

All About Carbs



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Tips to Help Clients Understand Carbs



Tips to Help Clients Understand Carbs

When it comes to carbohydrates, one of our essential macronutrients, there is a lot of misunderstanding and fear by many. Here is your essential guide to carbs and how to use them to maximize performance, fat loss, and health.

Try going into any local fitness center, log onto any fitness website, talk to any nutrition expert, and you will receive some different thoughts and opinions on how much, which types, when to consume carbs, and all the possible health risks or rewards for eating carbohydrates.

WHAT ARE CARBOHYDRATES?

Before we get to the definitive answers about carbs, let's first define and break down what a carbohydrate is. The U.S. National Library of Medicine has defined the term carbohydrates as:

“One of the main types of nutrients. They are the most important source of energy for your body. Your digestive system changes carbohydrates into glucose, blood sugar. Your body uses this sugar for energy for your cells, tissues, and organs. It stores any extra sugar in your liver and muscles for when it is needed.” (1)

Carbohydrates are biological molecules made up of carbon, hydrogen, and oxygen in a ratio of roughly one carbon atom (C) to one water molecule (H₂O). This chemical bond composition is where the origin of the name carbohydrates comes from.

Carbon (carbo-) plus water (-hydrate) = Carbohydrate

The rate at which our bodies can break carbohydrates down for readily available or stored energy depends on the different lengths of their chemical bond chains. Biologically, carbohydrates can belong to one of three possible sub-categories:

- Monosaccharides – a single sugar molecule
- Disaccharides – formed when two monosaccharides bond together
- Polysaccharides – three or more sugar molecules bonded together

For the non-chemist it is easier to categorize carbohydrates as one of two main types:

- Simple carbohydrates – sugars in fruits, dairy, processed or refined foods and grains, syrups, sodas, and table sugars.
- Complex carbohydrates – fibrous starches, like whole grain oatmeal, bread, pasta, rice, green leafy vegetables, potatoes, beans, lentils, corn, and peas

WHICH CARBS SHOULD WE BE EATING?

The answer to this seemingly simple question starts with more questions:

- Which carbohydrates are most easily digestible?
- What time will you be training?

The type of carbohydrate you need to eat revolves around two factors: overall digestion and nutrient timing. Digestion is a key factor because it plays a vital role in almost every bodily process.

Carbohydrates are responsible for not only providing the body with energy, but also helping to increase fat oxidation, stimulate protein synthesis, and help with cellular recognition processes. It becomes imperative that we can make proper use of these nutrients through digestion.

People in the fitness and nutrition industries have strong and varying opinions about what kinds of carbohydrates to eat and when to eat them. So, why are timing and type of carbohydrate consumption important and contentious?

How we digest carbohydrates, when we eat them, and the types we eat, all affect the production and storage of sugar in the body:

- As blood sugar levels rise, the pancreas produces insulin, a hormone that prompts cells to absorb blood sugar for energy or storage.
- As cells absorb blood sugar, levels in the bloodstream begin to fall.
- When this happens, the pancreas starts making glucagon, a hormone that signals the liver to start releasing stored sugar.
- This interplay of insulin and glucagon ensures cells throughout the body, and especially in the brain, have a steady supply of blood sugar (2).

So, in simple terms: simple carbohydrates provide quick energy that can raise blood sugar levels quickly, while complex carbohydrates provide a more sustainable energy source, keeping blood sugar levels stable for an extended period.

Therefore, nutrient timing, as well as the type of carbohydrate, is important. Timing carbohydrates and choosing the right ones based on your training sessions can maximize health benefits:

- Improving athletic performance
- Enhancing recovery
- Improving body composition

For example, after finishing an intense training session, your body's carbohydrate tolerance will be higher due to muscle contractions increasing the facilitated depletion of glucose in the cells of your muscle tissue.

This depleted state allows for the absorption of more nutrients into the muscles, which are otherwise stored as body fat or adipose tissue.

At no other time during the day can nutrition have such a profound impact on physique development and recovery as when the body is ready to shift to an anabolic state.

Through carbohydrate cycling, via [nutrient timing](#), you can maximize the post-workout hypersensitivity to insulin and prompt the desired results you're looking to achieve over time.

Thomas Munck

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Are Carbs Hurting and Slowing Down Your Workout?



Are Carbs Hurting and Slowing Down Your Workout?

Should you really be cutting back on carbs to achieve weight loss and muscle mass?

Ever since low-carb diets exploded onto the weight-loss scene, carbohydrates have been demonized, avoided, and targeted as a dietary evil.

Here's the truth: we all need carbohydrates in our diets, every single day.

Period.

THE BEFORE FACTOR

Whether you're working out to gain muscle mass, to lose fat, or for better performance, to achieve your goal you need sustained energy.

One of two things happens when you run out of steam in the middle of a workout:

- You stop early and don't train for as long as you had planned.
- You finish your workout, but hold back and don't push as hard.

In either case, running out of energy during a workout means a compromised workout.

One method of sustaining energy throughout a workout is by maximizing glycogen storage.

Glycogen is the stored sugar in your liver that releases when you need more energy. If you don't have enough stored up, your workout will go south quickly.

Guess what gives you that perfect glycogen buildup before a workout?

Carbohydrates. There are many different methods for maximizing glycogen storage. Besides carbohydrates, high-fat diets have been proven to increase endurance during the performance as well.

For today we will focus on how carbohydrates can maximize glycogen storage.

THE AFTER FACTOR

Guess what is also important after a workout?

You got it: carbohydrates.

After a training session, you must replenish glycogen. If it's not, you could be seeing muscle breakdown, slow muscle recovery, and diminished performance overall.

How do you time carb intake before and after a workout?

To build up enough glycogen ahead of a workout for sustained energy, you need to get the timing right.

Here's what the research says about pre-workout carb-loading:

In a 2014 study by Ormsbee et al., the performance of cyclists was measured, and results concluded that when consuming carbohydrates one hour before exercise, there was a larger drop in the athlete's blood sugar, which led to impaired performance.

In the same study by Ormsbee et al., athletes ingested carbohydrates two to three hours before a workout. They were able to maintain glycogen storage, giving them enough sustained energy for the entire cycling event.

WHAT ABOUT POST-WORKOUT CARBS?

Two separate studies conducted by Berardi (2006) and Ormsbee (2014) found the consumption of simple carbohydrates such as glucose within 60 minutes of exercise caused a significant increase in muscle glycogen replenishment and a decrease in muscle recovery time.

When athletes waited longer than 60 minutes to replenish with carbs, they experienced longer muscle recovery times because of depleted glycogen.

Takeaway: For enough sustained energy to complete an effective workout and for maximum muscle recovery, consume complex carbs such as brown rice, two to three hours before a workout and a simpler carbohydrate such as glucose within one hour after a workout to reboot energy stores.

WHAT KINDS OF CARBS SHOULD YOU BE EATING?

There are two basic types of carbohydrates: simple and complex. Simple carbohydrates include simple sugars like glucose, fructose (fruit sugar), and sucrose (table sugar).

These simple carbs provide the quickest source of available energy. Think of the kid who starts bouncing off the walls after eating a piece of candy or drinking a soda.

For quick recovery of glycogen stores, simple carbs are your preferred source of energy post-workout. They can also provide you with quick bursts of energy when you're flagging during a workout.

Complex carbohydrates, like starch, occur in plant-based foods: whole grains and starchy vegetables such as potatoes. Complex carbohydrates provide sustained energy over longer periods of time and help replenish glycogen after training.

Takeaway: Complex carbs are your best choice for sustained energy two to three hours before a workout. They are also a good choice for the post-workout recharge but can be combined with simple carbohydrates for a quick fix.

HOW MUCH DO YOU NEED TO EAT PRE- AND POST-WORKOUT?

Exactly what portion size you need depends on your current weight, your goals, and the purpose of a training session.

If your goal is to get through a long cardiovascular endurance workout, you need a larger glycogen buildup in advance.

If your goal is strength training or resistance training, you don't need quite as much in your glycogen storehouse.

Likewise, for post-workout carb intake, you need more to replenish after a long endurance workout than after a strength training session.

To be more specific, in one study (Jeukendrup, 2014), the recommended pre-workout intake of carbs for endurance is 60 grams per hour for workouts lasting two to three hours, and up to 90 grams per hour for longer endurance events. Anything less than two hours requires less than 60 grams of carbs pre-workout.

Takeaway: A general rule of thumb is to experiment with your body and start by trying to consume between 0.5 and 1.0 grams of carbs per kilogram of body weight before and after workouts, more for endurance, and less for strength training.

WHAT ABOUT COMBINING CARBS AND PROTEIN?

Protein is another important nutrient for muscle building and recovery. But here's what you really want to know:

SHOULD YOU EAT PROTEINS AND CARBS TOGETHER?

The answer is a definite yes. Carbohydrates and protein work together to provide:

- Sustained performance.
- Increased glycogen storage.
- Faster recovery times.

Westcott and Loud (2013) discovered that consuming a combination of [carbohydrates and protein led to increased muscular gains](#).

Bartlett et al. (2015) found that when athletes consumed fewer carbs with protein supplements, they experienced more muscle breakdown. And, when they continued to exercise without carbohydrates, they lost more skeletal muscle mass.

Carbohydrates and protein work together for faster muscle recovery, especially after strength training and muscle-building exercises.

Takeaway: Add about 0.5 grams of protein per kilogram of body weight to your pre- and post-workout carb snacks or supplements.

The bottom line is that you NEED Carbohydrates both pre- and post-workout for sustained energy, improved performance, and better muscle recovery.

Christina Klein

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Can Clients Get Results with Carb Cycling?



Can Clients Get Results with Carb Cycling?

Carb cycling is essentially a nutritional protocol that aims to time carbohydrate consumption to when and where it will provide maximum benefits and to exclude carbs when they're not needed. Those who are looking to lose weight, drop body fat, or rev up their stalled progress in the gym often use this approach.

WHAT YOU'LL GET FROM CARB CYCLING

Carb cycling puts you in a caloric deficit, but that means your body will begin to adapt eventually. It will learn how to function on 'X' number of calories to perform daily tasks and physical activities. The problem with this adaptation is not only that it slows down chemical reactions in the body, but it also downregulates your thyroid, which is responsible for fat loss. Leptin, the hormone that signals to your brain that you are full or satisfied, also downregulates as part of this adaptation.

In other words, simply cutting back on carbs and calories, over time, will stall weight loss. Hence the purpose of the higher carbohydrate days. You offset this natural adaptation process by boosting leptin levels and keeping your metabolic rate high.

To get some of the benefits of carb cycling, without going through the calculations, try a cheat meal. It will have the same effect, but will not be as precise since you are not strictly determining your carb amounts through calculations.

You will also need to remain "low-carb" for about six to ten days before having the cheat meal or the "refeed day." Remember also that the term "low-carb" will be different for everyone. The elite athlete who has 6% body fat may very well think and "feel" that 150 grams of carbs per day is low, while the 9-5 sedentary office worker will have a low-carb day with just 50 grams and feel perfectly fine.

When you have your refeed day after many days of following a low carb intake, you should drastically increase your carbohydrate consumption (five to ten times your current intake). Again, this is a general recommendation, but trainers working with clients will be able to come up with personalized guidelines.

For a [cheat meal](#), follow a few rules for optimal success:

- Eat for no more than one hour at a time.
- Make protein a big portion of this meal.
- Increase the carbs and fats too.
- Don't feel guilty!

Whatever you're craving, go for it; this is a time to mentally relax from the rigor of dieting and reset your body into a high fat-burning mode.

GETTING STARTED WITH CARB CYCLING

To start a carb cycling approach to carbohydrate consumption, you must start with the number of calories you consume. [Track your food intake](#) for three to four days and total up the macronutrients—protein, carbohydrates, and fats—for a typical day. Do not change your eating patterns during this timeframe, as it will paint an unrealistic picture.

Once you have a summary total for all three macronutrient groups, you will be able to start right at step number four listed below.

If you don't know what your caloric total is, you can use the steps below to get a rough estimate of calories based on your age, weight, and height.

1. CALCULATE YOUR BASAL METABOLIC RATE

Your basal metabolic rate (BMR) simply means the amount of energy used by your body for 24 hours without considering any physical activity. In other words, if you're inactive for 24 hours straight, you still "burn" some calories equivalent to your BMR (3).

Your BMR involves a sum of your age, weight, and height. You can calculate it with the Harris-Benedict formula:

- Men: $BMR = 66 + (13.7 \times \text{weight in kg}) + (5 \times \text{height in cm}) - (6.8 \times \text{age})$
- Women: $BMR = 655 + (9.6 \times \text{weight in kg}) + (1.7 \times \text{height in cm}) - (4.7 \times \text{age})$

2. DAILY PHYSICAL ACTIVITY LEVEL

Multiply your BMR by a number that represents your current level of physical activity (4).

Activity Level Factor	Activity Level
1.0	Sedentary
1.2	Very light activity
1.4	Light activity
1.6	Moderate activity
1.8	High activity
2.0	Extreme activity

3. DETERMINE YOUR MACRONUTRIENT BREAKDOWN

Next, you need to calculate approximately what portion of your calories comes from each of the macronutrients. For example, for a 175-lb. Male with a daily caloric intake of 2,500 calories:

Protein = 1.15 grams per lb. x BW (175 x 1.15 g per lb. = 201.25 g protein)

Each gram of protein accounts for four calories, so 201.25 g of protein x 4 calories per gram = 805 calories

Fat = .30 grams per lb. x BW (175 x .30 g per lb. = 52.5 g)

Each gram of fat accounts for nine calories, so 52.5 g of fat x 9 calories per gram = 472.5 calories

Together, protein and fat account for 1277.5 calories for this hypothetical case.

This leaves a total of 1219 calories that come from carbohydrates. Divide this number by 4 (calories per gram of carbohydrate) and this man consumes 305g of carbohydrates per day.

The total macronutrient breakdown for a typical 175-pound man is 52.5 g fat, 305 g carbs, and 201.25 g of protein per day. Together, these total his 2,500 calories per day.

4. DETERMINING AMOUNTS FOR CYCLING CARBS

To determine how many carbs you should be consuming on high, medium, and low carb days, follow these guidelines:

- **High-carb days** – Maintain your current ratio of fat to carbs to protein: 53:305:201
- **Medium-carb days** – Decrease your carb intake by 15 to 20 percent: $305 \times .20\% = 61$ g. Decrease your carb intake from 305 to 244: 53:244:201
- **Low-carb days** – Decrease your carb intake by 20 to 25 percent from the medium-carb day amount: $244 \times .20 = 48$ g. Decrease your carb intake from 244 to 196 grams: 53:196:201

5. ADJUST MACRONUTRIENT AMOUNTS AS YOUR DIET PROGRESSES

Our bodies are designed to adapt, so when trying to lose weight, you'll eventually need to lower your calories. Re-evaluate every three to four weeks and recalculate. To help with the evaluation of your plan, take pictures, body measurements, and scale weight to monitor progress.

Based on your progression, you may need to evaluate a couple of KEY factors:

1. What is the duration of your cardiovascular work? How many sessions a week are you completing? Remember, the key to promoting weight loss is expending more calories than you're taking in.
2. Decrease carbohydrate calories slightly on your medium and low days to continue losing fat at an optimal rate. Avoid making drastic cuts, the reason being most people lose muscle when they diet. Try dropping around 20 grams of carbs (for each "high", "medium", and "low" day) every two to four weeks.

Carb cycling is a great way to maximize fat loss, get over a plateau, and to feel better overall. If your client hits a plateau in fat loss, is getting bored with the current protocol, or has been very low-carb for a sustained period, suggest trying out a carb cycling approach as your next weapon in the fat loss arsenal.

Want to learn more about nutrition and how you can use it to maximize your workouts and overall health? Check out the ISSA's nutrition course online. You can improve your food intake and use it to help clients reach their goals more efficiently and effectively.

Thomas Munck

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Counting Macros: A Reliable Way to Lose Weight?



Counting Macros: A Reliable Way to Lose Weight?

When it comes to cardinal rules in the world of fitness professionals, this one sits near the top: No personal trainer should ever recommend or endorse a particular diet for weight loss.

There are simply too many variables involved, with every client's story unique. But that hasn't stopped the next diet "fad" from always being right around the corner, complete with an alleged scientific breakthrough that promises results that all too often fail to deliver for the countless number of people who invest their time and money.

This is why so many turn back to the old reliable: Burn more calories in a day than you take in and you'll lose weight, an approach that usually coincides with a lifestyle change. From that basic concept was born, long ago, the idea of counting calories, followed relatively recently by its lesser known-relative, counting macros.

Clients might start asking you if they should be counting their macros and how it works. Whether you agree with this type of food tracking and diet is up to you. However, what's important is that you know the details behind counting macros and that you refer them out if their questions encroach on your scope of work.

WHAT ARE MACROS?

Macronutrients (macros) are the body's primary source for energy, with vitamins, minerals, and phytonutrients—micronutrients—offering a supporting role. Macronutrients consist of the proteins, carbohydrates, and fats contained in the food we consume. Except for alcohol, macros account for all the calories we get from what we eat and drink. Each of the macros plays a distinct role in developing and maintaining fitness and health.

Proteins help build and maintain lean muscle mass. Proteins also build, maintain, and repair body tissue, which is especially important to the recovery process after a workout.

Carbohydrates are the primary energy source for the body and the brain. Carbs increase blood glucose levels, which is what supplies the energy to the body and is the preferred source of energy to the brain.

Fats help regulate hormones. And while all types of fats should be part of a healthy diet, unsaturated fats should be the predominant kind, with saturated and trans fats held to a minimum.

Each macro has a certain number of calories per gram. A gram of protein or carbohydrate equals four calories. A gram of fat equals nine calories. If drinking alcohol is part of the equation, account for that, too. Alcohol has seven calories per gram.

The percentage of macros in a diet has a direct effect on the body's ability to perform and recover from exercise, control hunger, and gain or lose weight. When compared to counting only calories, it's a difference that proponents explain like this: Counting calories is like buying a suit off the rack; counting macros is like having a suit tailor-made.

COUNTING MACROS AND WEIGHT LOSS

A diet that allows people to eat whatever they want and still lose weight? It's a concept that should be on every trainer's radar.

Those who rave about the diet are most often drawn to counting macros for weight loss because all foods—including jumbo chocolate chip cookies, loaded baked potatoes, and fried chicken—are allowed, if they “fit your macros.” This is in stark contrast to most other diets that restrict the types of foods you're allowed to consume.

If you have clients who find counting calories to be tedious, they won't be excited to hear that they now need to weigh and measure their foods. Counting calories is hard enough for most, without adding to the equation the breakdown of protein, carbohydrates (“do I count carbs before or after fiber?”) and fats in each item. But those who have given it the old' college try say that the counting and weighing aren't so bad, especially if the results are there.

By counting—or tracking—macros, clients can more closely regulate what they are eating and drinking than by simply counting calories, as counting calories doesn't consider the quality of the food, just the quantity.

Counting macros has been popular among bodybuilders for years, allowing them to customize their diets at specific points in their training program to support performance and manage body composition.

MAKING SENSE OF THE NUMBERS

Generally, an individual should consume more carbohydrates to achieve lean mass gains and fewer carbs to achieve fat loss. The types of carbs consumed matters too, with complex carbs, which provide a steady release of energy, preferred over simple carbs.

The macro profile for each client is dependent upon their goals. Here's a cheat sheet to get you started:

- To build muscle: 30-40% carbs, 25-35% protein, 15-25% fats
- For fat loss: 10-30% carbs, 40-50% protein, 30-40% fats
- To maintain: 30-50% carbs, 25-35% protein, 25-35% fats

As you can see, there is a lot of wiggle room (up to 20%) when you calculate macros for your client and you can adjust the ratio as needed if they aren't seeing results.

You should also consider your client's body type.

- Ectomorphs (thin, small bones) can handle a higher percentage of carbs (around 55 percent), with moderate protein (25) and low fats (20).
- Mesomorphs (athletic) call for a more balanced percentage (40 for carbs, 30 each for protein and fats).
- Endomorphs (larger bones, higher fat mass) are better suited for fewer carbs (25), a moderate amount of protein (25) and lower fats (20).

HOW TO PLAN YOUR DIET AND REACH YOUR GOALS

The best place to start is to determine how many calories your client needs each day to maintain a healthy lifestyle. IIFYM.com, myfitnesspal.com, and loseit.com are popular websites that offer macros calculators, making it simple to determine the right percentages for each fitness goal. Encourage your clients to download a phone app for one of these sites to make tracking even easier.

As an example, we will focus on the fictional Jane, a 35-year-old woman, 5-foot-7, 155 pounds, who is moderately active. Her goal is to cut fat and lose weight.

Using an online calorie calculator, we determined that she would need to limit her diet to approximately 1400 net calories a day to lose one pound a week. Generally, the daily allotment of protein for weight loss should calculate to one gram of protein per pound of bodyweight. So, Jane should consume 155 grams of protein per day, which means that 620 of her 1400 kcals (44 percent) should come from proteins. That leaves 780 calories to be divided between carbs and fats.

With fat loss as the goal, we will limit her carb intake to approximately 20 percent of the remaining calories. Approximately 280 calories, or 70 grams, will be committed to carbs. That leaves 36 percent of her calories to come from fats, about 51 grams of fat and 200 calories.

Jane now knows that if her daily diet includes 155 grams of protein, 70 grams of carbs, and 51 grams of fat, and that if she maintains her current level of activity, she will be able to lose one pound per week.

To make sure she stays on track, Jane will have to use a food scale to measure various portions. While much of the food we eat has nutritional information on the package that easily can be read to determine the macros in a single serving, foods such as pasta and rice need to be weighed.

If a client is new to dieting, they should start with a food log. You can ease your client into a better-balanced macronutrient profile by adjusting their macros each week and tracking them in a food log.

Another key component to staying true to this diet is to plan meals in advance. Trying to put a meal together at the last minute raises the possibility of the numbers failing to add up correctly. Keeping a food log, at least in the early stages of counting macros, also will help in making smart choices.

Over time it becomes easier to recognize proper portion sizes, which, by the way, fall right in line with the age-old method of using your hand, your fist, and your thumb to measure proteins, carbs, and fats.

Sometimes what's old is what's new.

If you're ready to learn more about nutrition and want to take your clients to the next level, [check out the ISSA's Certified Nutrition Specialist course](#). Give yourself the knowledge to help clients plan meals and build better eating habits to meet their goals.