee and then sit on the couch, don't expect to lose any fat. Caffeine plus exercise triggers the catabolic effect of increased fatty acid oxidation.

AEROBIC EXERCISE PROMOTES OXYGEN UPTAKE AND FAT LOSS

When the body is aerobically active, the need to take in oxygen increases. We start to breathe heavily, feel our heart rate go up, and experience an increase in blood pressure when doing an aerobic workout.

The key to losing fat during this kind of workout is the fact that fatty acids move from adipose storage to mitochondria inside of cells (1). In the mitochondria, oxygen is put to work and the fatty acids are oxidized for energy. By exercising aerobically, we take fat out of storage and put it to use (4).

This is fat loss.

The oxidation of fatty acids to support physical activity occurs when the body has determined that it needs to use stored energy after using up other more readily-available sources of energy (2).

CAFFEINE HELPS YOU WORK OUT LONGER

There are some ideas from research to explain the caffeine-workout-fat metabolism effect.

One of these is that caffeine increases the ability to workout for a longer period. Caffeine extends time to exhaustion, which means you can exercise for a longer amount of time, and therefore burn more fat and calories (1).

Your stretched-out time to exhaustion will also improve maximum output and maximum oxygen consumption, which directly lead to more fat oxidation and more free fatty acids available for energy.

In other words, thanks to the caffeine hit, your body can take in more oxygen and this means oxidizing more fat.

Caffeine is also known to affect respiratory exchange ratios, the amount of oxygen taken in through respiration versus carbon dioxide released. Caffeine increases the ratio in favor of more carbon dioxide production and greater oxygen intake and use (1).

CAFFEINE AND LACTATE

The impact of drinking coffee or tea before a workout is a waterfall effect. The result of increased fat oxidation, in turn, leads to a decrease in the production of lactate (1). Lactate is a metabolite produced when you exercise. It contributes to the fatigue and pain that slow you down and make you quit early during high intensity or anaerobic exercise.

Lowered lactate production leads to yet a greater increase in time to exhaustion, so you can keep at it longer and keep burning even more fat.

And, the presence of lactate in muscles tends to slow down the breakdown of fatty acids, so if you are producing less lactate, your muscles will be able to continue oxidizing more fat from storage (2).

There is a connection between caffeine consumption and fat loss. However, you may also have to burst a few bubbles when you tell clients that caffeine is not a magic weight-loss bullet. Remind them that caffeine before a workout can increase fat burn, but that the exercise element is crucial.

Ready to learn more about nutrition and its relationship with fitness? Explore [ISSA's Nutrition course](#) so you can help clients with a well-rounded approach to achieving their health and fitness goals.

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Three Science-Backed Methods for Losing Fat



Your clients are likely familiar with some of the most popular diets, those like Atkins, South Beach, Weight Watchers, and plenty of others, but it takes more than familiarity to burn fat and lose weight. It takes motivation! A personal trainer is an expert in the field of exercise science and sports nutrition. He or she holds the key in regards to motivating personal training clients to burn more fat to achieve the ultimate weight-loss solution!

Most fad diets only support a negative calorie intake for the short-term. Most personal training clients need a long-term solution! The nutritional science is there, but it takes a personal trainer to educate clients on how to mobilize fat for energy in the long-term and how to make healthy eating and weight management a lifestyle change. One thing remains constant: You simply must be in a negative energy balance if your goal is to burn fat and lose inches!

To start, let's say your BMR is 2,000 calories per day—which is the calories you will burn under normal physiological activity such as sitting, lying down, or doing absolutely nothing. Now, perhaps you take in 2,500 calories in that 24-hour period. You're not going to be in a calorie deficit, and this will put you at risk of gaining weight, not losing it. Your body will store those excess, unused calories for energy as body fat.

Now, let's consider exercise. If you exercise and burn 500 calories, then you won't have to worry about gaining weight, but you won't lose any weight either—you will remain the same. However, if you plan your meals accordingly and take in only 1,800 calories, you're going to be meeting that negative calorie deficit. And you do want to ensure you're eating healthy and those calories are coming from rich, nutrient-dense foods.

Eating healthy foods, complex carbs, complete proteins, healthy essential fats and lowering sodium and sugar intake will all be complementary to your end goal, which is fat loss! This encourages the body to turn to stored fat deposits for energy, muscle repair, and normal cellular activity. If you can burn body fat, you can lose weight.

Now that we have a better understanding of what needs to happen to decrease body fat, let's move on to some of the methodologies proven to increase lipolysis and enhance the mobilization of fatty acids for energy!

1. DECREASE YOUR CARBOHYDRATE INTAKE

Low-carb diets can work. There is potential to lose more fat while on a low-carb diet than a normal low-fat diet. Some studies compared weight loss between low-carb groups and low-fat groups. What researchers found is that the restricted calories in the low-fat group had to be closely managed to even come close to the weight loss achieved by the low-carb group.

The low-fat group had to continuously restrict calories to keep up with the weight loss achieved by the low-carb group, but they still couldn't match the fat-loss achieved. Now, if you're questioning the safety of low-carb diets, we can put your mind at ease. The most recent research studies show amazing health benefits on this plan. For instance: triglycerides decrease, blood pressure becomes balanced, HDL cholesterol increases, the stomach and liver minimize visceral fat, insulin levels become balanced, blood sugar stabilizes, and an appetite suppressant effect seems to be common (coming from complete protein intake).

Some researchers believe that the success of a low-carb diet is directly linked to insulin suppression. A low-carb diet regulates the production of insulin and keeps it low, while also managing blood sugar as well. This helps mobilize the burning of fat for energy. In turn, weight-loss occurs.

In this respect, [your carb intake is dependent on your individual goals, metabolism, genetics, and might require some variations](#). However, here we are focusing more on optimizing fat loss and low carb diets can do this.

Still, for those who are looking to gain muscle and strength—a low-carb diet is not the most optimal. For those looking to improve stamina and performance for something like football or the 40-yard sprint—these individuals would benefit more following a higher carb diet, due to the energy system in use during these activities (anaerobic metabolism). Different goals equal different needs.

2. INCREASE FREQUENCY, INTENSITY, OR DURATION

Most personal trainers will remind their clients that it isn't just the caloric intake that is significant for fat-loss. The intensity of your workouts can mean everything and what you put into them is exactly what you'll get out of them. The more stress you put upon your body (muscles in particular) the more energy your body will require, which means a higher chance of burning fat for fuel. You'll burn more calories for sure when you mix up routines and add variation. For example, resistance training three days per week (up to five) increases the stimulus put upon the body and forces the body to burn more calories.

Now, if you can increase your cardiovascular activity to three times per week for 30 minutes each session, you'll reap the rewards you're after. Just remember, you simply can't train the same exact way day in and day out and then expect to see speedier results. It won't work. You'll gain progress and improvement when you increase your load and continuously lift more weight than before, also known as the progressive overload principle. In fact, the frequency of your resistance training sessions directly elicits new results for fat loss, muscle hypertrophy, strength, stamina, mood, and so much more.

3. PRACTICE THE PROPER TIMING OF NUTRIENTS

You'll find this section to be for those personal training clients who are more advanced and familiar with resistance training, lifting weights, and more. This is for those individuals who have resistance-trained consistently for years. However, it can also be beneficial for those who have established individual goals, know their calorie needs and understand macronutrient splits.

To bring more cohesion, let's go over nutrient timing. Nutrient timing refers to how certain nutrients are assimilated and handled during various times of the day. Research shows carbohydrate tolerance is heaviest after exercise; therefore, taking in carbohydrates, specifically faster-digesting carbs, following a heavy workout, is highly recommended. We want a quick spike in insulin after a workout, so complex, slower-digesting carbs are not optimal post-workout.

Let's not forget though, fuel use during exercise is dependent upon the type of macronutrients consumed beforehand. For example, a high-carb meal before you exercise creates a spike in insulin with available glucose, which in turn, fuels the workout. However, [a low-carb, higher-protein, higher-fat meal](#) before exercising will encourage the use of a higher percentage of fatty acids as the fuel source. With this principle in mind, let's again turn to a quick example. If you want to lose body fat and you're consuming lower carbs (maybe 60 grams a day), you'll see an improved optimization of fatty acids, and even more so when you take in higher amounts of protein in your meals.

You also want to keep healthy fats moderate and carbs low. Once your workout is complete, this is the time to get in the fast-digesting carbs, because this is when the spike in insulin is most beneficial (post-workout). You're almost guaranteed that the carbohydrates you ingest after your workout will not be stored as fat, but will be used bring more glycogen to the muscle and enhance recovery.

If you're looking to educate yourself more in the area of nutrition, ISSA offers a comprehensive course to become [certified in nutrition](#). Support a healthy lifestyle for you and your clients with advanced nutrition information.

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