How Powering the Immune System Can Power Athletic Performance

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Agenda

I. Introduction
II. Immune system refresher
III. Why immune health matters to athletes
IV. Traditional dietary recommendations
V. Evidence for new dietary interventions
VI. Discussion
Sports Nutrition – A Brief History

Ancient Greeks
“Original” Mediterranean diet

Helsinki Olympics
Study of fats & carbs in exercise physiology lab

Today
Focus on energy & recovery, physical and mental performance

Immune System Refresher

A complex network of cells, structures and processes that defend the body from invading pathogens.
What is the Immune System?

- The body’s defense system.
- A communication system that protects the body throughout the life cycle.
- A system with two fundamental components: innate (hardwired) and acquired (adaptive).
- Both provide resistance to disease.
The Immune System of Athletes

The Impact of Intense Exercise

• The effect of exercise intensity on URTI incidence has lead to the J-curve hypothesis in which URTI incidence drops as exercise intensity increases until it reaches an inflection point and begins to increase as exercise intensity increases from moderate to “severe.”

The Impact of Intense Exercise

- There is a large volume of research published over the past 35 years that has reported increased occurrence of upper respiratory tract infection (URTI) symptoms post-completion of endurance running events.¹
- The increased incidence of URTI after high intensity exercise is in contrast to studies that have shown that moderate levels of exercise can improve markers of immune function and reduce the apparent incidence of URTI.²


Traditional Dietary Recommendations

Source: SCAN Nutrition Fact Sheet Issue 16, January 2011
### Traditional Dietary Recommendations

<table>
<thead>
<tr>
<th>What</th>
<th>Why</th>
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<tbody>
<tr>
<td>Ensure adequate calories, protein, carbs, fats and electrolytes</td>
<td>Maintain energy balance, support exercise expenditure</td>
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<tr>
<td>Consume carbs before, during, after long training sessions</td>
<td>Offset suppressive effect of exercise on immune function</td>
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<td>Eat foods rich in antioxidants daily</td>
<td>Combat oxidative stress</td>
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<td>Select lean proteins esp. iron, zinc</td>
<td>Support immune function and repair and rebuild muscle</td>
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<td>Include foods rich in omega-3 fatty acids</td>
<td>Anti-inflammatory properties</td>
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<td>Ensure Vitamin D adequacy</td>
<td>Promote immune defense</td>
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<td>Choose foods with probiotics</td>
<td>Enhance gastrointestinal and immune health</td>
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**Can Diet Do More?**