

Dissemination A key feature of EUROSTARCH is the dissemination of new information to medical and health professionals, to consumers and particularly to those with related health problems such as diabetes. Appropriate food choices could be recommended, specifically based on new knowledge about the biological impact of various starchy foods, which in turn should ultimately contribute to improved diet and health. By providing more scientific evidence for the glycemic index concept, the food industry could be stimulated to develop new low fat, low GI functional foods.

EUROSTARCH project

"Stable isotope applications to monitor starch digestion and fermentation for the development of functional foods"

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QUALITY OF LIFE AND MANAGEMENT OF LIVING RESOURCES



FIFTH FRAMEWORK PROGRAMME

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EUROSTARCH

Investigating starch for health

EUROSTARCH is a European research project that aims to elucidate and optimise the health-related properties of different starchy foods. Starch is a major component of our diet. Choosing the right type of starchy foods might contribute to the prevention and treatment of obesity and type 2 diabetes.

www.eurostarch.org



Colophon This flyer is issued by EUROSTARCH, November 2002. Text: The Food Consultancy, UK. Design: OPHS, NL. Production: Schutelaar & Partners, NL.



RUG

Relevance to society In recent decades a dramatic increase in the prevalence and incidence of obesity, type 2 diabetes and cardiovascular disease has occurred in many parts of the world; these are currently major societal problems in Europe. Risk factors include physical inactivity and an energy dense diet, high in saturated fatty acids and low in dietary fibre. It is also possible that the type of starch consumed can contribute to the development of obesity and type 2 diabetes.

INVESTIGATING STARCH FOR HEALTH

Different types of starch have different properties

According to the World Health Organisation's recommendations the optimal diet to maintain health comprises at least 55 % of the total energy from a variety of carbohydrate sources. Important sources of carbohydrates are products with a high starch content such as cereal based foods (e.g. bread, pasta) and potatoes. The type of starch in these products varies a great deal due to its botanical origin and the way that it is processed. It has been shown that different types of starch can have different effects on metabolic and digestive processes.

Expected results: Data about health-related properties of starch in various food products.



Processing influences starch properties

Food is cooked and processed in many ways, all of which can change the metabolic and digestive properties of its starch content. In Europe, the consumption of industrially processed foods is high. Therefore, it is important to investigate which methods of processing can be applied in the food industry to improve the health-related properties of starch.

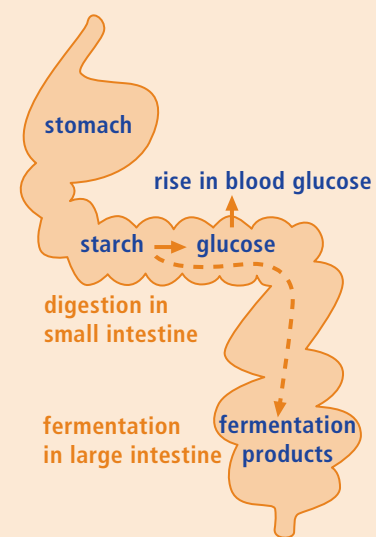
Expected results: Data about food processing factors influencing metabolic and digestive properties of starch.

Breakdown of starch in the body

The major part of the starch consumed is digested in the small intestine; this leads to a rise in blood glucose. This so-called glycaemic response can be slow or fast and is dependent on the type of starch, but can also be influenced by intestinal factors that need to be studied in more detail.

The proportion of starch that resists digestion passes into the large intestine. There it is broken down by the gut microflora and several fermentation products are formed. Little is known about the health consequences of this fermentation process.

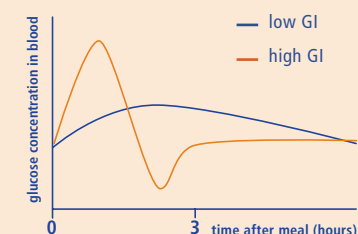
Expected results: Knowledge about intestinal factors that influence the glycaemic response that can be applied to the design of new food prototypes. Hypotheses about the health-related effects of starch fermentation.



Effects of starch on biological functions

The glycaemic response to a starchy meal has an impact on subsequent biological processes. In view of this, a slow rise in the glycaemic response (blue line) might be preferable to that of a fast rise (orange line) in blood glucose. A so called "low glycaemic index" food causes a slow rise in blood glucose after ingestion, while a "high glycaemic index" food causes a sharp increase.

Glycaemic response



A diet rich in low glycaemic index food might be beneficial for several reasons:

- It prevents high insulin levels after a meal which might otherwise contribute to an early onset of type 2 diabetes.
- It helps to control the blood glucose levels in diabetic patients.
- It increases satiety, which has a regulatory effect on food intake and helps weight control.
- It might prolong the ability to concentrate.

Expected results: Knowledge about the biological impact of high and low glycaemic index food.

New products and dietary recommendations

Based on the knowledge acquired by EUROSTARCH, new food products could be developed combining a low glycaemic index with other beneficial health properties. Dietary recommendations about low glycaemic index foods could be promoted.

Expected results: Recommendations will be made for the food industry to develop new low glycaemic index breakfast foods and snacks. For food education, recommendations will be made about the choice of starchy foods for the prevention and treatment of obesity and type 2 diabetes.

