



NUTRITION AND THE ATHLETE

BASIC INFO

CARBOHYDRATES (CHO)

Two key functions of CHO are 1.) to provide primary energy to exercising muscles and 2.) to spare protein from being used as an energy source. The sparing of protein will support muscle growth and repair later on. High CHO foods include milk, yogurt, whole grain breads, pasta, cereal, rice, fruit, legumes and some vegetables including potatoes, peas, and corn.

PROTEINS

Most Americans and athletes consume more protein than they need. Protein can help satisfy an athlete and promote a slower delivery of energy than CHO alone. Protein is necessary for daily maintenance of muscles & repair. High protein foods include dairy products, meat, fish, poultry, eggs, legumes, nuts and vegetarian soy meat analogues.

In general, athletes do not need amino acid or protein supplements to accomplish muscle growth. Simply put, 12 extra grams of protein per day is needed to build one extra pound of muscle in one week. This is equivalent to one extra glass of milk and a handful of pretzels! The hardest part about gaining muscle for many adolescent males is the consistency required when trying to consume adequate energy throughout the day with three meals and at least three snacks. In short, Eat and Eat Enough, NO SKIPPING meals, include Variety.

NOTE: Supplements may be contraindicated in the younger athlete. The Gatorade Sports Science Institute (GSSI) discourages the use of all supplements containing creatine in those athletes less than 18 years of age.



FATS

Fat has many important biological functions that include: maintaining body temperature, protection and cushion for internal organs, absorption of fat-soluble vitamins and it is an essential component of the nervous and immune system. Children and adolescents are actively growing. Calorie restriction that interferes with this is never okay. It is impossible to have shiny hair and smooth, elastic skin without eating fat. We cannot absorb Vitamins A, D, E and K without fat and it contributes to post meal or snack satisfaction and food taste.

BALANCE

A balanced meal plan can provide adequate nutrition to support basic functioning, growth and added physical activity or training. An ideal meal plan is designed to provide your body with over 40 nutrients that are essential for optimal health and performance or power. Those nutrients are contained in six major classes or core elements:

- **Calcium-rich foods:** Milk, Yogurt, Cheese, Pudding and Calcium-fortified Foods: Soymilk, Orange Juice or Tofu
- **Complex carbohydrates or grains:** Cereal, Crackers, Bread, Bagel, English Muffin, Roll, Rice, Potato, Pasta, Corn, Peas
- **Fruit:** Any Frozen, Fresh, Canned or Cooked Fruit or 100 % Fruit Juice
- **Vegetables:** Any Frozen, Fresh, Canned or Cooked Vegetable, or 100 % Vegetable Juice
- **Protein:** Meat, Fish, Poultry, Eggs, Nuts, Black Beans, Kidney Beans, Chick Peas, Peanut Butter, Cottage Cheese, Soy Burgers, Tofu
- **Fats:** Olive Oil, Canola Oil, Safflower Oil, Nuts—especially Walnuts and Soynuts, Olives, Peanut Butter

The core elements should be divided equally throughout the day into a pattern of three meals and variable snacks. The main idea here is to try to eat every three to four hours throughout the day to maximize nutrient absorption and utilization.



IMPORTANT:

IT IS **IMPOSSIBLE** TO IMPROVE PERFORMANCE IF YOU ARE IN A CALORIE (FUEL) DEFICIT. THIS MEANS, YOU MUST FUEL TO PERFORM AND THEN YOU WILL IMPROVE.

- ★ Ensure adequate growth and development above all else
- ★ Consume adequate energy to meet the increased demands of training and growth
- ★ Low energy stores can occur when the athlete fails to consume adequate energy for many of life's needs- existence, daily activity, growth, immunity & exercise

CALORIES= FUEL

- All fuel is different, just like all foods are different
- All foods can fit in a meal plan
- Choosing the best FUEL for best performance more often than not, is our goal

FUELING

Guidelines are provided for before, during and after training or an event.

What to do 24 Hours Before an Activity or Event:

- Include carbohydrates in your diet, this will provide energy quickly and over time
- Some carbs are better than others. For example: whole grain breads/grains, pasta, rice, whole fruits
- Best beverage choices with CHO: vitamins and minerals include 100 % fruit juices, soy milk and milk.



What to do 3-4 Hours Before an Activity or Event:

- Shoot for a solid meal with 50% CHO (50% of plate) using a variety of sources foods (bread, jelly, yogurt) and beverages
- If possible, spread intake over 30-45 minutes to enhance absorption.
- Fill up, but do not overeat.
- Aim for a minimum amount of fiber as too much could lead to bloating, diarrhea and discomfort. High fiber foods include fruit, vegetables, beans, fiber type brands.
- Drink water, milk and 100% fruit juice for fluids to help vary CHO sources.
- Keep fat to small amounts (this slows digestion and can slow performance)
- Keep protein, moderate amounts (10% of plate), high protein will be needed for post performance

What to do 0-2 Hours Before an Activity or Event:

- Shoot for a small amount of CHO; focusing on fluid sources; juices and sports drinks, quick energy items) .

What to do During an Activity or Event:

- If exercising intensely and or longer than 30-50 minutes hydrate regularly, small continuous amounts, using water and/or a sports drink
- Taking a few ounces every 15-20minutes is ideal. Even more in hotter , more humid weather.
- CHO source from goo's or gels or even fruit(orange, bananas), can be consumed during the event. The body will use this around 5-10 minutes of continuous play or activity. BUT, peak use of this energy source occurs after 75-90 minutes of ingestion.
- The best energy source DURING is one that empties out of the stomach rapidly. Choose a cool fluid source with CHO and sodium.



What to do After an Activity or Event:

Recovery is SPLIT in 3 PHASES

- The **first** occurs during the **30 minutes** after the event when muscles are more receptive to storing CHO.
- The **second** is over the **90-120 minutes** following the initial phase
- The **third** takes place over the next **2-22 hours**

- The most crucial aspects of recovery include rehydration and maximizing CHO stores
- Drink and or eat 50-70 grams of CHO within the first 30 minutes. This restores lost CHO and will level blood glucose in the body & start the repair process.
- Focus on high CHO foods such as pretzels, fruit, pasta, milk, yogurt. (Best to have food and beverages at this time)
 - Wawa Soft pretzel: 60 grams
 - Snack bag of pretzels 22 grams + 16 oz gatorade 31 grams
 - Clif bar 40 grams + banana 25 grams
 - Wawa Icee (medium) 34 grams + smart food popcorn 10 grams + chewy granola bar 15 grams
- For those athletes with excessive sweating or salt loss, consume high salt foods (soup, pretzels, pickles, etc.) with snacks and meals following the event. Or even add pinches of salt in your beverages
- Limit fat and protein intake if required to play again within the next 2 hours and focus on high CHO foods, like 100% fruit juice and sports drinks, all carb foods (pretzels, bagels) to maximize CHO storage and restore weight.
- For those athletes who can rest after the event, consuming a high-CHO diet throughout the remainder of the day should return muscle storage to normal within 24 hours.
- Consuming protein afterwards (but not in excess) will help repair muscle tears and enhance growth in muscles.



Specific Timing of Events

- For **morning** events: eat a nutrient-packed, high-CHO dinner with a bedtime snack the night before. That morning try to consume a light meal as tolerated to stabilize blood sugar and soak up gastric juices. Breakfast might include 1-2 slices of toast and or cereal.
- For **afternoon** events: eat a nutrient-packed breakfast and a lighter CHO-based lunch such as a bagel with fruit.
- For **evening** events: eat a nutrient-packed breakfast and lunch. Try to consume a light meal as tolerated 1-2 hours before the event.

To optimize performance, focus on preparation and recovery. Meals shouldn't be skipped! Follow these guidelines when planning for the event.



Pre-Workout Snacks for Athletes

- ★ Yogurt, fruit and granola mix
- ★ Cheese and crackers
- ★ Pita bread or pretzels and hummus
- ★ Granola bar (Clif, KIND, Cascadian Farms)
- ★ Smoothie (with yogurt, frozen fruit, milk or 100% juice)
- ★ Pretzels and dried cherries mix
- ★ Banana and peanut butter
- ★ Raisins and peanuts
- ★ Mini bagel with butter and jelly
- ★ Beef jerky and a mozzarella cheese stick
- ★ Hard-boiled egg and half an English muffin
- ★ Whole grain blueberry muffin (regular size)
- ★ Waffle with nut butter
- ★ Mixed nuts
- ★ Sunflower seeds
- ★ Yogurt tube (frozen or refrigerated)
- ★ Toast with nut butter and banana
- ★ Pepperoni mini pizza (pita, sauce, cheese and turkey pepperoni)
- ★ Chocolate milk and whole grain crackers Mozzarella and tomato skewers
- ★ deli sandwich (turkey, ham, roast beef, chicken), cheese
- ★ tortilla with cheese (quick quesadilla)
- ★ Orange or clementine with ½ cup yogurt
- ★ Tortilla chips with salsa
- ★ Grapes and cheese
- ★ Berries and Greek yogurt
- ★ Cold pasta salad with veggies
- ★ Pudding made with milk
- ★ Chocolate hazelnut butter and graham cracker
- ★ Chips and Guacamole
- ★ Dry cereal and dried fruit
- ★ Applesauce cup and graham crackers
- ★ Hummus and carrots
- ★ Fruit and cheddar cheese cubes
- ★ Deli meat wrapped around a cheese stick
- ★ Grilled cheese sandwich
- ★ Baked potato with shredded Monterey Jack cheese and salsa
- ★ Popcorn and peanuts



CALCIUM

Calcium is a key in growth and development. It's best to be offered at all meals and at least one or two snacks per day. Adolescence represents a period of peak bone mass development. The accumulation of calcium in bone is maximized during this time. Adequate calcium is crucial to maximize bone density. High calcium foods include dairy products, deep green vegetables, certain legumes, and fortified foods including tofu, orange juice, cereal or energy bars, and some brands of breads and margarines. Vitamin D is found in fish, eggs and fortified foods including milk, orange juice, and some yogurt.

There is a large amount of calcium-fortified foods available, look for foods with at least 20-30 % calcium. The calcium content of a food can be derived from the Nutrition Facts Panel on the label. Simply drop the percentage, listed at the bottom of the Nutrition Facts box, and add a zero to figure the milligrams of calcium in the specified serving of food. For instance: 30 % would be equal to 300 mg.