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

• Milwaukee Lakefront Marathon 2011
Predictors of Marathon Performance

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Overview

- Marathon-The Basics
- What are the key predictors?
  - VO₂ Max (Oxygen Uptake)
  - Running Economy
  - Lactate Threshold
- Resources
- Claws Vs. Paws
- Future Talks
• 26.2 miles

• Upcoming Marathons:
  • Lakefront Marathon: October 5th
  • Chicago Marathon: October 12th
  • Green Bay Marathon: May 18th
  • Madison Marathon: November 9th

Source: www.runningusa.org/statistics
What Predictors Tell Us

- Indication of performance capability
- Measure of fitness level
- Help shape training runs
  - What pace/HR for each run
- Improvement is possible
- Estimate of Race Pace
  - If done close to race day
The Key Predictors

• Maximal Oxygen Uptake (VO$_2$ Max)
  – Measured via treadmill

• Running Economy
  – Run types/components
  – Posture and form

• Lactate Threshold
  – Race Pace
**VO₂ Max**

- Maximal amount of oxygen our bodies can use during exercise
- Measure of aerobic fitness
- Increases with training

Source: www.sport-fitness-advisor.com/VO2max.html
VO$_2$ Max

- Influences:
  - Heat
  - Dehydration
  - Lactate Build-Up
  - Supplementation
  - Diet
  - Muscle Glycogen
Running Economy

• Considered to be your running “pace”
  • Energy cost of running at a certain speed

• Improvement:
  • Using different runs
    » Interval
    » Tempo
    » Repetition
  • Footwear
  • Plyometrics

<table>
<thead>
<tr>
<th>Types of Aerobic Endurance Training</th>
<th>Frequency (per week)</th>
<th>Duration (per session)</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long, slow distance</td>
<td>1-2</td>
<td>Race distance or longer (or 30-120 min)</td>
<td>~70% VO2 max</td>
</tr>
<tr>
<td>Pace/tempo</td>
<td>1-2</td>
<td>20-30 min</td>
<td>At lactate threshold or slightly above race pace</td>
</tr>
<tr>
<td>Interval</td>
<td>1-2</td>
<td>3-5 min interval (work:rest ratio of 1:1) 30-90 sec interval (work:rest ratio of 1:5)</td>
<td>Near VO2 max</td>
</tr>
<tr>
<td>Repetition</td>
<td>1</td>
<td>20-60 min</td>
<td>Greater than VO2 max</td>
</tr>
<tr>
<td>Fartlek</td>
<td>1</td>
<td></td>
<td>Variable: ~70% VO2 max with bouts at or above lactate threshold</td>
</tr>
</tbody>
</table>

Adapted from Essentials of Strength Training & Conditioning (2000) (8)
Running Economy (cont.)

• Influences:
  • Biomechanics
  • Posture
  • % VO\textsubscript{2} Max
During exercise, the body accumulates lactic acid
  • Running just below LT=lactate does not accumulate
  • Higher LT=faster race pace

Fatigue
  • Graph
Lactate Threshold (cont.)

![Graph showing relationship between speed (mph), VO2 (ml/kg/min), heart rate (bpm), and blood lactate (mmol). The graph includes markers for VO2, heart rate, and blood lactate.]
Additional Resources

• Handout
  – Claws vs. Paws
  – Websites
  – Running clubs
  – Running stores
  – Books
Claws Vs. Paws Challenge-UWM vs. Concordia

- Friendly competition between schools
- Composed of students, staff, and faculty

Averages scores of registered runners

- Best average time wins
- Each school has won one year
- 3rd annual this year

College of Health Sciences
Department of Kinesiology
Future Talks

- April 8th: The Importance of Resistance Training
- April 15th: Proper Running Attire
- April 22nd: The Impact of Weather: Hot and Cold
- April 29th: Optimal Marathon Fueling
Questions??