



Sports Nutrition 101: Fueling and Hydrating the Athlete

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Objectives

- Participants will be able to recommend proper food choices for athletes to fuel their whole day.
- Participants will be able to identify proper fueling strategies for pre, during and post-workout.
- Participants will learn proper hydration recommendations and be able to implement fluid and electrolyte strategies for athletes.



Outline

- Fueling the day
 - Carbohydrates, protein, fat
 - Creating fueling meals and snacks
- Hydration principles
 - Pre, during and post-exercise hydration
 - Electrolytes and cramping
- Fueling exercise
 - Pre, during and post-exercise fueling
- Sample meal planning days





Sports Nutrition Basics

- **Fuel frequently**
 - Goal is to eat smaller, more frequent meals to keep energy levels up
 - Example: Breakfast-Snack-Lunch-Post Workout Snack-Dinner-Snack
- **80/20 Rule**
 - 80% of the time focus on quality food choices or “eating for health”
 - 20% of the time you can splurge on less nutritious foods and “eat for pleasure”
- **Three nutrients give your body energy**
 - Carbohydrates
 - Protein
 - Fat

Carbohydrates

- **Purpose**: Body's "choice" for energy; primary energy contributor during exercise
- **Types of carbohydrates**: simple & complex
 - Simple: jelly, cookies, hard candy, juice
 - Complex: bread, pasta, cereal, bagels
- Whole grains and wheat products
- Fruits
- Vegetables
- Dairy products
- Sports drinks/gels/goos/blocks



Carbohydrates: Best Choices

- Why grains?
 - Rich in carbohydrates, B vitamins, give lots of energy
- Should be the largest part of your diet
- Best choices
 - Wheat bread, oat bread, wheat bagels, wheat English muffins, wheat tortillas
 - Cereals: Total, Shredded Wheat, Cheerios, Granola
 - Oatmeal, Cream of Wheat
 - Brown Rice/Wheat or Multi-grain Pasta
 - Wheat crackers/whole grain granola bars



Protein: Best Choices

- **Purpose:** Build/repair muscles, hair/nail growth, boosts immunity, RBC production
- Lean meat
 - Chicken, turkey, lean ham, lean red meat, fish, tuna, turkey bacon and turkey sausage
 - Take the skin off of meat
- Eggs and egg whites
- Low-fat dairy products
 - Milk, cheese, yogurt, cottage cheese
- Whey protein powders and smoothies/shakes made with it...whey protein absorbs very quickly
- Nuts, seeds, peanut butter have some protein



Fat: Best Choices

- **Saturated Fats: “Bad Fats”**
 - Fried foods, pastries/baked goods, creamy foods
- **Unsaturated Fats: “Good Fats”**
 - Peanut butter, almond butter, nuts, seeds
 - Olive oil and Canola Oil
 - Avocado
 - Flaxseed or flaxseed oil
 - Can buy milled, as oil, or in breads and cereals
 - Fats in fish like salmon
- **Remember** that you get some fat in dairy products, meats, whole eggs, and energy bars/shakes



Vegetables

- Aim to get in at least 5 servings of vegetables each day
- Vegetables provide vitamins and minerals to help your body fight off illness and recover
- 1 serving =
 - 1 cup raw vegetables/lettuce
 - ½ cup cooked vegetables
- Ways to mix in veggies:
 - Scramble them in an omelet
 - Carrots and hummus as a snack
 - Lettuce and tomato on a sandwich or burger
 - As a side item at dinner



Putting it all together: Fuel your day!

- Eat a complex breakfast before school
- Pack healthy snacks for mid-morning and pre/post workout
- Choose a lunch to help you recover from a morning workout and/or fuel your afternoon workout
- Eat a healthy dinner
- Hydrate with water, flavored water and nutrient-rich beverages like milk all day
- Drink sports drinks around your workout only





Start the day with breakfast

○ Cheap, Quick On-the Go Breakfasts

- Whole wheat bagel w/2 spoons peanut butter, banana & 1 bottle 2% milk
- Energy bar, banana & 1 bottle 2% milk
- Peanut butter & jelly sandwich on wheat bread, Yoplait 2x Protein Yogurt and 8 oz low-fat milk
- Peanut butter crackers, 1 cup trail mix, 1 bottle 2% milk
- Smoothie w/fruit, milk & whey protein powder
- Nature Valley Granola bar & add peanut butter on top, string cheese, 1 bottle 2% milk
- Quaker Oatmeal On-the-Go bar, Individual bag of nuts, 1 bottle 2% chocolate milk



Fueling Snacks

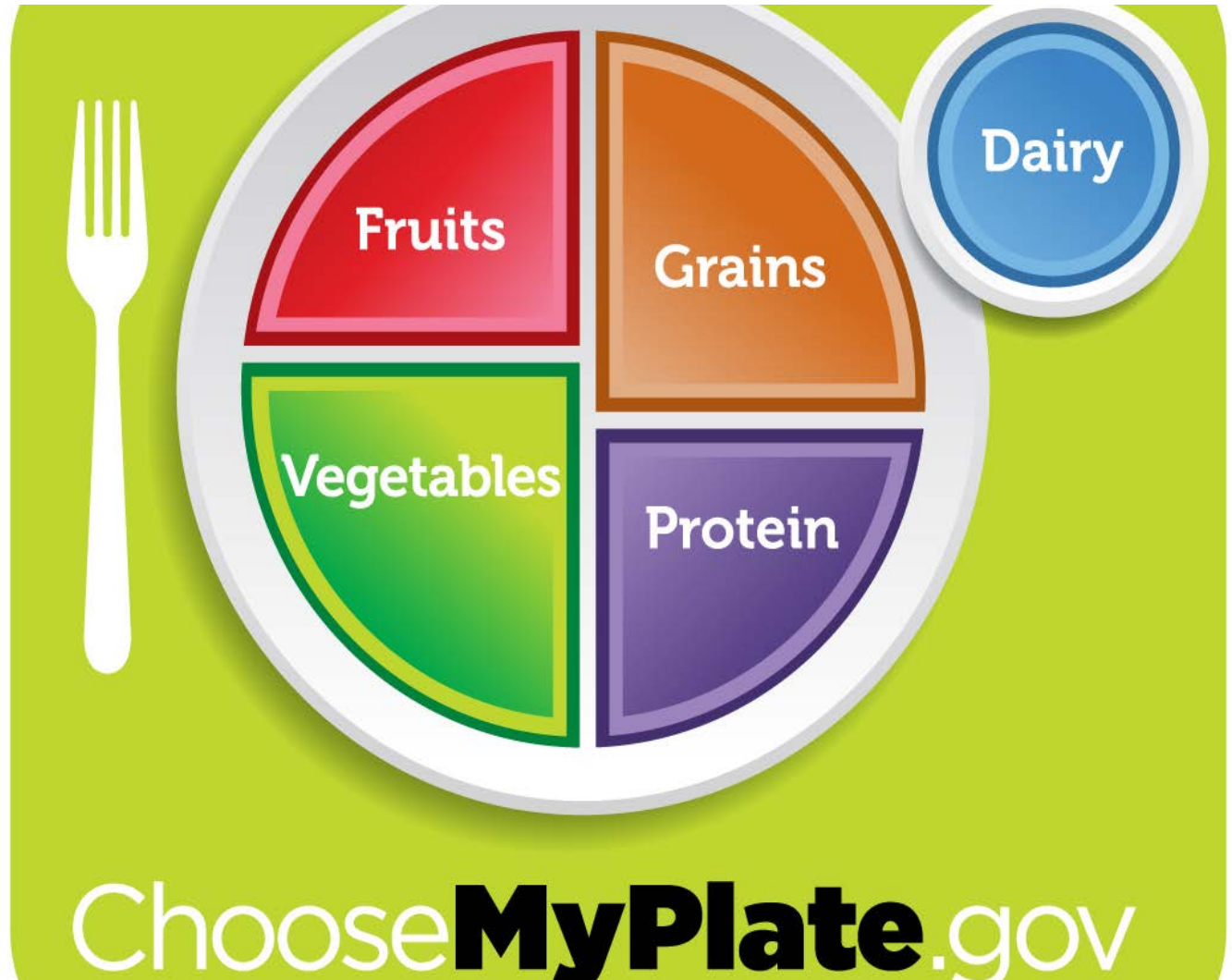
- Energy bar
- Individual bag trail mix
- Beef jerky and a banana
- Granola bar and nuts
- Whole wheat crackers and string cheese
- Yoplait 2x Protein Yogurt and fruit
- Hummus and whole wheat pita bread/pita chips
- Apple and peanut butter
- Popcorn and string cheese
- Peanut butter bites
 - Stir $\frac{1}{2}$ cup peanut butter and $\frac{1}{4}$ cup honey together
 - Stir in 1 cup oats and $\frac{1}{2}$ cup whey protein powder
 - Roll into 20-22 balls and refrigerate
 - Approx 70 calories, 7 carb, 2 fiber, 3 protein, 3 fat each

Healthy Convenient Store Snacks

- **7-11's and Quick Trips offer the most options**
- Peanut butter crackers/peanut butter filled pretzels
- Individual bags of trail mix or nuts & a fruit
- Whole grain granola bars & string cheese/nuts
- Box of whole wheat crackers & string cheese
- Protein bar & banana/milk
- Turkey/ham and cheese sandwiches/wraps & baked chips/ fruit cups
- Yogurt & fruit parfaits & a bag of nuts
- Ready-to-drink Protein Shake & a fruit/granola bar
- Add milk/chocolate milk to any snack to increase calories and protein



My Plate for Lunch & Dinner



My Plate with Food Choices





Nutrient-Rich Lunch “Ingredients”

- Whole grain
 - Bring it: bread, crackers, granola bar, etc.
 - Buy it: rice, potato, pasta, roll
- Lean protein
 - Bring it: deli meat, peanut butter, nuts
 - Buy it: chicken, fish, beef, peanut butter
- Low-fat dairy
 - Bring it: yogurt, cottage cheese, cheese, milk
 - Buy it: milk, chocolate milk, yogurt parfait
- Vegetable
 - Bring it: veggies on sandwich or raw vegies with dip
 - Buy it: side item with entrée or salad
- Fruit
 - Bring it: whole fruit, 100% apple sauce
 - Buy it: whole fruit, side chopped fruit, 100% juice



Fluids to Drink & Fluids to Dump

- Fluids to drink are nutrient-rich providing water, vitamins and minerals
 - Water
 - Sports drinks around exercise
 - Low-fat, fat-free milk, dairy-based smoothies
 - 100% fruit and vegetable juice
- Fluids to dump contain large quantities of sugar, fat and caffeine that have no added nutritional benefit to the diet
 - Soda
 - Sweet tea, lemonade, sugary fruit drinks
 - Energy drinks



Pre-Exercise Meal Timing

- How much time should I allow for digestion of food?
 - Allow 3-4 hours for large meal
 - Meat, pasta, vegetables, salad, roll
 - Allow 2-3 hours for smaller meal
 - Sandwich, crackers/baked chips, fruit
 - Allow 1-2 hours for a blenderized meal to digest
 - Smoothie, protein drink/shake
- Carbohydrate snack 30 minutes before exercise provides “energy burst” for performance
 - 50-70% carbohydrate, low-moderate protein



Pre-Exercise Eating

○ Pre-exercise meal

- High carbohydrate
- Low in fat & fiber
 - These slow down digestion
- Moderate protein
- Combine protein + carbohydrate
- Plenty of fluids

○ Immediate Pre-exercise Snack

- 30 minutes before workout/game
- High carbohydrate, small amount of protein to provide you with a boost of energy

Morning Training

- **Lots of carbohydrate; easy-to-digest foods**
- **Good choices for early morning**
 - Shake with carbohydrates & some protein
 - Shake powder mixed with water or skim milk, fruit, 1 scoop protein powder, ice and water
 - Energy bar like Gatorade FUEL Bar
 - Low-fat granola bar like Kashi crunchy/chewy, Nature Valley, Quaker Oatmeal Square
 - Fruit (i.e. banana, nothing very acidic)
 - Plain bagel or dry cereal/granola mix





G Series Products – PRIME FUEL

○ GATORADE PRIME Pouch (4-oz. pouch)

- Pre-workout or pre-game fuel.
- Carbohydrates: 25 grams of carbohydrates (100 calories)
- Electrolytes: 110mg sodium and 35mg potassium

○ GATORADE PRIME Chews (6 chews)

- Pre-Workout or pre-game fuel.
- Carbohydrates: 25 grams of carbohydrates (100 calories)
- Electrolytes: 110mg sodium and 35mg potassium



During Workouts

- **Carbohydrate-rich foods/drinks**
 - Carbohydrates digest the quickest & thus provide energy faster!
- **Carbohydrate need**
 - 30-60 grams of carbohydrate per hour after the first hour to hour and a half of exercise
- **Fluid need – match sweat losses**
 - Consume 5-10 oz fluid every 15-20 minutes
 - Water and sports drink to replace electrolytes
- **Avoid fat, protein, & fiber when exercising...**
slows digestion & increases time in which energy is available to be used



G Series Products

- **GATORADE PERFORM: GATORADE THIRST QUENCHER® (8-oz. serving)**
 - Trusted, scientifically proven Gatorade Thirst Quencher® helps athletes replace fluids, replenish electrolytes and refuel working muscles during activity.
 - Carbohydrates: 14 grams of carbohydrate (50 calories)
 - Electrolytes: 110mg sodium and 30mg potassium



G Series Products

○ GATORADE PERFORM: G2®

- (8-oz. serving)
- A low-calorie thirst quencher that delivers functional hydration for active people during exercise, but with less than half the calories (and carbohydrates to fuel working muscles) of Gatorade Thirst Quencher.®
- Carbohydrates: 5 grams of carbohydrate (20 calories)
- Electrolytes: 110mg sodium and 30mg potassium



Mid-Practice/Meet Snacks

- **Carbohydrates, some protein, little fat**
 - Energy bars
 - Granola bars
 - Half peanut butter jelly sandwich and fruit
 - Peanut butter crackers
 - Peanut butter-filled pretzels and a fruit
 - Beef jerky and a banana
 - Beef jerky and a granola bar
 - Trail mix and a banana
 - Sports drinks and water as hydration



Post-Exercise Nutrition

- **The three R's to post-workout recovery:**
 - **Replenish** carbohydrate burned during exercise
 - **Rebuild** damage done to lean muscle mass
 - **Rehydrate** the body to euhydration/normal





Post-Exercise 2-Hour Window

- 2-Hour Window of Recovery
- Your body has a **specific time period, post-exercise**, when you are able to more effectively take up nutrients
 - **0-45 minutes**
 - Best time to eat at least a snack...muscles more sensitive to absorb nutrients!
 - **45 minutes – 2 hours**
 - Try to get a nice-size meal or larger snack
- The window is the most important time to consume plenty of carbohydrate, protein, & fluids to replenish & refuel
- Essential if participating in twice a day training

Post-Exercise Eating

○ Carbohydrate - Replenish

- Body NEEDS lots of carbohydrate post-exercise to replace energy stores
- Simple carbs are best: milk, sports drink, fruit, juice

○ Protein - Rebuild

- Body needs some protein to start repairing tiny muscle tears
- Ideally 20 gm protein immediately post-workout
 - Whey protein is the highest in BCAAs, specifically leucine which has been shown to re-synthesize muscle the fastest after a workout



Post-Exercise Eating

○ Carb-Protein Combo Food Examples

- If you have products available:
 - Carb-Protein Replacement Shake
 - Gatorade Recovery
 - Energy bar & Gatorade
 - Smoothie made with 1-2 cups low-fat milk, fruit, cold water, ice, and 1 scoop NSF Certified whey protein powder
- If you are on a budget:
 - 16-20 oz low-fat chocolate milk
 - Granola bar and 12 oz low-fat milk
 - Yoplait Greek 2x Protein Yogurt and a string cheese



G Series Products – RECOVER

- **GATORADE RECOVER Protein Shake**
 - (16.9-oz. serving)
 - Protein: 20 grams of protein
 - Carbohydrates: 45 grams of carbohydrates
 - Electrolytes: 320mg sodium and 680mg potassium
 - Calories: 270
- **GATORADE RECOVER Whey Protein Bar**
 - Protein: 20 grams of protein
 - Carbohydrates: 42 grams of carbohydrates
 - Calories: 350





Hydration - Rehydrate

○ Pre-exercise

- 2-3 hours prior exercise: 16-20 oz fluid
- 10 minutes prior exercise: 5-10 oz fluid

○ During-exercise

- Really individualized to sweat rate
- Every 15-20 minutes: 5-10 oz fluid
- Water and sports drinks
 - Sports drinks especially after 1 hour of exercise and/or in very hot/humid conditions

○ Post-exercise

- 16-24 oz fluid for every pound lost
- 24 oz if in 2-a-days or need to rehydrate quickly

What can dehydration cause?

- Muscle cramps
- Joint pain
- Dry mouth
- Fatigue
- Nausea
- Heat exhaustion
- Heat stroke
- Lightheadedness/
headache
- Decreased performance
- Increased time to recover
- Increased muscle soreness
- Susceptibility to colds and sickness



Hydration - Cramping

○ Typical causes:

- Fatigue
- Dehydration due to loss of electrolytes

○ Foods to improve/prevent cramping

- High salt foods
 - Crackers, popcorn, baked chips, pretzels
 - Tomato sauces, soups, pickles & pickle juice
 - Salt your food!
- High potassium foods
 - Bananas, strawberries, cantaloupe, raisins
 - Avocados, potatoes, beans, broccoli, spinach
 - Yogurt, milk, tomato juice, soybeans
- Sports Drinks



So what counts as fluid? -----

- Water
- Sports drinks
- Flavored waters like Crystal Light
- Tea
- Coffee
- Fruit juice
- Smoothies
- Jell-O
- Soup
- Fruits
- Vegetables



Sample Morning Workout Day Eating Example

- Small pre-workout snack 5:30-6:30am
- Hydrate during workout
- Breakfast – within 30 minutes
 - If going to be longer, drink chocolate milk or small shake
- Mid-morning snack – 10:00am
- Lunch – 11:30am-1:00 pm
- Afternoon snack – 3:30-4:30pm
- Dinner – 6:00-7:30 pm
- Evening snack – 9:00 pm



Sample Afternoon Workout Day Eating Example

- Breakfast – 7:00-8:30 am
- Mid-morning snack – 10:00am
- Lunch – 11:30am-1:00 pm
- Small pre-workout snack – 3:00-4:00pm
- Hydrate during workout
- Post-workout snack – within 30 minutes
- Dinner – 6:00-7:30 pm
- Evening snack – 9:00 pm



2-a-day Practice Eating Example

- 5:00am snack
 - Granola bar, energy bar, banana, baggie of cereal
- Workout
- Post-workout snack: chocolate milk
- Breakfast within 45 min-1 hour after practice
- Lunch 11:00am-12:00pm
- Afternoon (pre-workout) snack around 2pm-ish
- Workout: Consuming water & Gatorade
 - Might want to consume energy bar or granola bar in the middle of practice if possible
- Dinner within 45 min-1 hour after practice
- Evening snack approximately 3 hours after dinner



Game Day Eating Example

- Breakfast – 5:30-8:00 am
- Mid-morning snack – 10:00am
- Lunch – 11:30am-1:00 pm
- Pre-game meal 3:30-5:00pm
- Hydrate during game
- Half-time snack 8:30-9:30 pm
- Post-game meal/snack– 10:00-11:00 pm



Sports Nutrition Goals

- **Energy**: Eat often during the day; approximately 5-7 meals/day
 - Fuel adequately every day; try not to skip meals or snacks... be prepared
- **Recovery**: Just as important as training
 - If recovery is not adequate, carbohydrate stores will not be replenished & you will start with a decreased amount of energy next time you train or compete
- **Hydration**: Drink fluids all day, not just around exercise



Questions

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