

KEY FACTS

EarlyNutrition is the worldwide largest project investigating programming effects for health in later life.

Title:

Long-term effects of early nutrition on later health

Project No.:

FP7-289346-EarlyNutrition

Total budget:

EURO 11.12 million

EU Contribution:

EURO 8.96 million



Coordinator:

Ludwig-Maximilians-University Munich, Germany
Professor Berthold Koletzko, MD PhD
(Dr med Dr med habil)

Project Manager:

Brigitte Brands, MBE, PhD (Dr hum biol)

Start: February 1, 2012

Duration: 60 months

Contact: earlynutrition@med.uni-muenchen.de

Website: www.project-earlynutrition.eu

This project receives funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289346



QUOTES

“Nutrition during pregnancy and infancy has a marked programming effect in life-long health and can modify the risk of obesity and related diseases. Better understanding of the underlying mechanisms will help us to fully utilise the enormous preventive potential.”

 Prof. Berthold Koletzko, Project Coordinator, Munich, Germany

“EarlyNutrition is an important opportunity to find out exactly how diet and lifestyle in pregnancy can influence the risk of obesity in the child. Once understood, this has the potential to make a significant contribution to improving the health of the next generation.”

 Prof. Lucilla Poston, London, UK

“Long term health is dependent on the interaction between our genes and early life environment. At the intersection of genes and environment lies epigenetics, a complex repertoire of environmentally sensitive factors that control how our genes behave throughout our life. The EarlyNutrition project will incorporate epigenetic profiling as a key platform technology to help unravel the relationship between early life influences and later poor metabolic health.”

 Prof. Richard Saffery, Melbourne, Australia

“Better knowledge on the mechanisms involved in the placental transfer of fatty acids in obese pregnant women are essential to decide the best strategies to reduce lipid disturbances in the fetus during pregnancy, and later on in the offspring.”

 Prof. Elvira Larque, Murcia, Spain

“EarlyNutrition is an excellent opportunity to determine the role of glucose intolerance during pregnancy, which affects as many as 1 in 5 pregnant women. The information learned from the EarlyNutrition consortium will lead to improved understanding and thus prevention of complications from this increasingly common condition.”

 Prof. Pat Catalano, Cleveland, Ohio

“Maternal stress during pregnancy may produce a longterm impact on child development and health, including increased risk for obesity and metabolic dysfunction. EarlyNutrition will provide the first comprehensive evidence in humans on whether stress during pregnancy, by itself or by changing maternal diet/nutrition, influences the child’s risk of obesity.”

 Dr. Sonja Entringer, Irvine, California

“Susceptibility to obesity cannot simply be attributed to the combination of our genes and our lifestyle, but can be triggered by influences on a baby’s development in the womb, including the mother’s nutrition before and during pregnancy. EarlyNutrition will provide important new evidence to prevent childhood obesity by improving a mother’s nutrition and her baby’s development in the womb.”

 Prof. Keith Godfrey, Southampton, UK

“The diet of infants and young children modulates metabolism and hormones, which is an experience that can be remembered life long. Early diet can be an important teacher for our biochemical machinery.”

 Prof. Piotr Socha, Warsaw, Poland



EARLYNUTRITION

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www.project-earlynutrition.eu

EARLY NUTRITION CONSORTIUM



36 partners from 12 countries pool their resources and expertise to investigate metabolic programming effects of early nutrition and lifestyle factors on obesity and related disorders in later life. The consortium includes internationally acknowledged leaders in key areas of the programming field from major research centers across Europe, the United States and Australia.

The consortium also draws strongly on the expertise of members within the Early Nutrition Academy (ENA, www.early-nutrition.org), a sustainable entity arising from previous EU projects in this area.

GOALS

While obesity is preventable, the rapid increase in cases worldwide is not sufficiently explained by life-style and nutrition alone. Therefore, the concept of early programming of obesity risk through nutrition of the mother before and during pregnancy, and nutrition in infancy and early childhood, has received widespread attention by researchers. EarlyNutrition will mount a comprehensive five-year research programme to provide insights into metabolic programming of obesity and associated diseases.

Scientific and technical expertise in placental biology, epigenetics and metabolomics will provide understanding at the cellular and molecular level, and refine strategies for intervention in pregnancy and early life to help prevent obesity.

To achieve their objectives, researchers will conduct animal studies, observational studies in large concurrent populations, and randomized controlled human intervention trials in order to obtain evidence for the mechanisms of effects and effect sizes acting on the origins of obesity, including these questions:

- What are the physiological mechanisms of early programming that increase long-term adiposity risk?
- Which dietary components can be identified as relevant?
- Can sensitive periods for early programming be identified during development?
- Are there specific metabolic or epigenetic markers that reflect early programming of later adiposity?

EarlyNutrition will provide the scientific foundations for evidence-based recommendations for optimal early nutrition that incorporate long-term health outcomes, focusing on four target groups: women before pregnancy, pregnant women, infants (breast-fed and formula-fed alike) and young children.



RESEARCH THEMES

This project addresses metabolic programming of adiposity by early nutrition in a comprehensive manner structured into six themes:

- Mechanistic studies on early nutrition programming
- Prospective observational studies on early nutrition programming in humans
- Randomised controlled intervention studies in pregnancy and in early childhood
- Consolidation and dissemination of evidence as a basis for recommendations and training for researchers and health care professionals in collaboration with the Early Nutrition Academy
- Data Management: Infrastructure for Clinical Trials
- Project Management

THEMES AND STRUCTURE

- ▶ Maternal **pre-pregnancy** body composition & diet ▶
- ▶ Maternal diet, lifestyle & **pregnancy** weight gain ▶
- ▶ Nutrition in **infancy** ▶
- ▶ Diet in early **childhood** ▶

