NUTRITION GOALS: ENHANCING ATHLETIC PERFORMANCE

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**Nutrition Goals: Overview**

- Understand the role of macronutrients and fueling for optimal performance
- Appreciate importance of hydration
- Use nutrient timing to your advantage
- Real food ideas and benefits
Nutrition Goals: The Daily Plate

- Calorie Balance
- 90:10 Rule
- REAL food
NUTRITION GOALS: PROTEIN

- For muscle growth
- Make red blood cells - ↑ oxygen supply to muscles
- Make white blood cells
- Make hormones and enzymes – regulate metabolism
- Repairs lean tissue

- Endurance athletes, dieters, growing teen athletes, untrained people starting to exercise have higher needs
- Athletes need **slightly** more protein to repair small amounts of muscle damage
NUTRITION GOALS: PROTEIN

- Protein RDA: 0.8 gm/kg/day (0.4 gm/lbs/day)
- Research ➞ excess of 0.9 gm/lbs (2.0 gm/kg) = no added advantage
- Excess protein intake = burned as calories; stored as fat or glycogen

- Food sources: lean meats, low-fat dairy, beans, nuts, eggs, peanut butter
**Nutrition Goals: Protein**

- Does increased protein intake result in bigger muscles? NO
  - Physical work, adequate calories/CHO-rich diet
- Will protein powders bulk up my son? NO
  - Extra calories, resistance exercise
- Will extra protein make my son grown taller? NO
  - Boys peak growth 13-14 years, after girls.

- Muscle formation is a result of hard work…EXERCISE…and *Great Nutrition*
**Nutrition Goals: Carbohydrate**

- The foundation of a sports diet
  - Provides fuel for working muscles
  - Promotes glycogen storage
  - Simple sources: table sugar, fructose, lactose
  - Complex sources: Starchy plant foods, grains
  - All carbohydrate gets broken down to glucose which provides energy for brain and muscles
NUTRITION GOALS: CARBOHYDRATE

Is carbohydrate fattening? NO!
- 15 gm CHO = 60 calories (1/2 c. pasta, rice, 1 slice bread, 1 c. cereal)
  - Extra calories, added fat

Food Sources: whole grain breads, crackers, cereal, fruit, vegetables, pasta, milk
- Aim for whole grain 50% of the time
- Fiber=fuller, ↓ cholesterol
- Weight management
Remember, weight gain research has shown that soda doesn’t compute as a calorie source.

Real soda
- Sweetened with HFCS
  - Weight gain research (soda doesn’t compute as a calorie source)
  - Trigger increased desire/cravings → drink more
  - Caffeine (leach calcium from bones)
  - Cavities

Diet soda
- Sweetened with artificial sweeteners/caffeine
  - Drive hunger → eat more

- ADI (acceptable daily intake)
  - Aspartame (Equal) 50 mg/kg/day (12 oz can = 200 mg)
  - Saccharin (Sweet & Low) 5 mg/kg/day (12 oz can = 140 mg)
  - Sucralose (Splenda) 5 mg/kg/day (12 oz can = 70 mg)
Nutrition Goals: Fat

- Fat is needed for energy
  - Calorie source
  - Utilize vitamins
  - Prevent heart disease (omega-3 and omega-6 fatty acids)
  - Saturated/trans fats contribute to heart disease, etc.

- 25-30% fat calories from daily diet; focus on mono-unsaturated fats (MUFAs) and polyunsaturated fats (PUFAs)

- Food sources: butter, fatty meats, full fat dairy, nuts, fish, peanut butter, avocado, plant-based oils
Nutrition Goals: Hydration

- Dehydrated muscles do not perform well
  - 1% body weight loss can negatively impact performance
  - 2% body weight loss = dehydration
  - 7% body weight loss = IV fluids/medical care

- Pre-, during, and post-workout or game

  2-4 hours Pre-: drink 1-2 cups of fluid (2-3 ml/pound)
  Warm ups: drink 1 cup
  Halftime: drink 2 cups
  Post-game: drink 1-2 cups for every pound lost
NUTRITION GOALS: HYDRATION

- Sports drinks:
  - good during a game
  - encourages drinking
  - presence of CHO, Na, Cl, and K

- Select drinks with 12-24 gm CHO, 110-165 mg Na/8 oz, 20-50 mg K/8oz (Gatorade, Power-Ade)

- During: Add a carbohydrate source if exercising > 1 hour (30-60 gm or 120-240 cals)
**Nutrition Goals: Nutrient Timing**

- Rhythmic eating benefits everyone
  - Every 3-4 hours
  - Adults: 1 snack/day or 4 small meals
  - Children: 1-3 snacks/day

- Structured, scheduled, and predictable
  - enhances food security
  - reduces extreme hunger
  - prevents over-eating

- Fuels your body
**Nutrition Goals: Nutrient Timing**

- Maintain blood sugar levels (CHO)
- Stay on top of hydration
- Enhance recovery (PRO)

- **Pre-Event:** ↑ CHO, PRO, ↓ fat diet

- **During:** if > 1 hour, fuel with 150-250 cals from CHO

- **Post-Event:** within 45 min.
NUTRITION GOALS: PRE-EVENT

- **Functions:**
  - Prevent low blood sugar
  - Settles your stomach; absorbs gastric juices
  - Fuels muscles (glycogen stores; glucose w/i 1 hr)
  - Peace of mind (you have gassed up your engine!)

- **What:**
  - predominantly CHO (quickly empties from stomach)
  - Limited fat and protein (slows digestion)
  - Example: banana, oatmeal, low-fat milk

_Tolerance is individual!_
NUTRITION GOALS: DURING EVENT

- Less than an hour
- Greater than an hour
  - Match sweat losses
  - Maintain blood sugar levels (100-250 cals/hr of CHO)
    - Variety of CHO (use different CHO and enhance absorption)
      - Sports drink + banana
      - ½ energy bar + water
  - Form and type
    - Liquid/solid-experiment to define tolerance
    - CHO sources use different absorption pathways—variety can enhance overall absorption
    - Amount—oversupply can lead to GI distress, inhibit fluid absorption
**Nutrition Goals: Post-Event**

- **Recreational athlete (3-4 workouts/week)**
  - Healthy daily diet; replace fluids
  - Ample time to replace glycogen stores

- **Competitive athlete (2 or more workouts/day)**
  - Within 45 minutes post-workout
    - CHO stimulates insulin → promotes muscle building, transports CHO into the muscle
    - CHO + protein (10-20 g) → better muscle re-fueling/building, reduces cortisol which breaks down muscle

- **100 calories makes a difference!**
  - 10 oz. chocolate milk, 2 eggs, 2 T. peanut butter on banana, 1 c. yogurt w/ granola
NUTRITION GOALS: SNACKS IDEAS

REAL FOOD Snacks
- Dry cereal + juice
- Peanut butter crackers + raisins
- Gogurt stick + apple
- Pretzels + cheese stick
- Whole grain crackers + cheese/peanut butter
- Nuts + dried fruit
- Mini-bagels + cream cheese/nut butter
- Fresh fruit (oranges, bananas, apples, grapes, etc)
- Homemade muffins/low-fat store muffins
- Trail mix (granola, nuts, dried fruit)
- Frozen fruit bars
- Breakfast bars, low-fat granola bars
- Mini-sandwiches (lean meat, peanut butter, hummus, etc)
**Nutrition Goals: Summary**

- *What* you eat and *when* can make a difference in your athletic performance, your physique, and your overall health and energy levels.
- *What* you eat and *when* can help you attain and maintain a healthy weight.
- *Physical activity* always helps strike calorie balance.

**Tennessee Soccer Association Challenge**
- Optimize nutrition for players:
  - Hydration awareness and guidelines
  - Snack policy for children and families
  - Nutrition guidance for elite players
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