The Underperforming Athlete
An overview of Overtraining Syndrome:
What is Overtraining?

Dr Richard Budgett

What is Overtraining?
Central fatigue
Prevention and management
The Diagnostic Dustbin

• Overtraining Syndrome
• Burnout
• Staleness
• Chronic fatigue in Athletes
• Under recovery syndrome
• Depression

Over-reaching and Functional overtraining

Fatigue
Underperformance
Depression

Most recover quickly (Steinacker JM)

A few fail to recover .......... Chronic fatigue +/- frequent infections
Alternative definition: Unexplained Underperformance Syndrome (UPS)

Persistent unexplained performance deficit (agreed by coach and athlete) despite 2 weeks of relative rest.

The following have been reported in UPS:

- Fatigue and unexpected sense of effort
- History of heavy training and competition
- Frequent minor infections

Other Reported Symptoms

- Loss of energy
- Unexplained heavy, stiff and/or sore muscles
- Mood Disturbance: Anxiety, Depression
  Irritability, Emotional Lability
- Loss of competitive drive
- Loss of libido
- Loss of appetite
- Change in expected sleep quality

Underperformance with an inability to increase the pace at the end of a race.
**Swimmer**

January:
- Doubled training
- Full time and new coach
- Loss of control over training
- Moved house

February:
- Improved performance

- March:
  - Fatigue, heavy muscles, loss of motivation, raised resting pulse rate, submax performance maintained

- April:
  - Underperformance

- May:
  - Recovery programme

- August:
  - World Championships
Immune function

Risk URTI

Exercise
• All endurance athletes
• Fade at end of race
• Lower peak power on Wingate
Eccentric/Concentric Isokinetic torque ratio

![Graph showing Eccentric/Concentric Isokinetic torque ratio](image)

Increased Prolactin release in response to a 5HT releasing agent (m-CPP) in athletes with overtraining syndrome

L Castell, R Budgett

Prolactin concentration (µM) (+/- SEM)

Time after (or before) administration mCPP

<table>
<thead>
<tr>
<th></th>
<th>-30mins</th>
<th>0mins</th>
<th>120mins</th>
<th>150mins</th>
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<tr>
<td><strong>Control</strong></td>
<td>128 (12)</td>
<td>137 (27)</td>
<td>202 (28)</td>
<td>236 (28)</td>
</tr>
<tr>
<td><strong>OTS</strong></td>
<td>198 (21)</td>
<td>180 (20)</td>
<td>300 (42)</td>
<td>325 (48)</td>
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\[ p < 0.01, \quad \text{NS}, \quad p < 0.001, \quad p < 0.001 \]
Individual monitoring

- Performance
- POMS/questionnaires
- H.R.
- Lactates/RPE
- CK/Urea
- C:T ratio
- NAd/Ad
- Eccentric/concentric ratio
- Heart rate variability
- Oxidative stress (ORAC)
- Experience of coach and athlete

Management

- Exclude other illness

- Consider label as “Under recovery syndrome”

- Convince coach and athlete of need for 6-12 weeks RELATIVE rest.

- Regeneration strategies
Athletes with OTS are different from patients with Chronic Fatigue

- Underperformance
- Present earlier
- Less severely affected
- Recovery more quickly
- Major stresses are exercise and competition
- Rehabilitative exercises - hold back

Summary

- Over reaching with fatigue and underperformance is normal in athletes.
- Prolonged fatigue and underperformance with no medical cause lasting 2 weeks despite tapering is not normal
- Management involves regeneration strategies and a graded exercise programme
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