Performance Nutrition for Endurance Athletes

Krista Austin, PhD, CSCS
Definition:

*Strategically utilizing food to gain an advantage in training adaptations and performance*
Performance Goals for the Endurance Athlete

- Improve Body Composition & Weight
- Improve Metabolic Efficiency
- Enhance Recovery
- Eliminate GI Distress
- Increase Stamina for Competition!
Body Composition & Racing Weight

- Improve the Power to Weight Ratio
  - Decrease body fat mass
  - Maintain muscle mass
- Finding your Racing Weight
  - Criterion Workouts
  - Recovery from training
  - Daily Energy
- Optimizing for the Race Environment
  - Cold vs. Hot races
# Nutrition Periodization

<table>
<thead>
<tr>
<th></th>
<th>Pre-season</th>
<th>Competition</th>
<th>Off-season</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immune system, anti-inflammatory responses, health</strong></td>
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<tr>
<td><strong>Macro-, micronutrient and fluid timing, quality and quantity</strong></td>
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<tr>
<td><strong>Post-workout nutrition</strong></td>
<td></td>
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<td>CHO frequency</td>
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<tr>
<td><strong>Mesocycle</strong></td>
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<td>Weight management</td>
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<tr>
<td><strong>Microcycle</strong></td>
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<td>Energy control</td>
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</table>
Energy Flux

- What
- When
- Why
- How Much
Metabolic Efficiency: The Crossover Concept

The chart illustrates the contribution to total energy at different exercise intensities. It shows a crossover point between fat (FAT) and carbohydrate (CHO) as the exercise intensity increases. At low intensities, fat contributes more to the total energy, while at high intensities, carbohydrate becomes a more significant source of energy.
Improve body composition

Improves time to exhaustion

Helps to minimize fatigue by delaying glycogen depletion
Keys to Metabolic Efficiency

Glycemic response in healthy adults

Plasma glucose response (mmol/L) from a high vs low GI food. The change in blood glucose concentration over time is expressed and calculated as the area under the curve (AUC) (Wolever et al, 1991).
Recovery Starts Before Training Begins!

Training Stimulus

Fatigue

Accelerated Recovery

Recovery

Adaptation
Recovery Nutrition

- Come to the start line well fueled!
- Consume your post-training snack right away!
- Continue to nibble throughout the day.
- Hydrate properly!
- Sleep well!
Use low residue foods to fuel for the race

Choose your fueling system wisely!

Train your gut!
Race Day Nutrition: Low Residue Foods

What are low residue foods?
- Whole wheat vs white bread
- Chunky peanut butter vs. creamy peanut butter
- Quinoa vs. white pasta

Start 3 days in advance of the race!

- Keep fiber down to about 10 grams per day.
- Restore muscle glycogen
Race Day Nutrition: Fuel Source

- Fluid to digest, transport and absorb fuel
- Minimize dehydration
- Don’t drink too much at once!
- Choose your carbohydrate wisely!
  - Fluids
  - Bars
  - Gels
# Race Day Nutrition: Choosing Your Fuel Source

<table>
<thead>
<tr>
<th>Carbohydrate Source: Highest to Lowest Osmolality</th>
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</thead>
<tbody>
<tr>
<td>Simple Sugars: Glucose, Fructose, Sucrose</td>
</tr>
<tr>
<td>Maltodextrins</td>
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<tr>
<td>SuperStarch</td>
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</tbody>
</table>
Race Day Nutrition: Nutrient Timing During the Race!

- Consume 0.5-2 grams of carbohydrate per minute
- Consume at regular 15 minute intervals
- Drink fluids with your carbohydrate & thirst
- Use a sipping method!
- Consume caffeine before the start & at regular intervals 😊
Performance Nutrition: Key Points

- Race weight is important—fine tune it early in the training cycle
- Eat at the rate you expend energy
- Work on metabolic efficiency to improve body composition & optimize fuel stores for racing!
- Practice your race day nutrition in advance!
- Go out slow & finish strong! 😊
Thank You
Contact Information:
Krista Austin
Krista@performcoachsd.com

Twitter.com/KristaAustin
www.performanceandnutritioncoaching.com

Human Kinetics is offering viewers of this webinar a 20% discount on Performance Nutrition: Applying the Science of Nutrient Timing.

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