We all know that *what* you eat is important for good health, a strong immune system, and energy for and recovery from exercise. But what about *when* you eat? Does the timing of your meals impact performance and recovery?

The long-standing advice in the world of sports nutrition is that what you eat and when you eat do, in fact, impact your training goals. Proper nutrition can:

- **Improve performance**
- **Decrease injuries**
- **Enhance muscle power**
- **Increase reaction time**
- **Boost strength and endurance**
- **Improve recovery**

The exact composition of your meals with regards to your macros (protein, carbohydrates and fat) varies from person to person, as you must take into consideration body type (ectomorph, endomorph, mesomorph), type of exercise (aerobic vs. strength), intensity of exercise, duration of exercise and how much time between exercise sessions. With all of these factors to consider, there is no one-size-fits-all answer.

Additionally, most nutrient-timing recommendations are based on studies that have been conducted on various types of *athletes* (professional-level) across multiple types of sports including, but not limited to, cycling, swimming, running and weight training. Therefore, for most people, these recommendations should serve as more of a guideline rather than strict dogma.

What to Eat Before Exercising?

The main purpose of eating before exercise is to provide your body with enough fuel to sustain your energy level throughout your workout so that you can achieve your workout goals. Carbohydrate-rich foods and fluid help "top off" glycogen stores, while protein can help to preserve muscle mass. A meal that has a combination of these macros is ideal. High-fat meals are generally not recommended before a workout because fat slows digestion and leaves most people feeling sluggish.

One of the most important tools in your pre-workout arsenal is hydration. When you do not consume enough liquid from water or eat enough fruits and vegetables to stay hydrated, your muscles will fatigue much quicker, your coordination will decrease, and you will be more likely to develop muscle cramps. Plus, your body will not be able to regulate its core temperature, and an increase in core body temperature can lead to overheating and exhaustion.

Staying hydrated is an all-day affair. Start your day with at least 8-16 ounces of water and sip it frequently throughout the day. Consuming at least 32 ounces of water during your workout should keep you adequately hydrated. Exercise that lasts longer than an hour and/or takes place in high heat and humidity requires additional fluid intake and the possible addition of electrolytes to replace what is lost in sweat.

What Time Do You Exercise?

Next, consider at what point during the day do you exercise? Whether you work out first thing in the morning, mid-day or in the evening will factor into your meal-timing strategy.

If you work out first thing in the morning, you don't have much time to eat and allow your food to digest. Because liquid digests faster, a small smoothie might work well as a pre-workout meal. If your experience is that any type of food doesn't sit well with you, it may be better to eat nothing.

Also, take into consideration the type and duration of exercise that will be performed. If you're going to do an endurance workout (>60 minutes) or high-intensity interval-training workout, you are at greater risk of glycogen depletion, hypoglycemia and fatigue during exercise. Pre-workout meals are vital, and you might also consider consuming a drink with 30-60 grams of carbohydrates each hour during prolonged exercise.

If you work out later in the day, you can time your meals to help provide you with enough fuel to perform your best. The greater the amount of time between your meal and exercise, the bigger the meal can be. If you have one hour until your workout, a meal or snack containing 1 gram/kg (of body weight) of carbohydrate is appropriate. If you have two hours until your gym session, take in 2 grams/kg of carbohydrate. With three to four hours until your workout, consider a meal with 3-4 grams/kg of carbohydrate. Including 15-20 grams of protein in your pre-workout meal can help with blood-sugar control, maintain or increase muscle mass, and decrease muscle damage during the workout.

What to Eat After You Exercise?

The goal of the post-workout meal is to help you recover, rehydrate, refuel, build muscle and improve future performance. Many sports nutrition experts refer to the post-workout "anabolic window of opportunity" when discussing your fuel needs. After your workout, there is an increase in blood flow and insulin sensitivity, which facilitates glucose uptake and glycogen resynthesis. In other words, the hour immediately after you exercise is the time in which your body is most in need of nutrients, so eating the right meal during this time can initiate refueling and tissue repair better than if you wait. More recent research suggests that this window of opportunity is actually a lot bigger than we previously thought.

For a post-workout meal, aim for 15-25 grams of protein (for tissue repair) and 1-2 grams/kg (of body weight) of carbohydrates per hour of glycogen-depleting exercise. Add 5-10 grams of fat for satiation purposes. You don't need to worry about protein powder versus whole foods or type of carbohydrates (low-glycemic vs. high-glycemic). More than anything, a well-balanced meal containing a variety of real, whole foods and plenty of fluid is the best post-workout meal you can eat.

Should You Eat Before Bed?

This is another question that has the nutrition world completely polarized. There are those that believe that eating before bed will have your body digest and store the food as body fat and lead to weight gain. But if you exercise in the evening, the nutrients in a post-workout meal will go toward glycogen synthesis and muscle repair. Regardless of the time of day or night, you must nourish the body after exercise to switch from a state of catabolism to anabolism.

P.S.: Consider dinner 3 hr before going to bed and if exercise in the evening – protein shake, smoothie etc. after workout.

The Bottom Line

What and when you eat can make a big difference to your performance and recovery. Well-balanced meals and fluid are important for energy production, recovery, prevention of injuries and proper growth. Both meal composition and meal timing must be individualized for each person based on gender, age, body type, and type, intensity, duration and frequency of activity. Making sure to consume meals that are balanced in macronutrients and composed of real, whole foods is a great place to start.