

Nutrition for Peak Performance

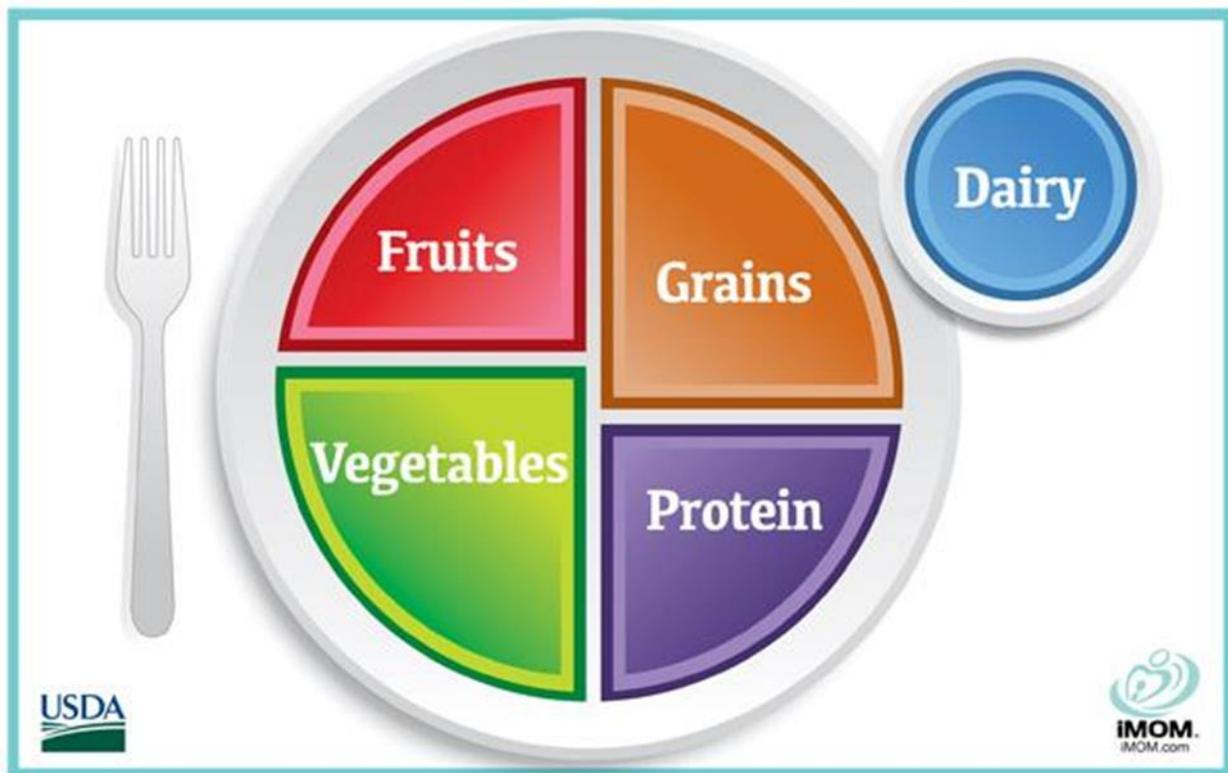
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Benefits of Balanced Nutrition for Athletic Performance

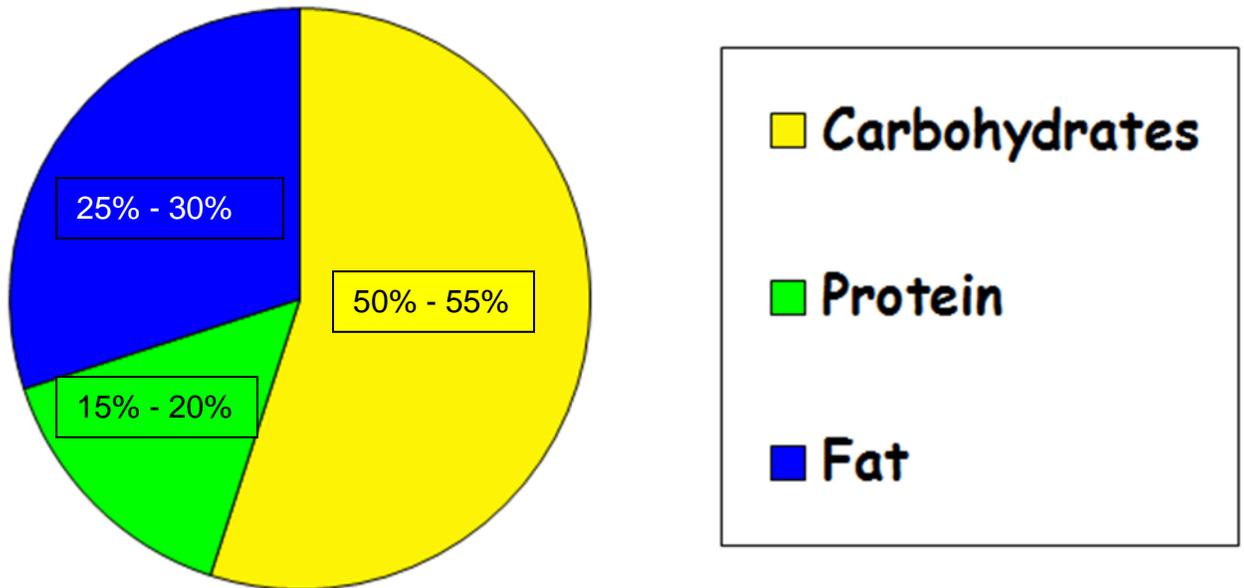
- Reduced recovery time between training sessions
- Reduced risk of injury and illness
- Increased energy and improved performance
- Prevention of Hypoglycemia (low blood sugar) and symptoms (light headedness, fatigue)
- Peace of mind knowing body is adequately fueled.

Choose MyPlate

- Your guide to a balanced diet and good health
- Provides the nutrients your body needs to grow, learn and stay healthy



What is the Best Nutrient Balance for Athletes?



Carbohydrates

- Body's main energy source; provides fuel quickly and efficiently
 - **Two Types**
 - Simple Sugars – sucrose, lactose, fructose
 - Complex Carbohydrates – starches, fruits, veggies, beans
 - **Preferred fuel source for muscle** – carbohydrate is less competitive with working muscles need for fuel/oxygen than fat and protein
 - Stored as **glycogen** in the muscle and needs continual replenishing

Food Sources

- Complex Carbohydrates
 - Grains
 - Legumes (beans)
 - Fruits
 - Vegetables
- Simple Sugars
 - Pastries, cookies, brownies, cake
 - Pop & other sugary beverages
 - Candy



What happens if Carbs are too low?

- Decreased Athletic Performance
- Depleted Glycogen Stores
 - Loss of Muscle (protein is used for energy)
 - Fatigue (athletes "hit the wall")
 - Loss of Focus (brain needs carbohydrate to concentrate)
 - Lightheadedness (dizziness)

Proteins

Functions in the body

- Provides Energy and amino acids
- Transports oxygen and nutrients
- Help to build, maintain and repair body tissues



Food Sources

- Meat, Fish, Poultry
- Dairy products, Eggs
- Legumes
- Nuts and Seeds



Protein Needs

Protein Intake for Athletes = 1.2 - 2.0 grams per kg of bodyweight/day

- To convert bodyweight (lbs) to kilograms (kg) take bodyweight/2.2

Example: 160 lb athlete ---- take $160/2.2 = 73$ kg

73 kg x 1.2 – 2.0 grams of protein = 88 – 146 grams of protein/day

Protein (grams) in Common Foods

Egg (1 Large)	6
Cheddar Cheese (1 oz)	7
Milk (8 oz)	8
Yogurt (1 cup)	11
Cottage Cheese ($\frac{1}{2}$ cup)	15
Chicken Breast (4 oz)	35
Tuna (6 oz)	40
Beef, Pork (4 oz)	30
Beef Jerky (1 oz)	9
String Cheese (1 stick)	8
Beans/Legumes ($\frac{1}{2}$ cup)	6 - 7
Edamame ($\frac{1}{2}$ cup shelled)	11
Peanut Butter (1 tbsp)	$4\frac{1}{2}$
Hummus ($\frac{1}{2}$ cup)	6
Nuts ($\frac{1}{2}$ cup)	11

Fat

- Most concentrated form of food energy (calories)
- Food Sources
 - Butter and Oils
 - Salad Dressings
 - Nuts and Seeds
 - Whole Dairy Products
 - Fatty Meats
 - Fried Foods
 - Pastries, Cakes and Baked Goods

Stick with lean meats and low fat dairy products, nuts/seeds

Limit fatty meats, whole dairy products, fried and fast foods, baked goods

Pre-training/Competition Meals

- Eaten 3 – 4 hours before event/training session
- High in complex carbohydrates like grains, veggies, fruit and beans
- Minimal in simple sugars like pop or other sugary beverages, candy and baked goods
- Low to moderate in protein – preferably lean meats and low fat dairy products as opposed to fatty meats and whole dairy products
- Low in Fat
- Adequate in fluids

Morning Events

- Eat a carbohydrate-rich dinner and drink extra water the day before
 - Spaghetti with meat sauce, vegetables, fruit
 - Pasta/rice with chicken, vegetables, fruit
 - Burrito with meat/beans, rice, vegetables, fruit
- In the morning, have a 200-400 calorie meal at least $1\frac{1}{2}$ – 2 hours before the event
- Eat familiar foods
 - Cereal, Toast, Bagels, English Muffins, Oatmeal, Yogurt, Milk, Fruit Smoothie, Energy Bars

****If training session/competition longer, may need to add an egg, peanut butter, cheese and eat 3 hours prior to the event.

Afternoon Events

- Eat a carbohydrate-rich breakfast such as pancakes, eggs, French toast, peanut butter toast, fruit, milk
- A light lunch, depending on the time of event. The lunch should be low in fat, moderate in protein and higher in carbohydrate
 - Sandwich with lean meat and cheese
 - Bagel/bread with peanut butter
 - Hummus with crackers/veggies
 - Cereal with milk/fruit
 - Yogurt Parfait with fruit/granola

****A heavier brunch may be sufficient with a light snack before the event (if the event is mid-afternoon)

- Light snacks – energy bar, fruit, pretzels, trail mix, yogurt, fruit juice, cereal, toast, cottage cheese, string cheese

Evening Events

- Eat a healthful, balanced breakfast and lunch
- A light dinner – late afternoon or early evening depending on the time of the event
 - **High in carbohydrate, low in fat, moderate in protein**
 - Pasta, Rice, Potatoes, Breads,
 - Protein-rich foods like chicken, fish, lean meat, vegetables/fruits, milk



All Day Events

What should Athletes pack for foods, beverages

- Whole grain bagels
- Peanut butter and jelly sandwich
- Peanut butter crackers
- Granola/Energy bars
- Trail mix (pretzels, cereals, nuts, seeds, dried fruit)
- String cheese
- Yogurt
- Dry Cereals
- Fruit/Dried Fruit
- Pretzels/Baked chips/crackers
- Sport Drinks
- Veggies/Hummus
- Juice boxes
- Water

Good Choices on the Road

- Sandwich Shops
 - Light deli sandwiches, baked chips
- Burger Places
 - Single burgers, chicken sandwiches, baked potatoes, salads, yogurt parfaits
- Mexican Fast Food
 - Small bean burrito, beef/chicken taco, rice/meat veggie bowls
- Convenience Stores
 - Sandwich, fruit, yogurt, string cheese
- Breakfast Places
 - Eggs, toast, cereal, short stack pancakes, oatmeal

Post Training/Competition Meals

- In the first 10-30 minutes
 - Replace fluids and electrolytes
 - Eat high carbohydrate foods to replenish glycogen stores
 - Examples: Yogurt, Banana/Orange, Granola Bar, Chocolate Milk, Juice, Smoothie

******If the food contains a little protein, even better**

- Within 45 minutes to 2 hours
 - Drink 2 cups of water for every pound lost
 - Eat a high carbohydrate meal with some protein

******Timing of post-training competition meals is a key to enhanced muscle recovery for the next workout!**

Proper Hydration

Fluid replacement is critical for Athletes

- Drink fluid before, after and during training and competition – small sips if possible (keep water bottles handy)
- Drink about 4 oz ($\frac{1}{2}$ cup) fluid every 15-20 minutes if possible
- Drink 2 cups water for every 1 pound weight loss after activity
- With high intensity training sessions or activity over 60 minutes, use diluted sports drink or juice to replenish electrolyte and glycogen stores
- Avoid caffeine immediately after training

****Dehydration can severely limit performance

How much water should you have per day?

- 8 glasses = 64 oz



Or



Caffeine and Effects on Health



Will caffeine stunt growth?

- No, not technically
- Phosphoric acid in pop can leach calcium from bone
- If a child is drinking too much pop, they may be drinking less milk which can reduce calcium in the diet

Why does caffeine make me jittery?

- Caffeine is a stimulant which speeds up the Central Nervous System (adrenaline)
- Increases blood pressure and heart rate – may feel nervous, anxious and jumpy



Is caffeine a drug?

- Yes – it is a stimulant and can be addictive
- Can affect the brain leading to withdrawal and bad headaches



- May cause insomnia, irritability, sleepiness, lethargy, muscle cramping and pain, and lack of concentration

Limit Caffeine



No Energy Drinks



Beverage	Sugar (tsp)	Calories	Caffeine (mg)
Refresher SB (16 oz)	5-8	60-120	40-60
Bang Energy (16 oz)	0	0	300
Mocha Frap (16 oz)	14.5	390	110
Monster (16 oz)	13	220	160
Mountain Dew (20 oz)	18	290	90
Peace Tea (23 oz)	9	150	60
Rockstar (16 oz)	15	160	151
5-Hour Energy (2 oz)	0	4	200-230
Hot Chocolate (small)	6	250	25
Iced Mocha (medium)	10	340	167
Coke (12 oz)	9.5	140	35

Iron Requirements

- Iron is essential for oxygen transport to muscle
 - Inadequate iron levels lead to: **tiredness, fatigue and muscle weakness**
 - Female Teens – 15 mg/day
 - Male Teens – 11 mg/day
- Athletes **at risk** of developing iron-deficiency anemia
 - Female athletes who lose iron through menses
 - Vegetarians who do not eat red meat or iron-enriched cereals
 - Endurance athletes who may lose iron through heavy sweat losses – distance runners
 - Teenage athletes, particularly girls, who are growing quickly and may consume inadequate iron to meet expanded requirements



Iron (mg) in Common Foods

Beef (4 oz)	3
Turkey Breast (4 oz)	2
Chicken (4 oz)	1-2
Tuna (3 oz)	1
Egg (1)	1
Raisins ($\frac{1}{3}$ cup)	1
Refried Beans ($\frac{1}{2}$ cup)	2
Spinach ($\frac{1}{2}$ cup cooked)	3
Tofu ($\frac{1}{2}$ cup)	2
Raisin Bran (1 cup)	4.5
Pasta (1 cup)	2
Bread (1 slice)	1
Peas ($\frac{1}{2}$ cup)	1
Baked Potato (medium)	2
Kidney, Garbanzo ($\frac{1}{2}$ cup)	2

Maximizing Iron Absorption

- Iron is absorbed best from animal sources
- Less iron absorption from plant sources

Vitamin C-rich foods enhance iron absorption

- Have berries/orange/grapefruit at breakfast with cereal
- Drink fruit juice like orange, pineapple, grapefruit, tomato
- Add a baked potato with steak, chicken, fish, or shrimp
- Have peas, tomato, broccoli, peppers, cabbage, cauliflower, spinach or brussel sprouts with your protein at lunch and dinner



****Avoid having tea/coffee with breakfast or other meals; have them 1 hour before or after eating

Calcium Requirements

Calcium Needs: 1,300 mg/day female teens
1,000 mg/day male teens



Best Calcium Sources: Milk, Yogurt, Cheese

Good Calcium Sources: Leafy greens like broccoli, kale, cabbage, dried fruits, nuts, seeds, peas, lentils, soybeans

Examples of Calcium Content:

- 1 cup of milk or 6 ounces of yogurt = 300 mg
- $\frac{1}{2}$ cup of cooked broccoli = 31 mg
- 1 ounce cheese = 224 mg
- $\frac{1}{2}$ cup cottage cheese = 70 mg
- $\frac{1}{2}$ cup frozen yogurt = 100 mg



What about a multi-vitamin?

- Vitamins/minerals should be ~ 100% of DV (daily value)
- Don't buy supplements with excessive doses of nutrients
- Buy and use supplement before its expiration date
- Look for USP on label (inspected by US Pharmacopeia)
- For optimum absorption, have with or after meal

****Ask Pediatrician if a multivitamin is recommended!