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 ½ cup peanut butter and ¼ cup honey together
  - Stir in 1 cup oats and ½ 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 with Food Choices
Nutrient-Rich Lunch “Ingredients”

- Whole grain
  - Bring it: bread, crackers, granola bar, etc.
  - But 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 veggies 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, spots 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, bakes 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 – 10:00 am
- Lunch – 11:30 am-1:00 pm
- Small pre-workout snack – 3:00-4:00 pm
- 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 – 10:00 am
- Lunch – 11:30 am-1:00 pm
- Pre-game meal 3:30-5:00 pm
- 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 your train or compete

- **Hydration**: Drink fluids all day, not just around exercise
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