



Fuel sources

- Carbohydrates
- Fats
- Proteins

Fuel Storage

- Fats
 - Adipose tissue
 - Free Fatty Acids
 - Triglycerides
- Carbohydrates
 - Muscle glycogen
 - Liver glycogen
 - Blood glucose

Fuel intake

- Before, during, after

Training

- Frequency
- Intensity
- Time
- Mode

Monitoring Training

- Heart rate
- Power
- RPE
- [La]

Thermoregulation

- Sweat
 - Hydration
- Clothing

Propulsion Force

- Magnitude
- Direction
- Coordination

Movement

- Drills
swim, run, bike
- Technique

Resistance Forces

- Drag
cycling, swimming
- Rolling resistance
- Slope

Injury: Too much, Too soon, Too fast

Chemical to Mechanical Energy: Keys to endurance performance

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Take Home Points

<i>Chemical Energy</i>	• Maintain regular diet through competition. • About 60 g carbohydrate per hour during competitions lasting longer than 2 hours. • Swish-and-spit during sprint events.
<i>Training</i>	• Your body will adapt to the training ◦ With appropriate Recovery • Aerobic and Anaerobic training important • HR, Power, RPE are ways to monitor intensity ◦ Set appropriate stress • Thermoregulation ◦ Hydration
<i>Mechanical Energy</i>	• Develop appropriate magnitude and timing of force ◦ Neuromuscular coordination ◦ Technique • Minimize resistance forces ◦ Cycling: Air resistance, rolling resistance, weight ◦ Swimming: Resistance drag
<i>Remember</i>	• Individual response ◦ Don't do something just because someone else is doing it ◦ Train your body to ... ▪ Store/use the right amount of Chemical Energy • Fuel during competition ▪ Transfer Chemical Energy to Mechanical Energy ▪ Generate the right amount of force in the right direction at the right time • Enjoy!