The glycemic index and insulin-index of one Finnish honey sample

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Honey research - playground in Finland

Customer survey -> taste, healthiness, usage
- Easy to use -> development of liquid honey
- Functional properties:
  - Paul, I.M. & al 2007, children cough
  - Olofsson, T. & Vazqes 2008, malic acid bacteria
  - Zaat, S. 2010, defensin-1
- Sport drink test, Likes, Jyväskylä
- Antibiotic properties, Kuopio
- Properties of North Carelian hoenys, Anneli Salonen, Joensuu
Objective, (why do do this?)

Customer based product and information development

- Arguments for saleswork
  
  -> better profitability and changig from price cometition toward new markets

- environmet, etical, food properties
Honey Sport drink research 2008

- cykling n=10, (2 ♀ + 8 ♂):
- running n=8, (6 ♀ + 2 ♂):
- Duracel –testi, honey drink, commercial sport drink, water
Blood sugar, running

honey  water  control

P-GLUK, mmol/l

start  60 min  90 min

P-GLUK, mmol/l

!!
Fast (1) ja Slow (2) carbohydrates
• GI = glycaemic index is the value comparing sugar response curves between 50 grams glucose response curve to the 50 g of test food product sugar response curve
• To get the control curve on glucose, the tests persons are tested 3 times with 50 g glucose usually within 12 days
• After that a test person can be used 3 months for max 12 food products
• The test persons take the tested food product so that they get 50 g digestible carbon hydrates
II

- II = Insulin index is the value comparing insulin response curves between 50 grams glucose response curve to the 50 g of test food product sugar response curve.
- The control values for a test person are counted as a mean of 3 times 50 g glucose response tests and one person can be a test person for 3 months.
- The Insulin is measured un directly by measuring the serum C–peptide levels.
  - 1 mol Proinsulin -> 1 mol insulin + 1 mol C-peptide.
Testing

- $N = 9$ (miehiä 3, naisia 6)
- 300 liquid, 68 g honey = (50 g sugars)
- 7 blood samples in 2 hours
The response of the serum glucose level (mg/dl) to honey
The response of the serum C-peptide level (mg/dl) to honey
<table>
<thead>
<tr>
<th>Test person</th>
<th>GI-value</th>
<th>Insulin -index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>67</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>68</td>
<td>88</td>
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<tr>
<td>3</td>
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<tr>
<td>6</td>
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<td>63</td>
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<tr>
<td>7</td>
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<td>12</td>
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<tr>
<td>8</td>
<td>80</td>
<td>175</td>
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<tr>
<td>9</td>
<td>109</td>
<td>49</td>
</tr>
<tr>
<td><strong>mean</strong></td>
<td><strong>89</strong></td>
<td><strong>80</strong></td>
</tr>
<tr>
<td><strong>sd</strong></td>
<td><strong>34,9</strong></td>
<td><strong>52,6</strong></td>
</tr>
</tbody>
</table>
Conclusions

• Gi is comparative high 89
  • (in literature 55 – 75)
• Rather big SD
  • Why there are so big difference between test persons ???
• Kiitos!