

Nutrition Tips for Workouts and Recovery

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THE BENEFITS OF NUTRIENT TIMING



Should you eat before your workout? That is a rhetorical question... the answer is always of course. An entire area of research dedicated to pre-workout fueling would not exist if there weren't documented benefits to its practice.

Have you ever wondered if eating at specific times mattered? Does science truly exist behind the manipulation of specific foods and feeding times?

Well, the answer is yes... it's called nutrient timing. Nutrient timing is defined as the "manipulation of nutrient consumption at specific times in and around exercise

bouts to improve performance, recovery, and adaptation." As implied in the definition, nutrient timing is mostly used to augment physiological responses to exercise and promote recovery (I.E., muscle strength, body composition, substrate utilization, power, and physical performance).

Let us break down and discuss what nutrient timing is and how it can benefit not only your weight and nutrient goals but your overall fitness performance as well.

WHAT IS NUTRIENT TIMING?

To effectively implement nutrient timing, an understanding of macronutrient metabolism, energy systems, and exercise physiology is important. The metabolic fates of proteins, fats, and carbohydrates during rest, exercise, and recovery are imperative to science.

While nutrient timing has developed to include recommendations in 24 hours, specific windows before, during, and after training are largely the focus since many athletes are involved in multiple pieces of training/competitions per day, and frequently experience small windows of opportunity for feedings.

THE SCIENCE BEHIND TIMING

While research on the manipulation of fats exists, specific timing strategies have yet to show clear and repeated success when augmenting performance or recovery.

Pre-workout windows largely focus on 3-time points: consumption 4-6 hours before exercise, 30-60 minutes before exercise, and/or 15 minutes before exercise. These windows focus largely on glycogen availability in the muscles, or how saturated the muscles are with carbohydrates. It also considers the digestion and absorption rate of specific nutrients, and substrate utilization during exercise.

Moderate to high-intensity exercise relies heavily on carbohydrates as a fuel source, however, glycogen stores in the body are limited and can only supply the body with

energy for up to a few hours during continued high-intensity bouts. Therefore, "filling up the gas tank" is imperative to improve performance and prevent fatigue.

It takes roughly about 4-6 hours for carbohydrates to be fully digested and assimilated into muscle and liver glycogen. Therefore, the first feeding priority before exercise is a meal at least 4 hours before competition to fully saturate muscle glycogen stores. It is often recommended to consume 1-4g/kg of carbohydrates at this mealtime before engaging in high-intensity exercise (>70% of Vo2 max) lasting greater than 90 minutes.

Meal Timing for Weight Training

Pre-Training Meals	During Training	Post-Training Meals
<ul style="list-style-type: none">• One large banana and 1 cup of cottage cheese • Two whole-wheat toast slices and one whole egg plus three egg whites • Whole wheat tortilla and 1 cup of chopped chicken breast	<ul style="list-style-type: none">• Sports drink	<ul style="list-style-type: none">• Greek yogurt with oats and chia seeds • One banana with a tablespoon of peanut butter • Whole wheat toast with sliced turkey
		

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Examples of What to Eat Prior to a Workout:

Fruit (smoothie)
Yogurt, Greek Yogurt, Granola & Fruit
Banana
Peanut or Nut Butter
Oats

Whole grain bread and lean meats
Chicken with rice and veggies
Apples (with or without peanut butter and or raisins)

POST-WORKOUT NUTRITION

The purpose of post-workout feedings at specific times is to augment the recovery process, which in turn implies muscle recovery. Muscle recovery goals will vary based on the sport an athlete is participating in but can include muscle strength, muscle growth, or prevention of muscle soreness.

Since muscles store carbohydrates and amino acids make up the structure of skeletal tissues, feedings are largely focused on carbohydrates and proteins. When studies compared the effects of carbohydrate or protein feedings on muscle protein synthesis, they found that together they have the greatest effect on increasing muscle protein synthesis.

Regarding promoting recovery, it is suggested that following intense exercise an individual should consume 1g/kg of carbohydrates and 0.5g/kg of protein within 30 minutes after exercise and continue to feed carbohydrates at a rate of 0.7-1.2g/kg/hour to accelerate glycogen re-synthesis.

EATING TO BOOST ENERGY



Nutrition Tips for Workouts: *(Info from Mayo Clinic)*

Fuel your body with a healthy diet including plenty of fruit and veggies, lean protein, healthy fats, whole grain carbohydrates and plenty of fluids (no soda or alcohol).

PROTEINS: are often called the body's building blocks. They are used to build and repair tissues and help your body fight infection. Your body uses extra protein for energy. Older adults should try to eat a variety of nutrient-dense proteins. Choose lean (low-fat) meats and poultry. Keep in mind that you can also get protein from seafood, eggs, beans, nuts, seeds, and soy products. Protein from plant sources tends to be lower in saturated fat, contains no cholesterol, and provides fiber and health-promoting nutrients. Plant sources of protein such as nuts and seed, have different nutritional value than plant-based meat alternatives, which can be heavily processed and high in sodium.

Examples of Lean Protein:

Eggs, Beef, Tofu, Chicken, Salmon, Chicken Breast, Lentils (Beans), Cottage Cheese, Fish, Pork, Quinoa (amino acids), Edamame, Turkey, Egg Whites, Peanuts, Yogurt/Greek Yogurt, Whey, Soy, Tuna, Chickpea.

The bottom line

CARBOHYDRATES: are the optimal energy source for fueling any physical activity. Eat complex carbs from whole food sources at least two to three hours before training. Then, consume simple carbs from whole food sources within 30 to 60 minutes before a workout. If your training session goes beyond one hour, consider taking in more simple carbs during the workout for a quick energy burst. Have a snack containing complex carbs to replenish depleted glycogen stores in your muscles within one hour after your workout. In addition, ensure you include 20 to 30 grams of protein in your post-workout snack to promote muscle recovery.

Examples of Whole Grain Carbohydrates: Barley, Bulgur "Cracked Wheat", whole cornmeal, Farro, Mullet, Quinoa, Black, Brown & Red Rice, Bran.

Examples of Simple Carbs: Since simple carbs are digested much faster than complex carbs and are readily absorbed by your blood cells, they can be ingested [30 to 60 minutes before a workout](#) to provide a quick, efficient energy

source. Examples of faster-absorbing carbs to have as a pre-workout snack include fruit smoothies, bananas or other fruits, crackers, rice cakes and dried fruit. When choosing more simple carbs, the [American Academy of Nutrition and Dietetics](#) advises opting for natural sources, such as fruit and milk, since these foods are nutrient-dense and don't contain [added sugars](#) that are found in many prepackaged simple carb foods like candy bars and energy drinks.

FATS & FACTS

Research is continuing to evolve on dietary fat, but some facts are clear. Dietary fat, also known as fatty acids, can be found in foods from both plants and animals. Certain fats have been linked to negative effects on heart health, but others have been found to offer significant health benefits.

Fat is as essential to your diet as protein and carbohydrates are in fueling your body with energy. Certain bodily functions also rely on the presence of fat. For example, some vitamins require fat to dissolve into your bloodstream and provide nutrients.

However, the excess calories from eating too much fat of any type can lead to weight gain.

Unhealthy Fats: Saturated and Trans Fat. Butter, Margarine, Shortening, Beef and or Pork Fat.

Healthy Fats: Monounsaturated and polyunsaturated fats, (extra virgin olive oil, canola, sunflower, soy, corn). Avocados, Nuts, Seeds, Fatty Fish.

The importance of Sleep:

Sleep plays an important part of your diet and your workouts.

Lack of sleep may cause "Sleep Deprivation" which may cause fatigue which equates to low energy, focus and possible weight gain.

Foods that help promote better sleep. *Harvard Health Blog*

The Mediterranean diet is rich in melatonin, serotonin and vit D that contain milk, fatty fish, tart cheery juice & kiwi may help with sleep.

6 Foods that can help with sleep. *Cleveland Clinic Health Blog* Foods related directly to serotonin (a key hormone) along with Vit B6, B12, and Folic Acid, helps promote sleep.

1. **Complex Carbohydrates:** Whole grain breads, cereals, pasta, crackers, brown rice. Avoid sweets (cookies, cakes, pastries, etc.) Especially before bedtime.
2. **Lean Proteins:** Low fat cheese, chicken, turkey, fish are high in aminos and tryptophan which increase serotonin levels. Tryptophan is also found in egg white, soybean, and pumpkin seeds.
3. **Healthy Fats:** Peanut Butter, walnuts, almonds, cashews, and pistachios.
4. **Magnesium:** Leafy greens (Spinach), Nuts, Seeds, Avocados & Black Beans
5. **Beverages:** Warm milk, herbal teas like chamomile and peppermint. Avoid caffeinated drinks after 2:00pm
6. **Fresh Herbs:** Sage, Basil have a calming effect, Red & Black Peppers have a stimulation effect.



Drink plenty of water: *(Study from the University of Missouri)*

It is Recommend: 37 liters, 15.5 cups or 125 oz or 9 - 13 cups for health adults.

The "cardinal rule" 6-8, 8 oz glasses of water per day.

As a rule of thumb, you should try to drink between half an ounce and an ounce of water for each pound you weigh every day.

Disclaimer: We are not licensed Registered Dieticians. We do have Certification in Fitness Nutrition.