Habeat NEWSLETTER

NEWSLETTER
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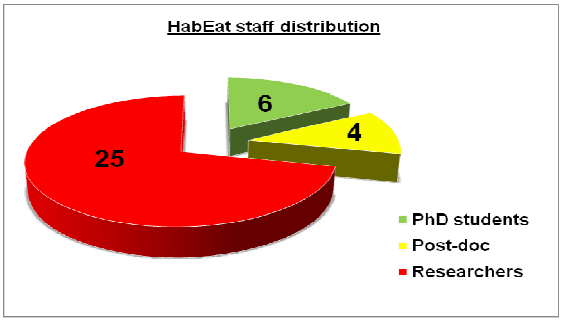
AGENDA

- **12th & 13th April 2011:** HabEat 1st Annual Meeting in Athens, Greece
- **14th April 2011:** HabEat and ENERGY projects joint meeting in Athens, Greece
- **03rd November 2011:** First HabEat stakeholder workshop at the Warsaw University of Life Sciences in Poland

HabEat project
Determining factors and critical periods in food Habit formation and breaking in Early childhood: a multidisciplinary approach

The HabEat project celebrated its first birthday on the 1st January 2011. During this first year the project has grown well! Thirty-five scientists are involved in the project, of which 10 are young scientists as illustrated in the chart below:



As part of workpackage 1 (Identification of critical periods and critical factors in the development of food habits) all partners took part in a workshop held on 11th February 2010 in Paris to operationalise core concepts within food habits including the central characteristics related to food habit formation, maintenance and breaking. The workshop was the opportunity for all to reflect on and discuss in detail the conceptual models applied to food habits by the different research disciplines within the partnership notably psychology, epidemiology, behavioural sciences, nutrition, and sensory science. The central characteristics of food habits are: what foods are eaten (qualitative dimension), how much is eaten (the quantitative dimension), when and how often they are eaten (temporal dimension). Characteristics of the child (temperament) and of the parent/caregiver (attitudes, parenting styles) were also considered important in food habit formation and breaking. On the basis of this work, INSERM led a literature review aimed at identifying existing, validated and published tools in this domain. Three groups of tools were considered: tools to assess a child's eating behaviour, tools to assess a child's food intake/preferences and tools to assess parental feeding practices. A total of 3,446 documents were retrieved from the electronic database search, of which 167 met the inclusion criteria that had been agreed collectively amongst the partners. These papers were analyzed in order to extract key information about the tools such as list of items and scales, country of origin, sample characteristics, internal consistency, test-retest reliability, external validity data… INRA, INSERM, FMUP, HUA and UNIBRIS shared this huge task. The analysis of the cohort data has also started (See page 3).

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Within Workpackage 2 (Exploring key learning mechanism and individual variations) the recruitment of families has started in order to carry out a randomized controlled trial on the impact of early exposure to a variety of fruit and vegetables. This trial will be conducted in the UK (by UCL), in Greece (by HUA) and in Portugal (by FMUP). Moreover, an experiment on the comparison of different forms of learning on a target vegetable was set up. Artichoke was the vegetable chosen further to a pilot study (see page 4) and different recipes were defined. This experiment concerns babies starting complementary feeding in France (INRA), 1 to 2 year-old children in the UK (ULeeds), and 2 to 3 year-old children in Denmark (UCPH). The different recipes will be tested in each country, and thus for each age group. The babies' intake patterns will be followed over ten exposures. Intake patterns will be compared within each age group across recipes and for each recipe across age groups.

Within Workpackage 3 (Exploring new strategies for breaking habits and individual variations in responsiveness to these strategies) partners have started designing the protocols for exploring different strategies for breaking food habits. INRA is in charge of exploring a teaching programme for re-instating self-regulation of food intake. Others partners (DLO-FBR, UCPH, HUA and WUR) will explore different strategies for inducing the acceptance of originally disliked foods. Two types of approaches will be investigated: combining mere exposure with variations in the sensory aspects of food, and social learning such as imitation, social interaction, and positive restriction.

After one year of challenging activities, the HabEat partners will meet together at the first Annual meeting on the 12th & 13th April 2011 in Athens to present and discuss the initial results both with the consortium as well as with invited stakeholders.

The HabEat project will reinforce its cooperation and dissemination with an EU project through a HabEat-ENERGY joint meeting organized on 14th April 2011 also in Athens.

As part of the dissemination activities, I presented the HabEat project in a workshop on New Technologies and Innovations to Tackle Obesity, organized as an ECOG Satellite meeting. This workshop was held in Brussels on the 16th November 2010. It was organized by DG Research – European Commission, Directorate E "Biotechnology, Agriculture and Food", Unit E3 "Food-Health and Well-being".

Dr. Sylvie Issanchou, HabEat Coordinator

We welcome Dr. Valesca Kooijman from DLO-FBR as WP3 leader, replacing Dr. Jos Mojet who has recently retired.

FOCUS ON WP1: Identification of critical periods and critical factors in the development of food habits

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Current research shows that many individuals are not eating enough fruit and vegetables. As fruit and vegetables have often been considered as a marker of a healthy diet, it is important to determine which factors influence children's fruit or vegetable intake and to find out if there is an age at which these factors may influence their consumption later in life.

Previous studies conducted from the ALSPAC cohort found that children introduced to lumpy foods from 10 months onwards were more difficult to feed at 15 months than those introduced to such foods at the recommended age of between 6 and 9 months (Northstone et al, 2001) and that the late introduction of lumps was related to less fruit and vegetables intake at age 7 years (Coultard et al, 2008).

Our first research question in HabEat is designed to understand whether the weaning period, i.e. the introduction of foods other than milk into the infant's diet, influence fruit and vegetable intake among young children (2 to 4 years of age). For that purpose, we exploited the data from 4 European cohorts:

- the ALSPAC cohort which followed 14,000 British children since pregnancy in 1991/2;
- the EDEN mother-child cohort, which followed around 2000 French children since pregnancy in 2003/6;
- the Generation XXI cohort, which followed around 8600 Portuguese children from birth in 2005/6;
- the EuroPrevall cohort, which followed around 1000 Greek children from birth in 2007.

We conducted similar analyses across the 4 countries to test whether early weaning or an early introduction to fruit or vegetables was related to higher or lower fruit and vegetable intake at 2 to 4 years of age.

We found great heterogeneity across the four cohorts both on fruit or vegetable intake at 2-4 years and on the age of introducing fruit and vegetables.
For example, vegetables were introduced before 4 months of age for 13 to 15 % of the children from the British and French children but for only 3 % of the Portuguese and none of the Greek cohort children.
At two years of age, more than 90 % of the children in the Portuguese cohort ate at least one vegetable serving per day in comparison to 57 % and 44% in the British and French cohorts respectively. There were very few daily vegetable consumers among children in the Greek cohort.
Analyses are still ongoing to explore further correlations between the age of weaning and fruit and vegetable intake among young children. In these analyses we will take into account several variables that could influence either the weaning age or fruit and vegetable intake, such as how long a child was breastfed for, the mother's level of education, her own intake of fruit and vegetables and her smoking habits.

FOCUS ON WP2: Exploring key learning mechanisms and individual variations

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Vegetables constitute an important part of the daily diet because they are rich in phytochemicals and low in energy density. Consuming vegetables as part of a balanced diet confers health benefits. Across the EU people are not eating the recommended 5 portions per day of fruits and vegetables. In particular, some children seem unwilling to eat vegetables. Our research is designed to understand how we can encourage young children to like and to eat more vegetables. In order to investigate what vegetables children are offered by their parents and caregivers a small pilot study was undertaken by all partners involved in WP2.2 (France, Denmark and UK). In part we wanted to document the frequency, variety and different ways of preparing vegetables given to children. From this research we also wanted to identify an unfamiliar and uncommon vegetable across the 3 countries to offer in our experiments. Questionnaires were distributed to parents and caregivers of pre-school children with a list of 56 vegetables. Across the 3 countries, it was clear that artichoke was one of the least familiar and least frequently eaten vegetables. This vegetable will now be used in our learning experiments since children are not likely to have eaten this vegetable before. In addition, results from the UK survey yielded some other interesting findings.

- In general, parents offer a **limited** repertoire of vegetables to their children;
- The vegetables used during weaning (from 6 months on) are similar to those offered most frequently through out early childhood;
- Broccoli was more likely to be offered to children aged 2 years and above;
- The most liked vegetables were butternut squash, peas, sweet potato, carrots and cucumber;
- Amongst infants aged 6-11 months the most disliked vegetables were fennel, radish, salsify, sorrel and jerusalem artichoke and for the 12-23 month group these were brussel sprouts, chard, radish, green salad lettuce and watercress;
- Dislikes in younger infants may relate to the intense flavours of these vegetables whilst in older infants dislikes may be related more to colour and/or texture.

As expected, a child's reported liking for particular vegetables increased the more frequently they were exposed to that vegetable. The most common preparation techniques for the liked vegetables were boiling, steaming and roasting. Very few mothers reported adding any sort of seasoning to vegetables and most said they did not season their vegetables at all. Among those who did use seasoning the most popular technique was to add butter or cheese (added energy and taste) rather than spices.

Over the coming months we aim to conduct a cross-cultural comparison of pre-school children's vegetable intake by examining the data from the UK, France and Denmark with a view to providing a profile of vegetable intake in the early years of life.

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