http://www.youtube.com/watch?v=uGZ_pi22a98

- Milwaukee Lakefront Marathon 2011
Optimal Marathon Fueling

Aaron Palya, BS
MS Kinesiology Program
Overview

• The Main Macronutrients
  • Carbohydrates
    • Importance and Intake
    • Food Sources
  • Protein
    • Intake
    • Food Sources
• Supplements & Resources
The Main Macronutrients

- **Carbohydrates**
  - Most vital nutrient during exercise

- **Proteins**
  - Aids in recovery of tissues and helps prevent soreness

- **Fats**
  - Availability much greater than carbohydrates
Importance of Carbohydrates

• Main fuel source during exercise
  • Carbohydrate needs go up and must be replenished
  • 1 mile = 100 calories so 26.2 miles = 2,620 calories

• Glycogen stores
  • Main energy source
  • Higher stores = greater performance
  • “Topping off the tank”
Carbohydrate Intake

- **Before exercise:**
  - Intake should be 6-10 g/kg or 3-5 g/lb

- **During exercise:**
  - 30-60 g/hr or 0.7 g/kg/hr

- **After exercise:**
  - 1.0-1.5 g/kg
Sources of Carbohydrates

- Great easy sources:
  - Fruits
  - Vegetables
  - Whole grains
  - Pasta
  - Yogurt
  - Oatmeal
Protein Intake

• Before exercise:
  • 0.8-1.5 g/kg for endurance athletes
  • Example: 150 lb=68 kg (0.8-1.5g)=54.4-102 g

• During exercise
  • Controversial
  • Mixed results when combining carbohydrates with protein
• After exercise
  • 15 grams of high quality protein
  • Found in a cup of yogurt, ¼ cup of nuts, 1 cup soy milk, 4 oz of hamburger
Sources of Protein

• Easy sources:
  • Lean meats (chicken, turkey)
  • Eggs
  • Seafood
  • Legumes
  • Nuts
Pre-Race/Exercise Meal

• Low in fiber, high in carbohydrate
  • 1-4 g/kg or 0.5-2 g/lb

• Examples
  • Oatmeal w/ bananas & extra honey
  • A few eggs w/ coffee

• Fluids: 5-7 ml/kg, 3-4 hrs before exercise
Supplements

• **Sports Drinks**
  • Choose one that you enjoy/tolerate
  • Fitness waters are not sufficient

• **Carbohydrate Gels**
  • 100 calories, 25 g carbohydrates
  • Consume 1-3 packets per hour of exercise
  • Ingest 4-8 ounces of water
• **Energy Bars**
  - Look for 25-40 g carbohydrates and < 15 grams of protein
  - Avoid ones in high fat, slows digestion
  - Consume 1 bar per hour of exercise with water
Tips

• If trying new things, try during training
  • Different foods/fluids

• Be familiar with nutrition on course
  • Train with these materials

• Utilize stops on course
  • Cost 1-2 minutes, but could save 10-20 minutes
Resources

• Textbooks
  • Dr. Susan Kundrat: 101 Sports Nutrition Tips
  • Monique Ryan: Sports Nutrition For Endurance Athletes
  • Nancy Clark: Sports Nutrition Guidebook
  • Ellen Coleman: Ultimate Sports Nutrition
Questions??