Endurance Events

• Carbohydrate-Loading

• Eat a high carbohydrate diet
  ➢ 3-5 days prior to events
  ➢ 60-70% of your diet
Endurance Events

- Events where exercise may last more than 75 minutes
  - Military exercises and operations
  - Pack marches
  - Marathon, half-marathon
  - Triathlon
  - Bike race
  - Long, hard workouts
Endurance Events

- Reduce your training while carbohydrate-loading
  - Allows muscles to repair
  - Allows muscles to replenish
    - *Increase glycogen*
    - *Maximize hydration*
## Carbohydrate & Exercise Guide for Endurance Events

<table>
<thead>
<tr>
<th>Number of days before race</th>
<th>Exercise Time Frame</th>
<th>Training diet: % Carbohydrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>90 min</td>
<td>60%</td>
</tr>
<tr>
<td>5</td>
<td>40 min</td>
<td>60%</td>
</tr>
<tr>
<td>4</td>
<td>40 min</td>
<td>60%</td>
</tr>
<tr>
<td>3</td>
<td>20 min</td>
<td>70%</td>
</tr>
<tr>
<td>2</td>
<td>20 min</td>
<td>70%</td>
</tr>
<tr>
<td>1</td>
<td>Rest Day</td>
<td>70%</td>
</tr>
<tr>
<td>Event</td>
<td>Go For IT!</td>
<td>Meal before event, depending on your tolerance</td>
</tr>
</tbody>
</table>
Sports Drinks/Gels

• Use sports drinks or gels during glycogen depleting events
  ➢ Events greater than 60-75 minutes
  ➢ Food is not available
  ➢ Food will not be tolerated

• Talk to your doctor or a sports dietitian about electrolyte pills
Sports Drinks

• Provide
  ➢ Carbohydrate (6-8%)
  ➢ Potassium (K)
  ➢ Sodium (Na)
  ➢ Water

• Help to:
  ➢ Hydrate
  ➢ Maintain hydration
  ➢ Re-hydrate
  ➢ Maintain blood glucose
  ➢ Keep up with calorie needs

_Endurance athletes can need 2-5 times the calories of sedentary people_
Gels

- Gel packets can also be used for these endurance events
- Most gels contain about 25-30 grams of carbohydrate per packet
- Drink 5+ ounces of fluid with each gel pack consumed
- Some companies add caffeine and protein to their packets
Some companies use small amounts of amino acids to enhance sports drinks

- Accelerade
- Endurox
- Amino Vital
387 Marine Corps Recruits

- 3 post-exercise groups
  - Placebo
    - 0 carbohydrate, 0 protein, 0 fat
  - Carbohydrate
    - 8 carbohydrate, 0 protein, 3 fat
  - Protein
    - 8 carbohydrate, 10 protein, 3 fat

Protein Group Had Fewer Issues

Medical Issues

- Medical visits
- Viruses
- Heat Illness
- Muscle or Joint

<table>
<thead>
<tr>
<th>Medical Issues</th>
<th>Medical visits</th>
<th>Viruses</th>
<th>Heat Illness</th>
<th>Muscle or Joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>33%</td>
<td>28%</td>
<td>83%</td>
<td>37%</td>
<td></td>
</tr>
</tbody>
</table>
Non-endurance Athletes

• No specific diet
  ➢ (5K, PRT, PFT, CFT, track & field, recreational sports)

• Priority is to optimize skill and body composition
  ➢ Carbohydrate should be 45-70%
  ➢ Fat should be 20-30%
  ➢ Protein should be 12-20%
Non-endurance Athletes

- Sport-specific diets are not always healthy!
  - Weight sports:
    - Bodybuilding
    - Boxing
    - Wrestling
    - Rowing
    - Horse jockeys
  - Aesthetic Sports
    - Figure-skating
    - Gymnastics
Wrestlers and Weight Loss

• In the appendix

"Reprinted with permission of the American College of Sports Medicine, ACSM Current Comment “Wrestlers and Weight Loss”"
Pre-event Meals

- Carbohydrate and Protein
  - 300-500 calories about 3-4 hours prior to event
  - 50-100 calorie snack about 1 hour prior
    - Granola bar
    - Low-fat milk
Pre-event Meals

- Cold cut sandwich
- Pasta with meat or meat sauce
- Rice and beans
- Meat with mashed potatoes or rice
- Yogurt with banana
- Fruit smoothie
- Ready-to-drink shake
Pre-event Meals

- In the appendix

  "Reprinted with permission of the American College of Sports Medicine, ACSM Current Comment “Pre-event Meals.”"
Sports Nutrition Recovery

• Recover immediately post-event with a shake or beverage
  ➢ Liquid meal
    • Flavored milk
    • Skim milk

...Then a well balanced post-event meal with protein and carbohydrate similar to pre-event meal.
Low-Fat Milk

• Perfect for non-endurance athletes
• Very good for endurance athletes
• Provides
  ➢ Carbohydrate
  ➢ Protein
  ➢ Electrolytes
  ➢ Vitamins
  ➢ Minerals