Health Benefits of Foods:
From Emerging Science to Innovative Products

Prof. Gerhard Rechkemmer

5-7 October 2011, Prague (CZ)
How to define “HEALTH“ in the context of nutrition?

How to define “BENEFITS” in the context of food?

How to objectively measure “HEALTH BENEFITS” using indicators (biomarkers) or clinical endpoints in individuals or on a population basis?

How to communicate complex “HEALTH BENEFITS” to the (educated) consumer?
Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

WHO 1946
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The World Health Report
2002

Reducing Risks,
Promoting Healthy Life
In May 2004, the 57th World Health Assembly (WHA) endorsed the World Health Organization (WHO) Global Strategy on Diet, Physical Activity and Health. The Strategy was developed through a wide-ranging series of consultations with all concerned stakeholders in response to a request from Member States at World Health Assembly 2002 (Resolution WHA55.23).
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GLOBAL HEALTH RISKS
Mortality and burden of disease attributable to selected major risks

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Fig. 1: Deaths in 2000 attributable to selected risk factors (European region) (source: World Health Report 2002)
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### Table 4: Deaths and DALYs attributable to six diet-related risks and physical inactivity, and to all six risks combined, by region, 2004

<table>
<thead>
<tr>
<th>Risk</th>
<th>World</th>
<th>Low and middle income</th>
<th>High income</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentage of deaths</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High blood pressure</td>
<td>12.8</td>
<td>12.1</td>
<td>16.8</td>
</tr>
<tr>
<td>High blood glucose</td>
<td>5.8</td>
<td>5.6</td>
<td>7.0</td>
</tr>
<tr>
<td>Physical inactivity</td>
<td>5.5</td>
<td>5.1</td>
<td>7.7</td>
</tr>
<tr>
<td>Overweight and obesity</td>
<td>4.8</td>
<td>4.2</td>
<td>8.4</td>
</tr>
<tr>
<td>High cholesterol</td>
<td>4.5</td>
<td>4.3</td>
<td>5.8</td>
</tr>
<tr>
<td>Low fruit and vegetable intake</td>
<td>2.9</td>
<td>2.9</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>All six risks</strong></td>
<td>19.1</td>
<td>18.1</td>
<td>25.2</td>
</tr>
<tr>
<td><strong>Percentage of DALYs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High blood pressure</td>
<td>3.8</td>
<td>3.5</td>
<td>6.1</td>
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</table>
Fig. 4 Relationship between health claims addressed by PASSCLAIM and the FUFOSE concept of underlying scientific evidence.
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Nutrition
Age
Sex
Environment
Drugs
Physical Activity

Food
Macronutrients
• Carbohydrates
• Proteins
• Fat
Micronutrients
• Vitamins
• Minerals, Trace Elements
Bioactive Components
• Phytochemicals
• Dietary fibre

Genes
Transcriptomics
Proteomics
Metabolomics

Gut microflora
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- Obesity
- Cardiovascular disease, stroke!
- Type 2 Diabetes
- Elevated blood lipids (Cholesterol & triglycerides)
- Hypertension (High blood pressure)
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Figure 1: The causal chain. Major causes of ischaemic heart disease are shown. Arrows indicate some (but not all) of the pathways by which these causes interact.
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Journal of Proteome Research Vol. 6, No. 2, 2007
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PROGRAMME

SESSION I: Setting the Scene
SESSION II: Characterisation of Food
SESSION III: Markers and Endpoints for Health Benefits
SESSION IV: Targeted Nutrition – Testing Benefits
SESSION V: Benefit Communication – How and when to communicate the science
SESSION VI: Future directions

POSTER SESSION
It is **NOT** the intention of this conference to discuss the regulatory aspects of the EU HEALTH CLAIMS regulation (EC 1924/2006) or the decisions taken by EFSA‘s NDA Panel on article 13 or 14 claims.

This conference aim to focus on discussing the complex interactions between food, diet and health and the best way to scientifically study this relation.
PARTICIPANTS

- 70 Industry
- 125 Non-industry
  - 4 Government
  - 3 Press