

An introduction to functional foods and drinks

Ms Brigid McKeivith

Nutrition Scientist

British Nutrition Foundation

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Outline

- Definitions & history
- Examples
- What claims can be made
- What types of proof are needed
- Legislation for functional food and drinks

Background

- Nutrition science has evolved
 - Nutrient requirements to prevent deficiencies
 - e.g. vitamin C to prevent scurvy
- optimising nutritional status
- e.g. high doses of vitamin C (500-1,000mg/day) may prevent the development of chronic obstructive pulmonary disease



What is a functional food?

- No universally accepted definition
- A food having health promoting benefits and/or disease preventing properties over and above its usual nutritional value
- Broad range of potential functional foods
 - Natural food
 - Food to which a component has been added or removed
 - Food where the nature of 1 or more components has been modified e.g. bioavailability increased
- May be functional for all members of the population or for particular groups

History of functional foods

- ‘Let food be your first medicine’
(Hippocrates, 337 BC)
- **1907** - Nobel laureate *Elie Metchnikoff* proposes a scientific rationale for the beneficial effects of the bacteria in yoghurt.
- **1930s** – in Japan Dr Shirota starts to produce probiotic drinks
- Currently there are a large number of functional foods on the market worldwide

Selected examples of functional food & drinks

- Fortified (plant sterol and stanol esters) margarines ↓ total & LDL-cholesterol
- Soy (protein) ↓ total & LDL-cholesterol
- Oats (β -glucan) ↓ total & LDL-cholesterol
- Oily fish ↓ risk of heart disease
- Cranberry juice ↓ risk of urinary tract infections
- Probiotic drinks and yoghurts support GI health
- Prebiotic breakfast cereals & biscuits support GI health

Examples of functional foods & drinks (1)



Examples of functional foods & drinks (2)

FLORA
pro-activ



New Examples of Functional Foods

- Beer with cholesterol lowering properties
 - brewed using grain containing active beta-glucans
 - A clinical test is currently underway
- Low fat salami (3.2% fat vs. 50%)
 - uses pasta with a reduced carbohydrate content as a substitute for fat
 - same taste as traditional product

Types of claims (1)

Disease prevention,
treatment, cure

Structure/function

Disease risk reduction

Health maintenance

Enhanced function

MEDICINE

FOOD

Borderline Area

Types of claims (2)

Ca⁺ helps prevent osteoporosis

Ca⁺ is necessary for the normal structure of bones

Ca⁺ helps ↓ the risk of developing osteoporosis

Ca⁺ helps maintain healthy bones

Ca⁺ helps strengthen your bones

MEDICINE

FOOD

Borderline Area

Types of claims (3)

- Medicinal claims (illegal)
 - Reference to a specific disease or relief of symptoms
 - Targeting products to sections of the population suffering from disease or known to be at risk
 - Use of words in medical context e.g. restore, eliminate, combat, alleviate, remedy, protect, fight, strengthen, reduce or lower
 - 'Eating more vegetables as part of a healthy lifestyle may help reduce the risk of bowel cancer' (JHCI approved evidence but it would be illegal to use such as statement)

What type of proof is needed (1)

- Companies must be able to demonstrate
 - That the food (or components) in question will cause, or contribute to, a significant and positive physiological benefit
 - That the claimed effect can be achieved by consuming a reasonable amount of the food on a regular basis or by the food making a reasonable contribution to the diet
 - Who can benefit from the effect (e.g. whether this the entire population, 'at-risk' groups or population sub-groups
 - The maximum or minimum amount and frequency of consumption required to achieve this effect
 - How the effect is brought about, although the exact biological mechanism(s) need not be fully understood

What type of proof is needed (2)

- Dossier containing scientific evidence to back up the claim
 - Usually presented as a systematic review and using a pre-defined and reproducible methodology
 - Must be searched, reviewed and presented in an objective and unbiased manner
- If such evidence is unavailable, non-systematic consensus documents and expert reviews can be used, although these reports should be supplemented with other data, as necessary to add weight to the submission. Mechanistic data, when available, should be included to demonstrate a plausible explanation of how the health benefit is achieved
- See the JHCI website for more information (www.jhci.co.uk)

Joint Health Claims Initiative (JHCI)

- The JHCI is a joint venture between consumer organisations, enforcement authorities and industry trade associations in the UK to establish a Code of Practice for health claims on food
- Offer
 - Free access to Code of Practice, guidance on preparing a dossier
 - non-specific, and pre- and post-market specific advice

What type of proof is needed (3)

- EU funded project (PASSCLAIM)
- Substantiation should be based on the totality of the available information
 - Should be primarily based on human intervention studies with a scientifically valid design
 - Observational epidemiological studies, animal model studies and in vitro studies form part of the supporting knowledge
- For more details visit <http://europe.ilsa.org/passclaim/>

Legislation for functional foods and drinks (1)

- Currently no specific EU legislation covering health claims but the law says that any claim must be true and must not be misleading
- EU proposal has been drafted and this will
 - define health claims
 - prohibit claims referring to psychological & behavioural functions
 - allow disease risk reduction claims but not claims relating to prevention of disease
 - set up regulatory system for approving claims
 - prohibit vague claims
 - restrict claims (alcoholic products, products for children? products high in salt, fat, sugar?)

Legislation for functional foods and drinks (2)

- EU proposal will
 - require pre-approval of claims
 - require submission of a dossier (to EFSA?)

Sources of further information

- British Nutrition Foundation
 - www.nutrition.org.uk
- Joint Health Claims Initiative
 - www.jhci.org.uk
- Food Standards Agency
 - www.food.gov.uk
- European Union
 - <http://europa.eu.int>

The Food & Drink Innovation Network

Sharing innovation best practice in the food & drink industry