Sports Nutrition for Young Athletes

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- Registered Dietitian (RD), Board Certified Specialist in Sports Dietetics (CSSD)
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- Certified Strength and Conditioning Specialist (CSCS)
- Past Director of Sports Nutrition, University of Florida
- Past Sport Dietitian, United States Olympic Committee
- 2008 Olympic Team Sport Dietitian/Coach
- USAT Level III Elite and Youth/Junior Certified Coach
- Competitive triathlete/ultra-endurance athlete
Objectives

- Explain specific nutrition considerations for young athletes including:
  - Macronutrients
  - Micronutrients
  - Hydration

- Provide simple to implement, daily nutrition guidelines for young athletes
Age Definitions

- Children: 4-12 years of age
- Adolescents: 13-18 years of age
Youth are often times more mechanically inefficient leading to higher energy expenditures.

Young children need 20-30% more oxygen than adults when running at the same speed.

Youth have higher energy needs than adults, yet research promotes more adult specific nutrient guidelines.

Each young athlete should be individually monitored.
Research

• Self-reported energy intakes of youth (age 7-18) range from around 1600 calories to 4500 calories
  • Gymnastics, swimming, volleyball, dance, running, wrestling, football
• Depends on age, gender and sport
• Remember, our youth are typically playing other sports
Energy Requirements

• Goal: support growth and training
• Calorie restriction can lead to
  • Delayed puberty
  • Short stature
  • Menstrual irregularities
  • Poor bone health
  • Increased risk of injuries and eating disorders
Carbohydrate

- Energy supply
  - Mental, physical
- Stored in low amounts
  - Size of youth, even fewer stores
- Endogenous stores/snack opportunities
  - ~20% more utilization of endogenous stores
Protein

- Youth have higher protein needs than adults but no clearly defined requirements
  - May be 2-3 times higher than Recommended Dietary Intake (RDI)
- When energy intake is adequate, protein intake is typically adequate
  - Growth spurts
  - Vegetarianism
Fat

• Young athletes can use fat as energy during exercise better than adults
  • Increased fatty acid uptake
  • Lower RER during exercise
• Proper education is critical to get away from fear of fat
Vitamins

• If energy intake meets energy expenditure, vitamin needs should be met
• Energy restriction can lead to inadequate vitamin intakes
• Deficiencies take an extended period of time to develop
Minerals

• Most common deficiencies
  • Calcium (bone development)
    • Peak bone mass around 20-22 years of age
  • Iron (oxygen delivery)
    • 40-50% females may be iron deficient
  • Zinc (growth, energy production)
    • More common in females
Education
Supplements

• Reason for taking supplements
  • Insurance
  • Lack of knowledge
  • Peer pressure
• Educate, do not prescribe

Micronutrient
  Multi
  Calcium
  Iron, Zinc

Sport
  Bars, Gels
  Drinks
  Electrolytes

Ergogenic
  Pills
  Powders
  Potions
Hydration

- Less developed and efficient thermoregulatory mechanisms
- Greater surface area to body volume ratio
- Smaller child = higher heat production
- Exposed to a faster influx of heat when environmental temperature exceeds skin temperature
Hydration

- Do young athletes know thirst?
- Sweat rate ranges from 17.3 - 42.6 ounces per hour
- Girls may be less prone to voluntary dehydration due to lower sweat rates
- Voluntary hydration and incidence of dehydration
Hydration Guidelines

• **Before**
  - Drink until not thirsty plus 4 ounces for children
  - Drink until not thirsty plus 8 ounces for adolescents

• **During**
  - Drink 4 ounces every 15 minutes

• **After**
  - Drink at least 16 ounces
Teaching Youth: Simple is Sustainable
FuelTarget™

1: Lean proteins/healthy fats
2: Fruits and vegetables
3: Whole grains/healthier starches

“Misses”

90%

10%

Eat from the inside out
# FuelTarget™ Foodlist

<table>
<thead>
<tr>
<th>Lean Protein/Healthy Fat</th>
<th>Fruits/Vegetables</th>
<th>Whole Grains</th>
<th>Misses</th>
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<tbody>
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## Nutrient Timing

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<thead>
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<th>Before</th>
<th>During</th>
<th>After</th>
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<tbody>
<tr>
<td>1–3 hours</td>
<td>During</td>
<td>1–60 minutes</td>
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<tr>
<td>Light snack or meal</td>
<td>Hydration</td>
<td>Light snack or meal</td>
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<td></td>
<td>Electrolytes (maybe)</td>
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**Teach food first model**
Female Athlete Triad

- Body image in boys and girls
- Careful communication

Diagram:
- Menstrual Disturbances/Amenorrhea
- Bone Loss/Osteoporosis
- Energy Deficit
- Disordered Eating
Food Choices

• Hunger: biological, habitual, emotional
• Time/convenience
• Family: parental role
• Influence: peers, teachers, teams
• Health/body image
• Cost
• Cravings: blood sugar
• “Picky” eaters/repetition
Summary

• Use simple methods to teach young athletes
• Model the behavior
• Encourage self-reliance (education)
• Get them involved (goal setting, assessing, planning)
• Praise change, do not criticize
Contacts and Resources

Sports Nutrition: www.fuel4mance.com
Coaching Educational Resources: www.multisportuniversity.com
Youth Triathlon: www.kidsthattri.org
Adult Triathlon: www.teamemc.com

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E-books
• Sodium Loading Protocol for Endurance Athletes
• Neuromuscular, Dynamic and Functional Exercises for Athletes
• Caffeine Protocol for Athletes
• The Athlete’s Food Guide to Metabolic Efficiency
• The Metabolic Efficiency Recipe Book

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