Performance Nutrition...On and Off the Field

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KNOW EVERYTHING YET UNDERSTANDS NOTHING

Versus
FOUNDATION OF NUTRITION
COMMON THINKING...

- Carbs/Starches
- Fruits and Veggie
- Fats
- Protein
WHAT OUTCOME AM I AFTER?

...and what is the primary intervention
FOCUS #1... TIMING
SIMPLE INTERVENTION...
MANAGE POST WORKOUT RECOVERY
BALANCE AND COMPOSITION
DON’T JUST REACT TO CHANGES

BE AWARE AND TAKE CONTROL
FUEL THE EFFORT

Map Out Your Training Week

- Monday: Energy (4), Hydration (4)
- Tuesday: Energy (6), Hydration (6)
- Wednesday: Energy (2), Hydration (2)
- Thursday: Energy (4), Hydration (4)
- Friday: Energy (6), Hydration (6)
- Saturday: Energy (2), Hydration (2)
- Sunday: Energy (2), Hydration (2)
Energy Management

Energy

Hydration

Helmets
Shells
Pads
Off
Regen
QUALITY FUELING
NOW START TO FINE TUNE
CLEAN UP THE TRASH
SUPPLEMENTS...
Managing Workload

USG and Hydration

Better Energy Management

Recovery and Readiness

Fatigue and Sleep

A need to understand what/when/how...
HYDRATION
2007: The goal of drinking during exercise is to prevent excessive (>2% body weight loss from water deficit) dehydration and excessive changes in electrolyte balance to avert compromised performance. Because there is considerable variability in sweating rates and sweat electrolyte content between individuals, customized fluid replacement programs are recommended. Individual sweat rates can be estimated by measuring body weight before and after exercise. During exercise, consuming beverages containing electrolytes and carbohydrates can provide benefits over water alone under certain circumstances. After exercise, the goal is to replace any fluid electrolyte deficit. The speed with which rehydration is needed and the magnitude of fluid electrolyte deficits will determine if an aggressive replacement program is merited.
SIMPLEST EXPLANATION

• We Hydrate for Cooling!

Hydrate -> sweat -> cool -> sports!
1909: “Don’t get in the habit of drinking and eating in a marathon race; some prominent runners do, but it is not beneficial” – James E. Sullivan
1960: “Four small bottles for a long stage [of the Tour], it is frowned upon to drink more...Avoid drinking when racing, especially in hot weather. Drink as little as possible, and with the liquid not too cold. It is only a question of will power. When you drink too much you will perspire, and you will lose your strength.” – Tom Simpson
1996: “Athletes should be encouraged to replace their sweat losses or consume 150-300ml every 15 minutes (600-1200ml per hour)”. – 1996 ACSM
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## HUMAN SWEAT

The table below shows the typical human sweat composition for various electrolytes:

<table>
<thead>
<tr>
<th>Electrolyte</th>
<th>Typical daily intake (mg)</th>
<th>Typical absorption efficiency</th>
<th>Typical sweat losses per litre</th>
<th>Loss in litres of sweat to be deficient</th>
<th>Deficiency possible by sweating?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>4000</td>
<td>&gt;90%</td>
<td>230-1700</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td>Potassium</td>
<td>2700</td>
<td>&gt;90%</td>
<td>150</td>
<td>16</td>
<td>No</td>
</tr>
<tr>
<td>Calcium</td>
<td>500</td>
<td>30%</td>
<td>28</td>
<td>5</td>
<td>Possible</td>
</tr>
<tr>
<td>Magnesium</td>
<td>300</td>
<td>10-70%</td>
<td>8.3-14.2</td>
<td>15</td>
<td>No</td>
</tr>
</tbody>
</table>

Table shows typical human sweat composition.
AS HYDRATION EVOLVES

- What do you sweat?
- How much do you sweat?

With what/how do you need to hydrate?
WHY IS THAT RELEVANT?

Godek et al. Sweat rates, sweat sodium concentrations, and sodium losses in 3 groups of professional football players. J Athl Train. 2010;45:364-71

Sweat rate / sweat concentration

High rate + low concentration

Low rate + low concentration

High rate + high concentration

Low rate + high concentration

High rate + low concentration

UP TO 30gr OVER 4.5 HOURS

Low rate + low concentration

JUST 2.3gr OVER 4.5 HOURS
AVAILABILITY AND EFFORT!
NUTRITION IS WORK...

You Can’t Fake Effort
ENOUGH FROM ME...