The Sprint of Sprint Kayaking

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An Olympic Sport

- Olympic sport since 1936
- Men’s 500 m and 1,000 m
- Women’s 500 m
- K1, K2, K4
- C1 C2, C4

- 200 m introduced to World Championship programme in 1993
- 200 m Olympic debut in 2012
- Replaces 500 m for men
1. The Energetic Demands

**Men’s K1 200 m**
- ~ 35 sec
- 37% aerobic, 63% anaerobic

**Men’s K1 500 m**
- ~ 1:36 min
- 62% aerobic, 38% anaerobic

**Men’s K1 1,000 m**
- ~ 3:36 min
- 82% aerobic, 18% anaerobic

*Byrnes & Kearney (1997)*
1. The Energetic Demands

<table>
<thead>
<tr>
<th>Men’s K1 event</th>
<th>Speed (m/sec)</th>
<th>Stroke Rate</th>
<th>%VO₂max</th>
<th>[Lactate] (mM/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 m</td>
<td>5.71</td>
<td>150</td>
<td>~ 75 %</td>
<td>10</td>
</tr>
<tr>
<td>500 m</td>
<td>5.21</td>
<td>135</td>
<td>~ 90 %</td>
<td>14</td>
</tr>
<tr>
<td>1,000 m</td>
<td>4.63</td>
<td>120</td>
<td>~ 100 %</td>
<td>14</td>
</tr>
</tbody>
</table>
2. The Athletes

- Profiles of the 200 m specialist not yet established
- Tendency for greater mesomorphy (muscularity), strength and power, anaerobic capacity ... and perhaps shorter stature
- 200 m performance correlated with:
  - upper body dimensions
  - muscular strength and power
  - anaerobic power and capacity
- Chest circumference, humeral breadth, Wingate peak power and Wingate total work account for 71% of variance in 200 m time

van Someren & Howatson (2008)
3. The Training

1. Focus on speed and speed endurance
2. Increased gym-based training
   • maximum strength and power, rate of force development
3. On-water resistance training – ‘bungee sessions’
   • speed endurance and endurance
4. All year-round speed training
5. Reduced cumulative stress and fatigue during off-season
6. Importance of monitoring of neuromuscular fatigue
4. So What Have we Learnt?

Specific training required for specific demands of event – polarisation of 200 m and 1,000 m events

Risk of slowing down the ‘sprinters’ with winter training!

‘Bungee’ work can increase specificity of distance work

Interval training effectively develops VO$_2$max

Speed training is hard work!
5. And What do We Still Need to Learn?

- Transferability of gym-based resistance training?
- What will the 200 m ‘specialist’ look like?
  - Differentiation between 500 m and 200 m for women?
- How different are the demands of crew boat racing?
- The demands of Paracanoe disciplines?
Take Home Messages for Rowing Coaches?

1. High intensity interval training is a potent stimulus for improving VO₂max
2. There may be ways to manipulate off-season distance training to increase motor unit recruitment
3. Different boat speeds and stroke rates may have significant implications for training specialisation
4. Importance of muscle shortening velocity
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