

# BRAIN POWER FROM BRAIN FOOD FOR CHILDREN

NUTRIMENTHE contributes to research on the association between diet and mental performance



## The project: Studies from birth to age nine

NUTRIMENTHE has added to the growing evidence that prenatal and childhood nutrition influences later mental performance. Fish intake, folic acid availability, and iodine may influence the development of a child's mental capacities, such as language development and behaviour. This has been demonstrated by a series of studies conducted and analysed by the project. These results could have major implications for public health practice, policy development, economic progress and future wealth creation.

The five-year study, due to end in December 2013, aims to research the role of specific nutrients in the cognitive, emotional and behavioural development of children from before birth to age nine. Nutrients being studied include B-vitamins, iron, iodine, protein in formula and breast milk and omega-3 fatty acids. Consumer (parents and teachers) perceptions regarding the term 'mental performance' and the economic benefits of improving mental performance have also been addressed. More than 17 000 mothers and 18 000 children have taken part in epidemiological (population) and nutritional studies in centres around Europe.

## The product: Recommendations for brain food composition

NUTRIMENTHE's results could pave the way for health claims about how diet affects mental performance, leading to the development of innovative evidence-based supplements or the fortification of existing foods with beneficial micronutrients.

No specific product will be generated by the project. However, a global database has been created that includes mental performance data, physical activity data, dietary intake data, and anthropometric data, from children taking part in NUTRIMENTHE's studies around Europe.

NUTRIMENTHE has generated new knowledge including:

- Folic acid intake by mothers during pregnancy helps reduce the risk of behavioural and emotional problems during childhood;
- Iodine levels during pregnancy are linked to verbal IQ at age 8 and reading ability at age 9;

- Poor maternal thyroid function during pregnancy is a risk factor for the development of language delays in childhood;
- Genetic variation can influence nutrient status in maternal and foetal tissues. NUTRIMENTHE recommends that future epidemiological and nutritional studies take genetic heterogeneity into account;

NUTRIMENTHE will continue issuing new information from its research through peer-reviewed publications.



## The end users: Parents, health professionals, industry

Consumers, especially parents, will be informed as to how diet affects their child's mental performance, enabling women to make better dietary choices when pregnant or planning a pregnancy. Parents will also be better informed on childhood dietary requirements.

Researchers will benefit as NUTRIMENTHE's publications will continue to contribute to the global knowledge of how diet affects mental performance.

Health professionals could use these project results to inform pregnant women and the parents of young children of the benefits of certain nutrients and foods—to support brain development and mental performance.



Industry could use NUTRIMENTHE's findings for innovations in the food industry such as the production of supplements and/or the biofortification of food products.

### **The inventors: Multi-disciplinary academia**

The Global Database. This is the invention of multiple organisations involved in NUTRIMENTHE.

NUTRIMENTHE has been measuring different areas of mental performance including; perception, motor skills, attention, memory, language, behaviour and executive functions, in different studies—including long-term epidemiological and nutritional intervention studies looking at different nutrients—involving children of varying ages from seven different countries. The project developed a harmonised battery of mental performance tests to enable comparison of results from different studies. The results from these studies have been collected to form the global database which will be made available to researchers within the NUTRIMENTHE consortium. In the future, access to the global database may be extended.

NUTRIMENTHE has brought together a team of leading international scientists from major research centres across Europe and beyond who are leaders in key areas of nutrition and mental performance. This combination of expertise together with the research consortium of partners from eight EU countries and the USA, covers the following fields: nutrition, paediatrics, child psychiatry, child psychology, neuroscience, food technology, genetics, epidemiology, biochemistry, consumer research, market research, economic analysis, statistics, communications and project management.

### **Development stage: Research**

No development yet, ongoing research.

### **Policy impact: Health care policy**

The project could potentially influence future healthcare policy, especially advice given to women during pregnancy and that given to parents of young children, in terms of the best foods to eat to maximise children's brain power.

### **Next steps: Promotion**

To help towards widespread usage of these results, steps should be taken to bring these key messages to the attention of consumer groups and policy makers.



#### **NUTRIMENTHE**

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