

Assessing dietary data in children and adolescents in European studies

— a challenge

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**Identification and prevention of Dietary-
and lifestyle-induced health EEffects In
Children and infantS**

IDEFICS

I Family

**Investigating the determinants of food
choice, lifestyle and health in European
children, adolescents and their parents**

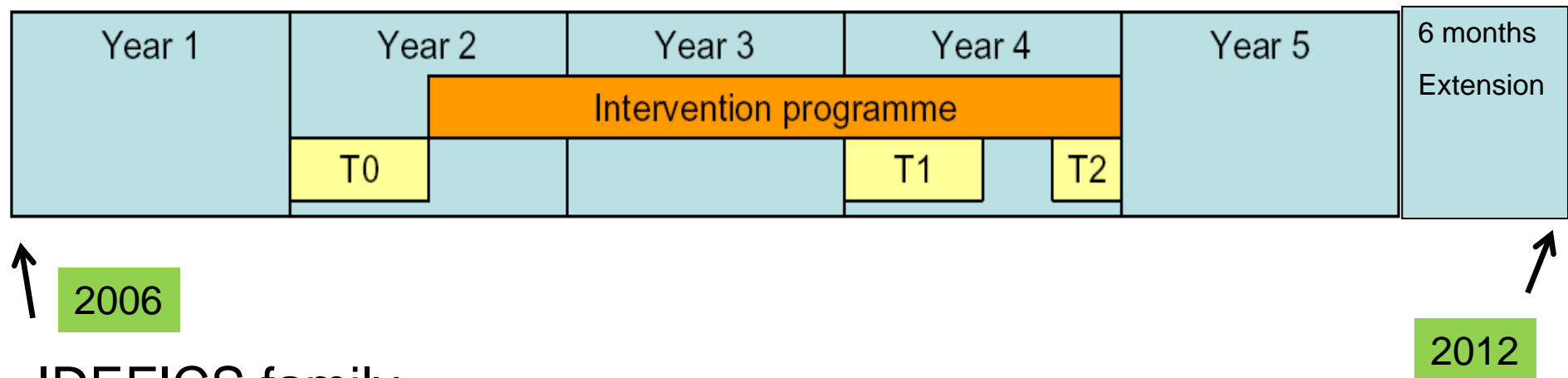
The strategic objectives in IDEFICS are

- to enhance the knowledge of the health effects of a changing diet & an altered social environment & lifestyle of children in Europe, and
- to develop, implement & validate specific intervention approaches in order to reduce the prevalence of diet- & lifestyle-related diseases & disorders in the EU,

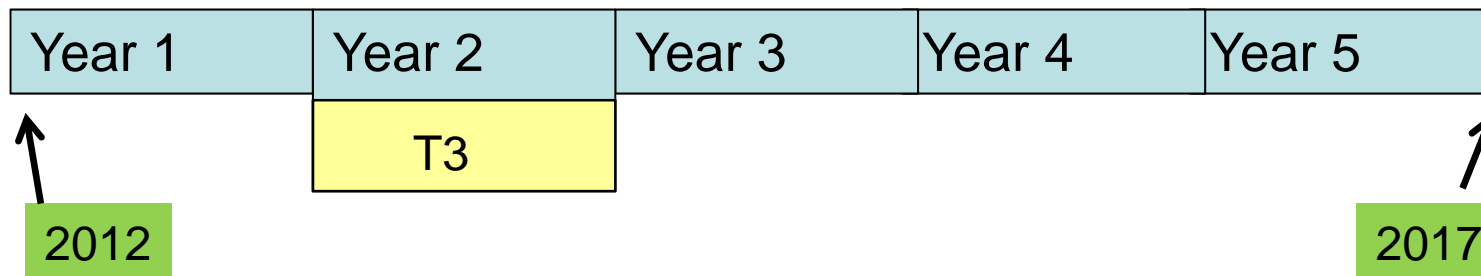
focusing on the age group of 2 to 10 years.

Timeline of surveys and intervention activities

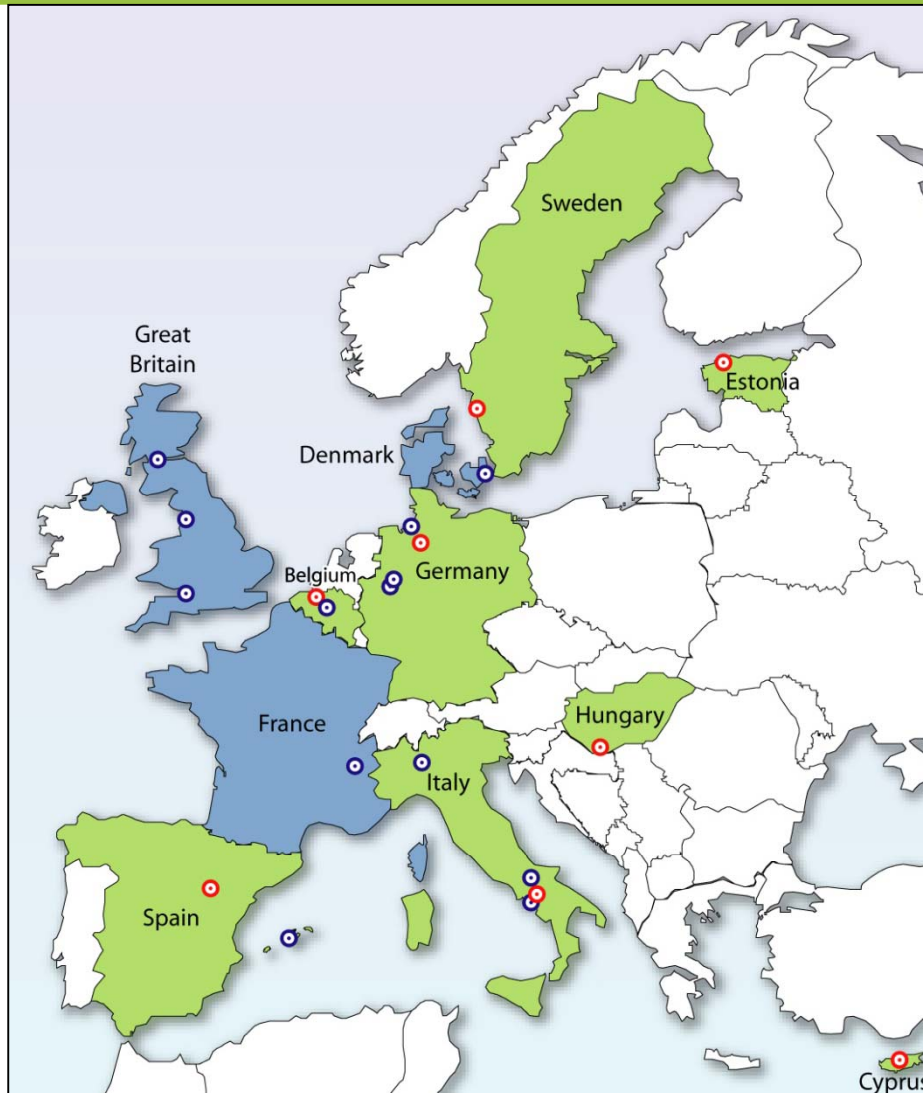
IDEFICS



IDEFICS.family



Participating countries



Ghent, Belgium
Strovolos, Cyprus
Tallin, Estonia
Bremen, Germany
Pécs, Hungary
Avellino, Italy
Zaragoza, Spain
Gothenburg, Sweden

Population-based study groups

Country	Institution	Pre-school	School	Total pre-school/ school
Germany	UNIHB	1000	1000	1.000/ 1.000
Belgium	UGENT	1000	1000	1.000/ 1.000
Cyprus	REF	1000	1000	1.000/ 1.000
Sweden	UGOT	900	900	900/ 900
Hungary	UPE	1000	1000	1.000/ 1.000
Italy	ISA-CNR	400	1600	400/ 1.600
Spain	UZAZ	1000	1000	1.000/ 1.000
Estonia	NIHD	1000	1000	1.000/ 1.000
TOTAL		7.300	8.500	15.800

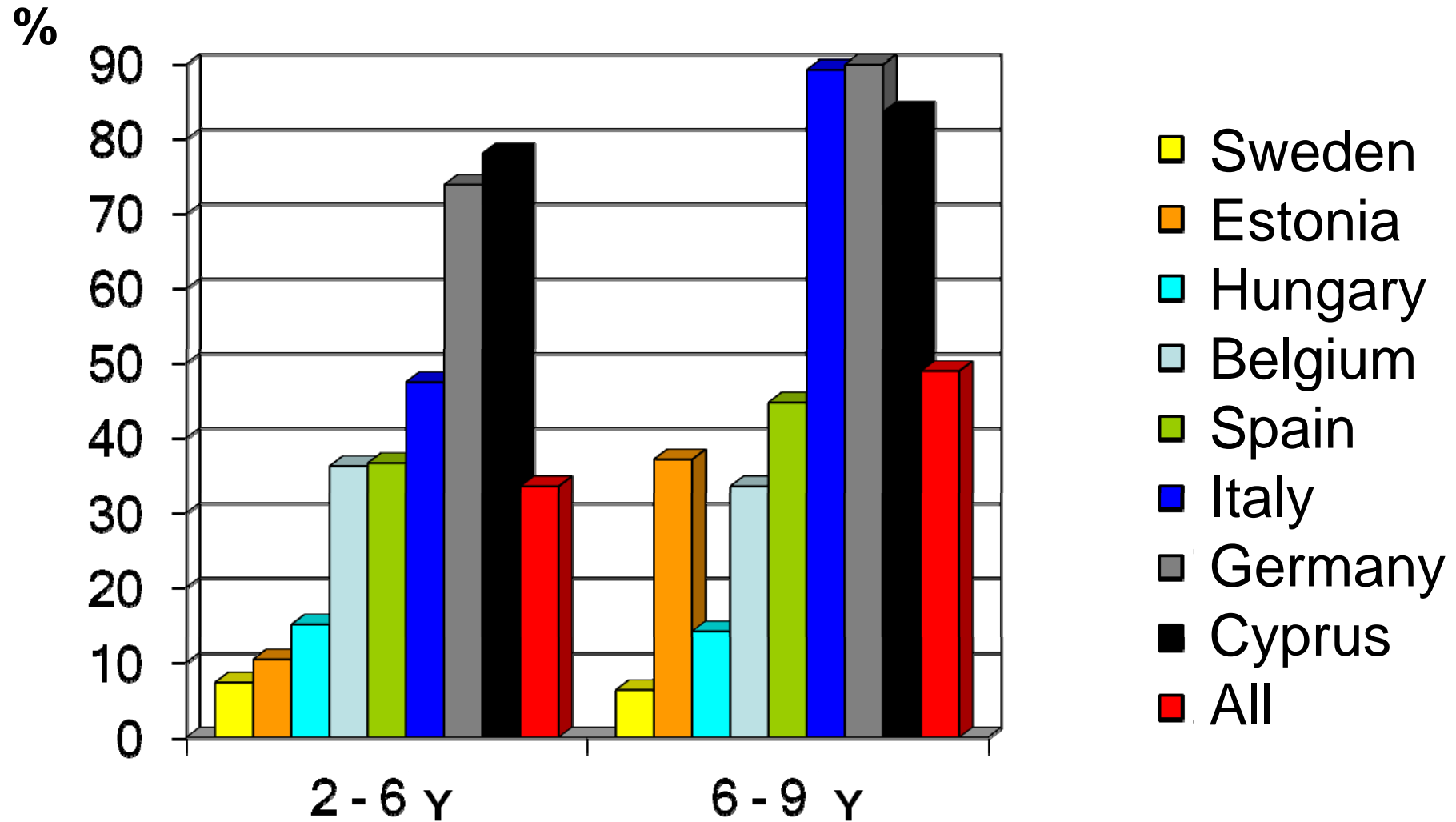
Age at baseline:
2-4 y (pre-school)
6-9 y (school)

Samples are not representative

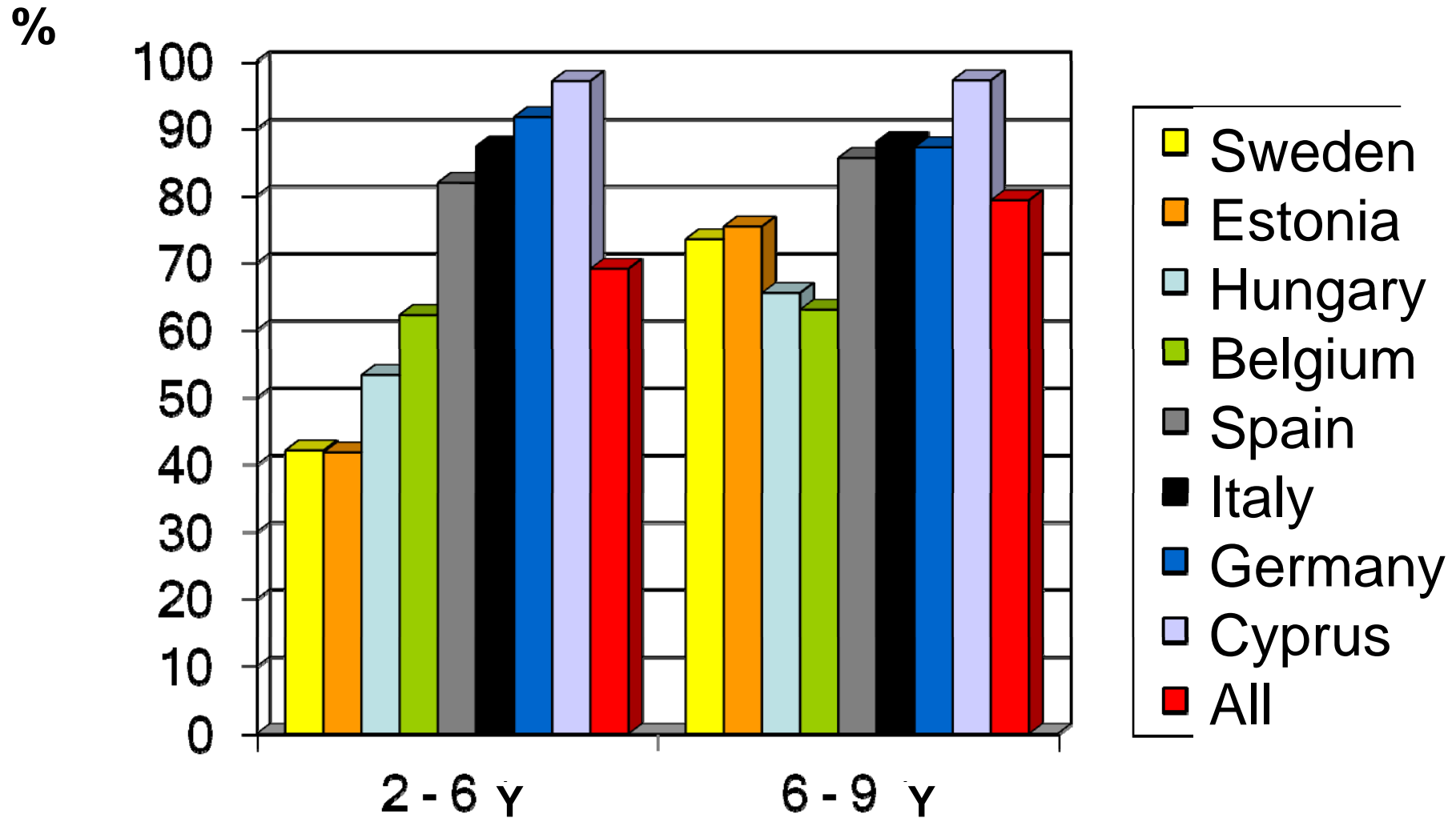
Dietary assessment method?

- 16 000 children in eight european countries
- Age 2-9 at baseline, 4-11 at first followup
- Different eating pattern and...

Percentage of children who eat daily lunch at home



Percentage of children who eat daily breakfast at home



Food Frequency Questionnaire (FFQ)

Reporting only meals eaten at home





Publicerad 7 november 2006



...the questionnaire didn't include pancakes but there were both green and black olives for breakfast options (!).

Barnfetman kartläggs

Pannkakor i Sverige, oliver i Italien. Trots olika matvanor blir barn i Europa allt tjockare. I ett försök att bekämpa fetmaepidemin startar nu en europeisk studie av tusentals barn, 1 500 från Västsverige.

Sammanlagt skall studien omfatta 16 000 barn i åldrarna från två till tio år och pågå i fem år. Förutom de svenska barnen skall också barn från Cypern, Italien, Estland, Tyskland, Grekland, Ungern och Spanien ingå i den mycket omfattande EU-finansierade undersökningen. Syftet är att ringa in orsakerna till övervikten och försöka hitta effektiva förebyggande metoder.

Första studien i sitt slag

Just nu pågår förberedelser för att ta fram gemensamma riktlinjer för hur undersökningarna av barnen skall gå till. Någon liknande studie har aldrig förr genomförts. De siffror man har att luta sig tillbaka mot i dag är baserade på studier som genomförts på olika sätt och i olika åldersgrupper av barn. Det är inte ens säkert att barnens vikt mätts på ett enhetligt sätt.

- Nej, i vissa fall har barnen ställts sig på vågen med full mage och jeansen på, säger professor Lauren Lissner vid Sahlgrenska Akademin. Nu skall vi försöka göra på samma sätt i alla länder.

Enkät anpassas till olika länder

Underlaget för den enkät som behandlar kosten håller just nu på att anpassas till varje lands speciella förutsättningar. Gabriele Eiben som är dietist och epidemiolog i forskarteamet upptäckte att enkäten saknade pannkakor men däremot fanns både gröna och svarta oliver med som frukostalternativ (!). I



Dietary assessment

In the last month, how many times did your child eat or drink the following food items?
Please refer to the last four weeks and exclude all pre-school or school meals.

	Never / less than once a week	1 - 3 times a week	4 - 6 times a week	1 time per day	2 times per day	3 times per day	4 or more times per day	I have no idea
Vegetables								
Cooked vegetables, potatoes and beans (also in mixed recipes)	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅	<input type="radio"/> ₆	<input type="radio"/> ₇	<input type="radio"/> ₈
Fried potatoes, potato croquettes	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅	<input type="radio"/> ₆	<input type="radio"/> ₇	<input type="radio"/> ₈
Raw vegetables (mixed salad, carrot, fennel, cucumber, lettuce, tomato etc.)	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅	<input type="radio"/> ₆	<input type="radio"/> ₇	<input type="radio"/> ₈

Children's Eating Habits Questionnaire (CEHQ):

- Eating habits
 - Is your child watching TV during meals?
 - We buy and consume a lot of pre-cooked food in our household
- FFQ



43 food items and food groups

compromises had to be done:

- Legumes: only in Greece and Germany
- Fresh fruits with added sugar
- Grated cheese: only in Italy
- Pizza as a snack or main dish

24-hour dietary recall

energy and nutrient intake at the group level, portion size

- Face-to-face, computer based
- 24-HDR:
 - 1 mandatory
 - 3 desirable: 2 weekdays and one weekend day

Dietary assessment



- Yana_C – Young Adolescents nutrition assessment on computer
- SACINA – Self Administered Children and Infant Nutrition Assessment (dietician assisted)
- SACANA - Self Administered Children and Adolescents Nutrition Assessment



Dietary assessment

Microsoft Access - [F_Foodcollection : Formulär]

Arkiv Redigera Visa Infoga Format Poster Verktøy Fönster Hjälp

Skriv en fråga för hjälp

Tahoma 8


godis (karameller, choklad etc.)
gelé och skumgodis
gelékonfekt (hallonbåtar, winegum etc.)
salt

Hur många gram salta gelékonfekt åt du?

120

MINDRE MER AVBRYT O.K.

Föregående fråga



frukost

▶	0,75	glas lättmjölk	à	200	gram
*			à		gram

Formulär NUM

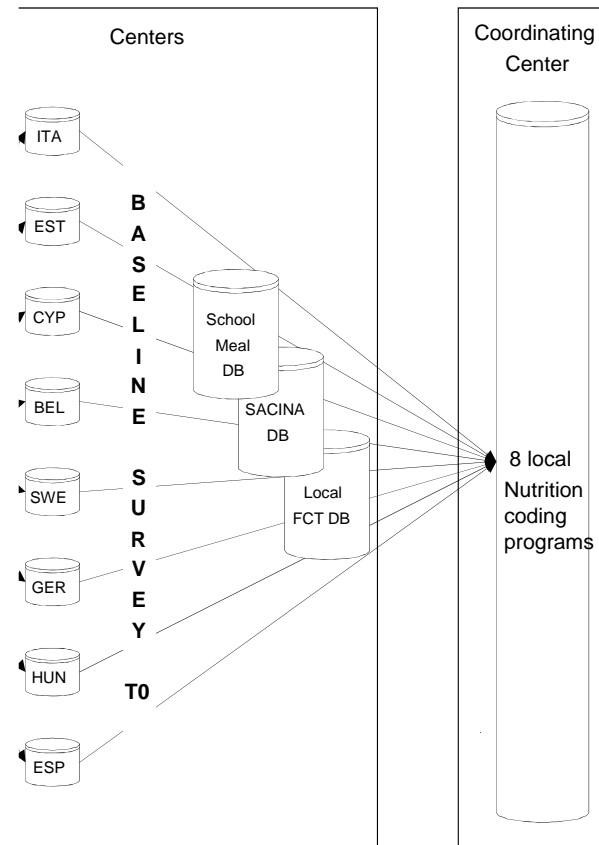
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Country
specific
food
items

Dietary assessment


- Harmonization of food composition data
 - Total energy without energy from fiber
 - Starch
 - Fiber
 - Total sugar
 - Total retinol equivalent
 - Raw/cooked

School meal assessments Diet diary



Dietary assessment, I.Family

ifamily

 12:15 Lunch

SACANA
Igår var det 02/12/2014



06:00 Steg upp igår



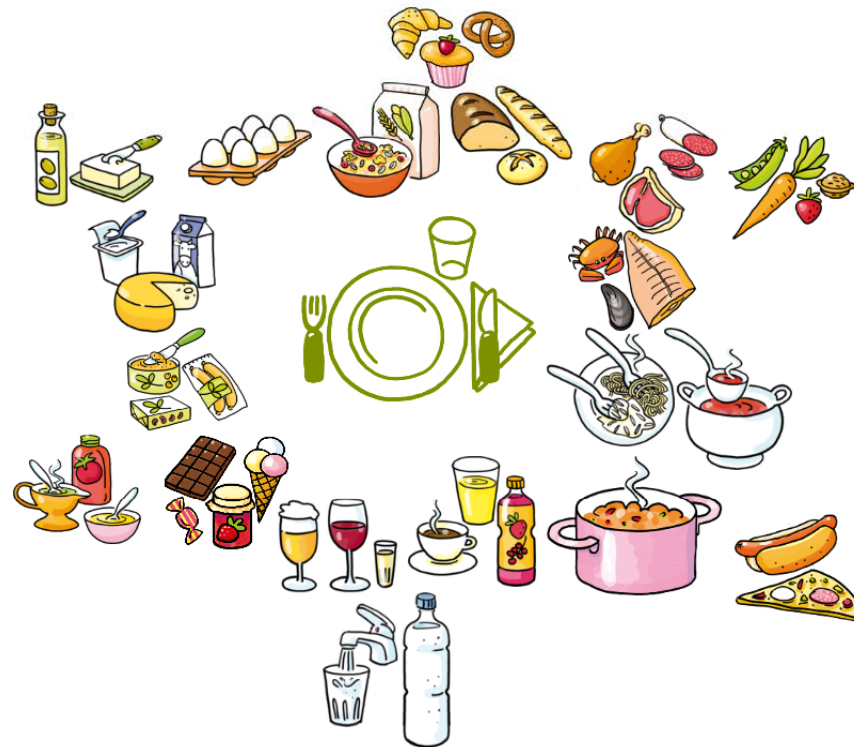
06:15 Frukost



23:00 Gick och la mig igår



06:00 Steg upp idag



<http://www.sacana.eu/index.php?content=login>

Dietary assessment, I.Family

- **Three 24HDR**
 - On at the center
 - Two at home
- **Proxy reported: up to twelve**
- **Feedback**
- **Automatically reminders**



Dietary assessment



BACKGROUND:

The purpose of this study was to validate a single recall of the previous day's school lunch reported by 6-8 year old Swedish children and to assess teacher-recorded intake of the same meal in a standardized food journal. An additional research question was whether parents could report their child's intake of the previous day's lunch.

FINDINGS:

Children were accurate self-reporters of their dietary intake at lunch, with no significant difference between reported and weighed intake (Mean difference (SD): 7(50) kcals, $p=0.49$). **Teachers** significantly over-reported intake (Mean difference (SD): 65(79) kcals, $p=0.01$). In all cases **parents** themselves were unable to report on quantities consumed and only four of 25 children had parents with knowledge regarding food items consumed.

CONCLUSIONS:

Children as young as six years of age may be better able to report on their dietary intake than previously suggested, at least for one main meal at school. Teacher-recorded intake provides a satisfactory estimate.

[Hunsberger M¹](#), [Pena P](#), [Lissner L](#), [Grafström L](#), [Vanaelst B](#), [Börnhorst C](#), [Pala V](#), [Eiben G](#). Validity of self-reported lunch recalls in Swedish school children aged 6-8 years. [Nutr J](#). 2013 Sep 18;12:129.



Fat propensity ratio=
Sum of fatty foods/Sum of all 43 foods

Sweet propensity ratio=
Sum of sweet foods/Sum of all 43 foods

Children's consumption frequency of fatty and sweet foods were obtained from parental-reported questionnaires.

[Lanfer A¹](#), [Knof K](#), [Barba G](#), [Veidebaum T](#), [Papoutsou S](#), [de Henauw S](#), [Soós T](#), [Moreno LA](#), [Ahrens W](#), [Lissner L](#). Taste preferences in association with dietary habits and weight status in European children: results from the IDEFICS study. [Int J Obes \(Lond\)](#). 2012 Jan;36(1):27-34.

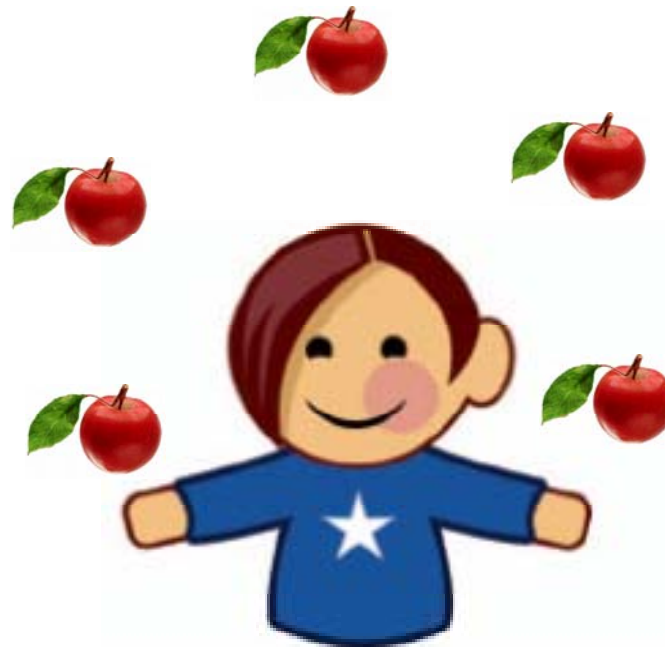
Dietary assessments in children are challenging especially in countries where meals are eaten out of home

Solutions:

- Consider:
 - **Teachers as proxy reporters for school meals**
 - **younger children's self reporting**
- Propensity ratios

<http://www.ideficsstudy.eu>

<http://www.ifamilystudy.eu>



Tack !