Determinants of Eating Behaviour in European Children, Adolescents and their Parents

Overview & Key Findings

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- on behalf of the I.Family consortium -

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This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement No. 266044.
Aim: contribute to reducing burden of nutrition-related diseases

- Understand interplay between barriers and main drivers of a healthy food choice
- Identify predictors of unnecessary weight gain and cardio-metabolic risk by linking them to diet, physical activity and interacting factors
  - Focus on child and his / her family
  - Assess how different factors affect children as they grow up
- Develop and convey strategies to induce changes towards a healthy behaviour
Partners

1. Strovolos, Cyprus
2. Ghent, Belgium
3. Copenhagen, Denmark
4. Tallin, Estonia
5. Helsinki, Finland
6. Bremen, Germany
7. Pécs, Hungary
8. Avellino, Italy
9. Milan, Italy
10. Utrecht, Netherlands
11. Palma de Mallorca, Spain
12. Zaragoza, Spain
13. Gothenburg, Sweden
14. Bristol, United Kingdom
15. Lancaster, United Kingdom
16. Andover, United Kingdom
Timeline of recruitment and follow-up
IDEFICS – I.Family cohort, starting with 2-10 year olds

Baseline: 16,228 children
Community intervention
Follow-up 1: 13,596 children

Transition: toddler → child

Follow-up 2: 9,617 children
Contrasting groups

Transition: child → adolescent

Transition: adolescent → adult
Questionnaires & examinations 1

- Questionnaires (parent + child)
  - Social factors, lifestyle, peers + physical activity
  - Food frequency, preference, eating behaviour
  - Medical history
  - Family members + household

- 24-hour dietary recall
  - Web-based dietary recall

- Physical activity
  - Accelerometer: 7 days
  - Built environment: GIS + GPS
Questionnaires & examinations 2

- Physical examinations
  - Anthropometry + blood pressure
  - Bone health: ultrasound

- Biological markers
  - Blood, saliva + urine

- Specific tests in subgroups
  - Sensory taste perception
  - Neuropsychological tests: impulsivity
  - Brain mechanisms of food choice: fMRI
## Prevalence of childhood overweight/obesity (2-10 yr)

<table>
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<th>Country</th>
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<th>Overweight</th>
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Dietary behaviour

• Children with **low socio-economic background**
  • Persistently **unhealthier dietary profiles** over a 2-year period

• Dietary patterns rich in fruits & vegetables, wholemeal cereals, and low in animal products
  • **Lower risk of overweight/obesity**
  • **Less 2-year weight gain**
Sleep and weight status

• **Short sleep duration**
  → being overweight – particularly in primary school children

• Inverse relationship between sleep duration and BMI
  → mainly explained by inverse association between sleep duration & fat mass

• Insulin may explain part of this association, in particular in heavier children
Physical activity (PA) and overweight (OW)

Few children meet physical activity guidelines (60min MVPA/day)

Causality goes both ways

Higher or increasing fat mass → decline in MVPA
Just 10 minutes more MVPA per day → prevent excess weight gain

MVPA = Moderate to Vigorous Physical Activity
Built environment and physical activity

- **Physical activity-friendliness** of the built environment ("moveability")
  - more MVPA of 596 primary school children in the German study region

- **Playground density** and density of playgrounds and parks combined
  - positive effects on MVPA

MVPA = Moderate to Vigorous Physical Activity
Media consumption

• **TV exposure**
  → preference for sugary/fatty foods
  → followed by higher consumption of sugar-sweetened beverages
  → increased risk of overweight/obesity

• One-third of children exceeded screen time recommendations (max. 2h/day)

• **Exceeding sedentary guidelines**
  → increased risk of high blood pressure

• Watching **TV during meals**, having a TV in the **child’s bedroom** and watching TV **more than 1h/day**
  → being overweight/obese
Swimming upstream
The causes of obesity – and the causes of the causes

Adapted from: Swinburn et al. The global obesity pandemic: shaped by global drivers and local environments. Lancet. 2011; 378: 804-14
“Childhood obesity undermines the physical, social and psychological wellbeing of children and is a known risk factor for adult obesity and non-communicable diseases. There is an urgent need to act now to improve the health of this generation and the next.”
ENDING CHILDHOOD OBESITY
– strategic objectives

No single intervention can halt the rise of the growing obesity epidemic. To successfully challenge childhood obesity requires
• addressing the obesogenic environment
• as well as critical elements in the life-course.
Thank you!