The Regulation and Development of Sports/Fitness Drinks

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Nutrition for Olympians: Nutrition for All

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Successfully Innovating in Response to Consumer and Regulatory Needs

- A few facts on The Coca-Cola Company (TCCC)
- What are the regulatory considerations?
- What are the physiological needs that need to be met?
- What is our portfolio of products?
- Conclusions
The World’s largest beverage company with the World’s most recognised brands

People: 300 independent bottling partners
Resources: 900 local manufacturing facilities
Choice: 3,500 beverage products

14x 1Billion US$ Brands
What needs to be considered when innovating in the sports sector

- For consumers, taste is the number one priority in most soft drinks, and is still important in this sector
- Functionality is key however
- But not all sports are alike
- Endorsement also carries weight
Another consideration – the regulations that are in play

ALL FOODS, BEVERAGES and SUPPLEMENTS:

• The Nutrition and Health Claims Regulation (across Europe) requires the truthful and factual communication of claims for Nutrition and Health on all forms of product advertising.

• The Regulation lays down specific requirements for nutrition claims (contains vitamins, calcium etc.) and provides a list of health claims (calcium is needed for healthy bones) based on ingredients with specific conditions of use (article 13.1)

• Specific, lengthy and costly process for true proprietary, innovative and unique claims (article 13.5)
PARNUTS (Foods for particular Nutritional Needs) DIRECTIVE

It provides for foods which are intended for particular nutritional needs (baby foods, dietetic foods and sports foods),

With PARNUTS:

• It provides a clear framework for the composition of sports foods and drinks (SCF [Scientific Committee on Food] report).
• Sports foods have historically been exempted from the NHCR.
  • It allows communication to the consumer to be outside the scope of the Nutrition & Health Claims Regulation (NHCR) in order to explain the nutritional need of the particular food.
  – For example: “During sports it better to consume an energy bar or a sports drink because it contains…….”
SPORTS FOODS and PARNUTS – status

• In February 2011, it was announced that Sports Foods, amongst others, will be removed from PARNUTS and will fall under normal foods. They will be regulated by the NHCR, like the majority of foods.

• It is still not clear how the regulations will pan out…..

• Food Drink Europe and other trade bodies are requesting that while vertical legislation may not govern sports foods, horizontal legislation should give sufficient latitude to communicate claims effectively with consumers. e.g. <15% RDA for minerals to be able to make claims.
What are the key physiological needs?

The 3 principles of sports nutrition

- Provide **fuel** for your muscles
- Stay **hydrated**
- Promote **optimal recovery** after exercise

Apply these principles correctly, and you can consistently maximize the gains from your training and compete at your best
The 3 principles - fuelling

Energy Expenditure per hour for different sports based on a 70kg adult
Fuels used in exercise: Carbohydrate and Fat

Forms of Carbohydrates in body:

- **Glucose**, which circulates in the bloodstream
- **Glycogen**, which is bundles of glucose stored in the liver and muscles

Forms of Fat in the body:

- **Free Fatty Acids** which is stored in adipose tissue
- **Triglycerides** which is stored in the muscle

Amount of fuel used during exercise depends on:

- Type of exercise
- Training intensity
- Duration of work-out
- Frequency of training sessions
Fuelling – Building up the stores

• 60–90 min of endurance training seriously depletes carbohydrate muscle stores

• **Carbohydrate-Loading:**
  Maximise muscle glycogen stores prior to endurance competition.

**Benefits of Fuelling:**

• Adequate fuel stores (glycogen) for event
• Recovery between events (heats, competition)
• Enhances performance
• Delaying the onset of fatigue by increasing the availability of muscle towards the latter stages of the race.
Importance of Hydration

Thirst alone is not a good indicator of your hydration needs:
During exercise, you lose fluid and electrolytes as you sweat:
• The key electrolyte in sweat is sodium
• Both fluid and sodium need to be replaced – to avoid dehydration

Increase of fatigue during exercise as a result of dehydration:
• Inadequate fluid and sodium make your heart work harder and make exercise much more difficult.
• Dehydration also impairs mental performance (concentration, alertness)
• In a hot environment the drop in performance is worst and as the level of dehydration increases.
Sweat losses: different sports

Values for temperate environment 19-24°C

The Role of Sodium in sports drinks

- Facilitates fluid absorption
- Promotes fluid balance
- Avoids hyponatraemia
- Helps body "hold" onto water
- Maintains desire to drink
- Enhances taste
The Fluid Formula: What Athletes Should be Drinking

• The ideal beverage may not be plain water

Look for:
• Carbohydrates
• Electrolytes (sodium and potassium)
• Flavour
Water vs. Sports Drinks

• Water isn’t enough

• Water is a great thirst quencher, but not ideal as a rehydrator
  ✓ Water doesn’t have the performance benefits of a sports drink
  ✓ Water doesn’t have flavour
  ✓ Water shuts down thirst before you’ve replaced the fluid your body has lost through sweat
  ✓ Water doesn’t have enough electrolytes
  ✓ Water has no carbohydrates

Water vs. Sports Drinks
Flavour and Sweetness

• Research shows drinks that are lightly sweetened and lightly flavored taste better so athletes drink more and avoid dehydration

• Studies show adults who had walked in 40 degree heat drank 50% more flavoured water than unflavoured water (Hubbard RW, Sandick BL, et al. Voluntary dehydration and alliesthesia for water, J Appl Physiol 1984; 57:868-875)

• “Most humans prefer - and drink more of - beverages that are flavoured and sweetened” (Greenleaf J Appl Physiol 1971;30:847-853)

• A lightly flavoured beverage helps people drink more than plain water (Passe, D.H., Horn, M., Murray, R. Appetite (2000) 34: 219-229.)
Hydration Needs DURING Exercise

- Fluid intake should match sweat and urine losses in order to prevent dehydration.

- How much fluid an individual needs depends on:
  - individual sweat rate,
  - exercise duration
  - opportunities to drink.

- Isotonic sports drinks is the preferred drinks for endurance based exercise (>60min).
### Sports drinks: specially formulated products

<table>
<thead>
<tr>
<th>Type</th>
<th>Content</th>
<th>Need</th>
</tr>
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<tbody>
<tr>
<td><strong>Hypotonic</strong></td>
<td>- Lower concentration than blood</td>
<td>When hydration is the focus</td>
</tr>
<tr>
<td></td>
<td>- Small amount CHO (under 4%, i.e. &lt; 4g/100ml)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Electrolytes &amp; Fluid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Low calorie</td>
<td></td>
</tr>
<tr>
<td><strong>Isotonic</strong></td>
<td>- Provide a good source of carbohydrate, 4%-8% (4-8g/100ml) carbohydrate</td>
<td>A good ‘all rounder’ (fuel and hydration)</td>
</tr>
<tr>
<td></td>
<td>- Electrolytes and fluid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Optimally absorbed</td>
<td></td>
</tr>
<tr>
<td><strong>Hypertonic</strong></td>
<td>- drinks containing over 8% (&gt; 8g/100ml) carbohydrate</td>
<td>When energy &amp; carbohydrate needs are high and sweat rates are lower.</td>
</tr>
<tr>
<td></td>
<td>- Slowly absorbed vs to iso and hypo-tonic</td>
<td></td>
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# The BASIS of the Powerade ION4

<table>
<thead>
<tr>
<th>Composition</th>
<th>Minimum quantities</th>
<th>Maximum quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrate</td>
<td>At least 75% of the energy metabolizable</td>
<td>3.9 g Carbohydrate in the form of carbohydrates</td>
</tr>
<tr>
<td>Sodium</td>
<td>460 mg/L</td>
<td>510 mg/L</td>
</tr>
<tr>
<td>Energy</td>
<td>80 kcal/L</td>
<td>200 kcal/L</td>
</tr>
<tr>
<td>Osmolality</td>
<td>200 mOsm/kg water</td>
<td>275 mOsm/kg water</td>
</tr>
</tbody>
</table>

200 kcal/L

275 mOsm/kg water

330 mOsm/kg water
Powerade Zero – a new category - Fitness Drinks

KEY BENEFITS of ZERO

- The first zero sugar, calorie free fitness drink enhanced with an advanced mineral system including sodium that hydrates the body - without adding back the calories.

- Powerade ZERO is developed with sports scientists for optimum fitness hydration

- Designed for less intense exercise sessions < 60 minutes, where refuelling is not required
‘Powerade PRO’ - Powder

- Developed in association with the Olympic Medical Institute (BOA), for Athens Olympics 2004.
- ‘Powerade Pro’ delivers our recommended hydration formula for elite athletes.
- Developed specifically for elite athletes performing in hot conditions and those with high sweat rates.

Sachet (25g) with 500ml water

<table>
<thead>
<tr>
<th>Composition</th>
<th>Powearde PRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrates</td>
<td>4.0g /100ml</td>
</tr>
<tr>
<td>Sodium</td>
<td>92mg/100ml (40mM/Litre)</td>
</tr>
<tr>
<td>Energy</td>
<td>18 kcal/100ml</td>
</tr>
</tbody>
</table>
Powerade Pro Hydration was launched at the Athens Olympics in 2004 – developed in association with Olympic Medical Institute to support elite athletes.

The principal aim: a quality hydration product and to build credibility as a sports brand.

Since then Powerade Pro Hydration has been provided ‘free of charge’ and used successfully with several of our key sporting associations: mainly in the UK but also across many other EUG countries.
Summary

• The needs of elite sports people and recreational athletes cover a great breadth of territory – fuelling, hydration and recovery.

• The regulatory environment has catered well for sports products in the past, but it is changing, and will most likely make the communication of benefits more challenging. Claims are likely to be scrutinised.

• Innovation in the sports portfolio is more than just physiological functionality, but this is key – credibility is required by elite athletes and looked for by recreational athletes.

• Any product is only valuable if the taste and physical attributes are right.
Thanks for your attention

• Any questions?