



Les pratiques alimentaires des familles Européennes et qualité de l'alimentation de l'enfant

Luis A. Moreno

GENUD Research Group

Universidad de Zaragoza

INSTITUT DANONE
La nutrition pour la santé
MAROC

INSTITUT DANONE
La nutrition pour la santé
MAROC

Symposium
Nutrition
d'aujourd'hui
Santé
de demain

Comment encourager
des habitudes alimentaires
saines chez l'enfant ?
Marrakech - Vendredi 31 Mars 2017

Une expertise
scientifique à vos
côtés, pour
améliorer la santé
par l'alimentation à
tous les âges
de la vie

PROGRAMME

Enjeux actuels de l'évolution des habitudes alimentaires

O. GOULET
Professeur et chef du service de Gastro-entérologie - Hépatologie - Nutrition
AP-HP, Hôpital Necker - enfants malades, Paris

Comment améliorer les habitudes alimentaires des enfants :
le programme français EducAlim

M. MERDIJ
Socio-anthropologue
Enseignant chercheur, Audencia Nantes

Les pratiques alimentaires des familles Européennes
et qualité de l'alimentation de l'enfant

L. MORENO
Professeur en Santé Publique, Université de Saragosse, Espagne

Modérateurs

A. ABIKARI (Casablanca)
M. HIDA (Fès)
S. ETTAIR (Rabat)
M. SBIHI (Marrakech)

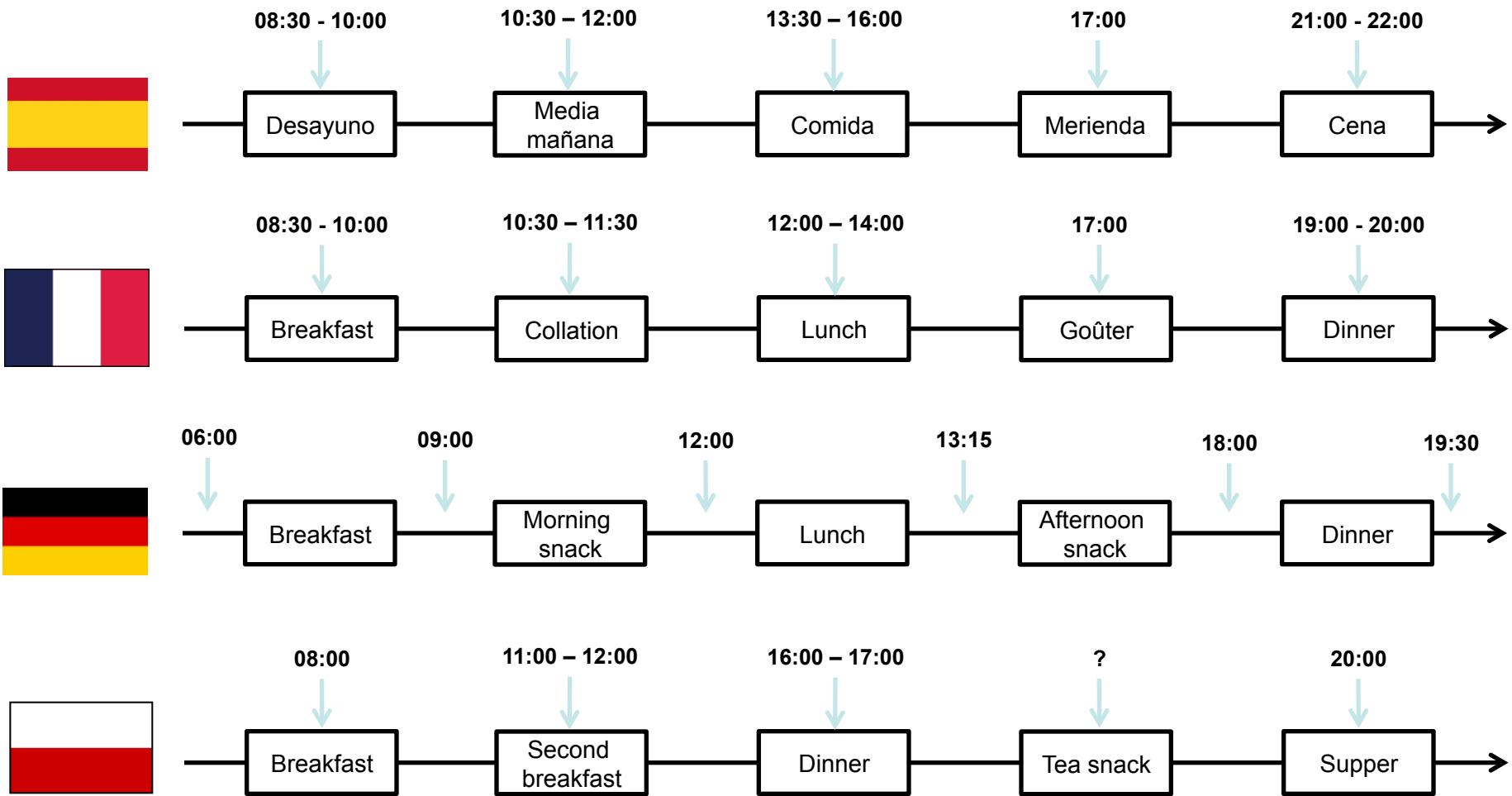
Meal distribution in some EU countries children



GENUD Research Group

Growth, Exercise, NUtrition and Development

Universidad Zaragoza





Is Frequency of Shared Family Meals Related to the Nutritional Health of Children and Adolescents?

Frequency of family meals and childhood overweight: a systematic review

(Hammons AJ, Fiese BH. Pediatrics 2011; 127: e1565-1574)

(Valdes J et al. Pediatr Obes 2013; 8: e1-e13)

Both systematic reviews did not include any European study



Is Frequency of Shared Family Meals Related to the Nutritional Health of Children and Adolescents?

No. of Meals	% Increase (% Decrease)	Outcome
≥3 vs <3	(12)	Overweight
≥3 vs <3	(20)	Eating unhealthy foods
≥3 vs <3	24	Eating healthy foods
≥5 vs ≤1	(35)	Disordered eating

(Hammons AJ, Fiese BH. Pediatrics 2011; 127: e1565-1574)



Longitudinal associations between family characteristics and measures of childhood obesity

Reetta Lehto · Carola Ray · Eva Roos

Family meals ($n = 589$)	%
No family meals	18
Breakfast or dinner	58
Breakfast and dinner	25

(Lehto R et al. Int J Publ Health 2012; 57: 495-503)

Associations of family characteristics with (BMI) at baseline (2006), follow-up (2008) and at follow-up when controlled for baseline BMI, family structure and parents' employment



GENUD Research Group
Growth, Exercise, NUtrition and Development
Universidad Zaragoza

Family characteristics 2006	BMI 2006		BMI 2008		BMI 2008 controlled for BMI 2006	
	Beta coeff.	P value	Beta coeff.	P value	Beta coeff.	P value
Home alone, hours after school	0.06	0.63	0.29	0.06	0.25	0.00
Parenting practices at meals	-0.15	0.015	-0.21	0.002	-0.07	0.05
Physical activity with a parent ^a	-0.01	0.97	0.06	0.81	-0.06	0.61
Family meals	-0.39	0.016	-0.48	0.011	-0.06	0.52
Care from both parents ^a	0.30	0.17	0.30	0.24	0.06	0.64
Care from mother ^a	0.30	0.16	0.52	0.03	0.22	0.06
Care from father ^a	0.21	0.33	0.27	0.28	0.08	0.50

Confounders: age and gender of the child, family structure, parents' employment status

Bold values are statistically significant ($P < 0.05$)

^a No versus yes

(Lehto R et al. Int J Publ Health 2012; 57: 495-503)

Logistic regression analyses for the relationship between overweight and family meals



GENUD Research Group
Growth, Exercise, NUtrition and Development
Universidad Zaragoza

Meal-related determinants of overweight	Northern Europe		Southern & Eastern Europe	
	OR	95 % CI	OR	95 % CI
How often do you have breakfast with your mother and father?				
Every day	1·00	Ref.	1·00	Ref.
4–6 week	1·10	0·81, 1·48	0·98	0·75, 1·27
1–3 d/week	1·31	1·00, 1·72	1·14	0·93, 1·40
<1 d/week	1·53	1·11, 2·12	0·91	0·73, 1·33
P=0·04 (n 2781)				
How often do you have dinner with your mother and father?				
Every day	1·00	Ref.	1·00	Ref.
4–6 d/week	0·94	0·70, 1·25	1·12	0·88, 1·42
1–3 d/week	1·02	0·66, 1·59	1·01	0·78, 1·30
<1 d/week	2·08	1·21, 3·58	0·95	0·70, 1·28
P=0·06 (n 2758)				
How often is a TV on during dinner?				
Every day	1·94	1·45, 2·59	1·26	0·94, 1·68
4–6 d/week	1·24	0·88, 1·76	0·96	0·71, 1·29
1–3 d/week	0·96	0·68, 1·35	0·91	0·67, 1·23
<1 d/week	1·07	0·77, 1·49	1·24	0·91, 1·70
Never	1·00	Ref.	1·00	Ref.
P<0·001 (n 2752)				

TV, television; ref., referent category.

(Roos E et al. Public Health Nutr 2014; 17: 2528-2536)



Family meals recommendations

Role of Dietary Factors and Food Habits in the Development of Childhood Obesity: A Commentary by the ESPGHAN Committee on Nutrition

ESPGHAN Committee on Nutrition: ^{*3}*Carlo Agostoni,* [†]*Christian Braegger,* [‡]*Tamas Decsi,*
[§]*Sanja Kolacek,* ^{||3}*Berthold Koletzko,* [¶]*Walter Mihatsch,* [#]*Luis A. Moreno,* ^{**}*John Puntis,*
^{††1}*Raanan Shamir,* ^{‡‡}*Hania Szajewska,* ^{§§2}*Dominique Turck, and* ^{||||}*Johannes van Goudoever*

“Children should eat at least 4 meals, including breakfast, every day. **Regular family meals should be encouraged”**

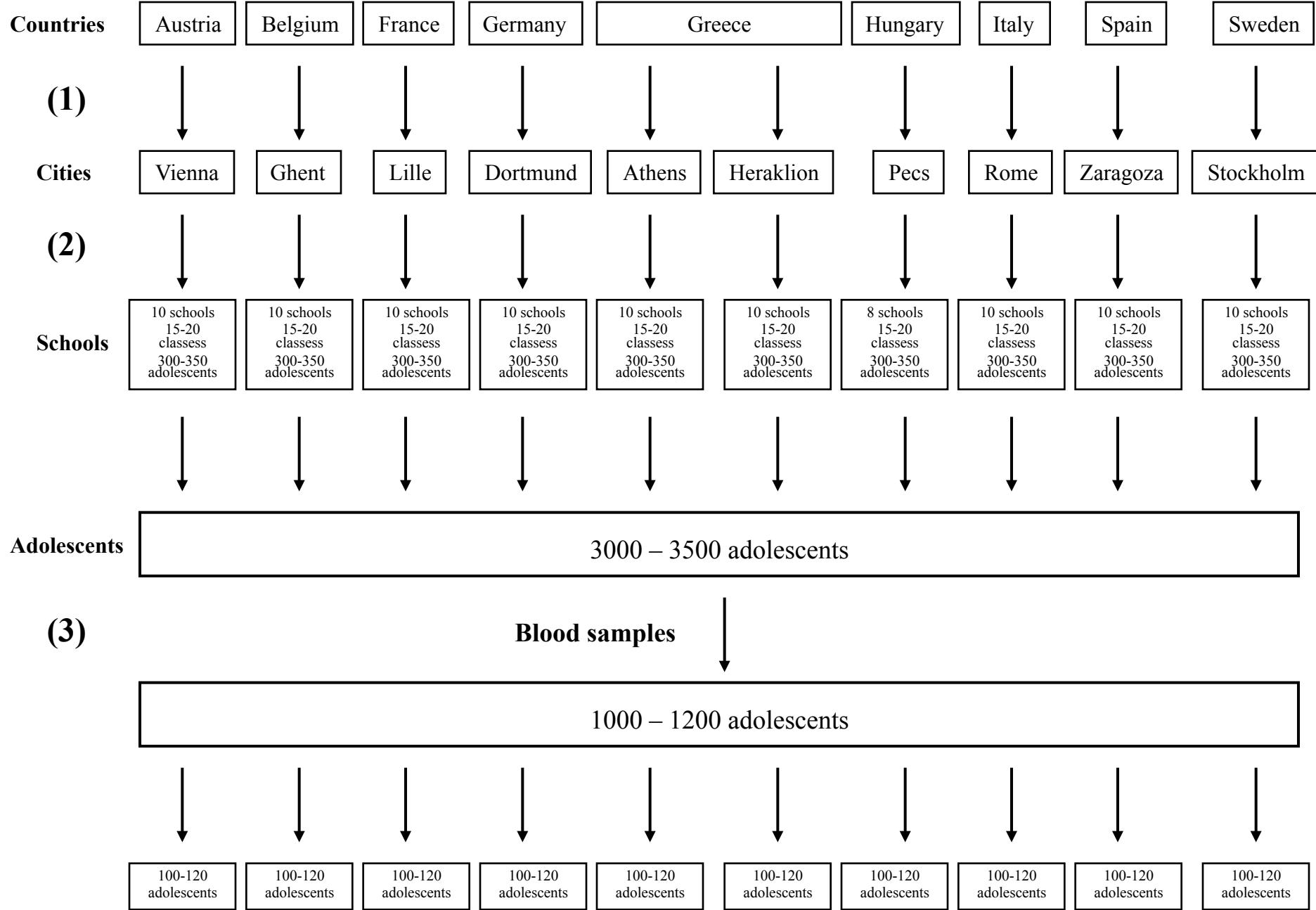
(Agostoni C et al. J Pediatr Gastroenterol Nutr 2011; 52: 662-669)



HELENA-CSS

$N = 300 \times 10$
13.0 - 16.9 y





HELENA-CSS total sample

Age strata (Years)	Females		Males	
	n	%	n	%
[12.5-14]	610	33.1	530	31.5
[14-15]	466	25.3	409	24.3
[15-16]	440	23.8	417	24.8
[16-17.5]	329	17.0	327	19.4

1845**1683****3528**

(Bégin L et al. Arch Publ Health 2012; 70: 14)



Research tools. Diet

- EWI-C questionnaire. Eating attitudes.
- NKT-C questionnaire. Nutrition knowledge.
- Food choices and preferences.
- Diet determinants questionnaire.
- HELENA-DIAT software for repeated 24-h recalls.

WP leader: Dr. Mathilde Kersting (kersting@fke-do.de)

HELENA-DIAT: Dr. Carine Vereecken
(carine.vereecken@ugent.be)



Uniqueness of the Study

Innovative methodology for computer dietary assessment and intervention.



añadir

haz clic aquí cuando hayas terminado con esta comida

haz clic aquí para volver a comidas anteriores

¿Cuántas cucharadas de muesli comiste?

6

cucharadas de muesli

más

menos

borrar

OK

No olvides añadir la leche!

Si te has servido más de una vez, por favor, añade los alimentos varias veces.



DESAYUNO

2 tazas de leche desnatada

5 cucharadas de copos de avena

1.5 plátanos pequeños

6 cucharadas de muesli

añadir

haz clic aquí cuando hayas terminado con esta comida

haz clic aquí para volver a comidas anteriores

¿Cuántos gramos de uva comiste?

330

gramos de uva

más
menos
borrar
OK



COMIDA

- 4 cucharones de potaje de alubias
- 2 filetes de pechuga sin empanar
- 3 vasos de agua
- 1 envase de yogur natural desnatado no azucarado (125 gramos)
- 6 cucharadas de acelga

330 gramos de uva



HELENA-CSS



YANA-C software for repeated 24-h recalls

Innovative methodology for dietary assessment





HELENA-CSS



YANA-C software for repeated 24-h recalls

Innovative methodology for dietary assessment





HELENA-CSS



YANA-C software for repeated 24-h recalls

Innovative methodology for dietary assessment





YANA-C software for repeated 24-h recalls

Innovative methodology for dietary assessment





YANA-C software for repeated 24-h recalls

Innovative methodology for dietary assessment





HELENA-CSS



YANA-C software for repeated 24-h recalls

Innovative methodology for dietary assessment





ORIGINAL ARTICLE

Development and evaluation of a self-administered computerized 24-h dietary recall method for adolescents in Europe

CA Vereecken¹, M Covents², W Sichert-Hellert³, JMF Alvira⁴, C Le Donne⁵, S De Henauw¹, T De Vriendt¹, MK Philipp⁶, L Béghin⁷, Y Manios⁸, L Hallström⁹, E Poortvliet⁹, C Matthys¹, M Plada¹⁰, E Nagy¹¹ and LA Moreno⁴, on behalf of the HELENA Study Group¹²

31 food groups

(Vereecken CA et al. Int J Obes 2008; 32: S26-S34)

Evaluation of food and nutrient intake assessment using concentration biomarkers in European adolescents from the Healthy Lifestyle in Europe by Nutrition in Adolescence study

S. Vandevijvere^{1*}, A. Geelen², M. Gonzalez-Gross^{3,4}, P. van't Veer², J. Dallongeville⁵, T. Mouratidou⁶, A. Dekkers⁷, C. Börnhorst⁸, C. Breidenassel^{3,4}, S. P. Crispim⁹, L. A. Moreno⁶, M. Cuenca-García¹⁰, K. Vyncke¹¹, L. Beghin¹², E. Grammatikaki¹³, S. De Henauw¹¹, G. Catasta¹⁴, L. Hallström^{15,16}, M. Sjöström¹⁵, J. Wärnberg¹⁵, L. Esperanza¹⁷, N. Slimani⁹, Y. Manios¹³, D. Molnár¹⁸, C. C. Gilbert¹⁵, A. Kafatos¹⁵, P. Stehle³ and I. Huybrechts^{9,11}

(Vandevijvere S et al. Br J Nutr 2013; 109: 736-747)

Family meals

Breakfast, lunch and dinner

- (1) With parents and/or sisters and brothers**
- (2) Alone**
- (3) With friends**
- (4) With other persons**

- (5) at home**
- (6) at school (not dinner)**
- (7) others**



Diet Quality Index (DQI)

Nine recommended food groups

- (1) Water**
- (2) Bread and cereals**
- (3) Grains and potatoes**
- (4) Vegetables**
- (5) Fruits**
- (6) Milk products**
- (7) Cheese**
- (8) Meat, fish, eggs and substitutes**
- (9) Fats and oils**



Diet Quality Index (DQI)

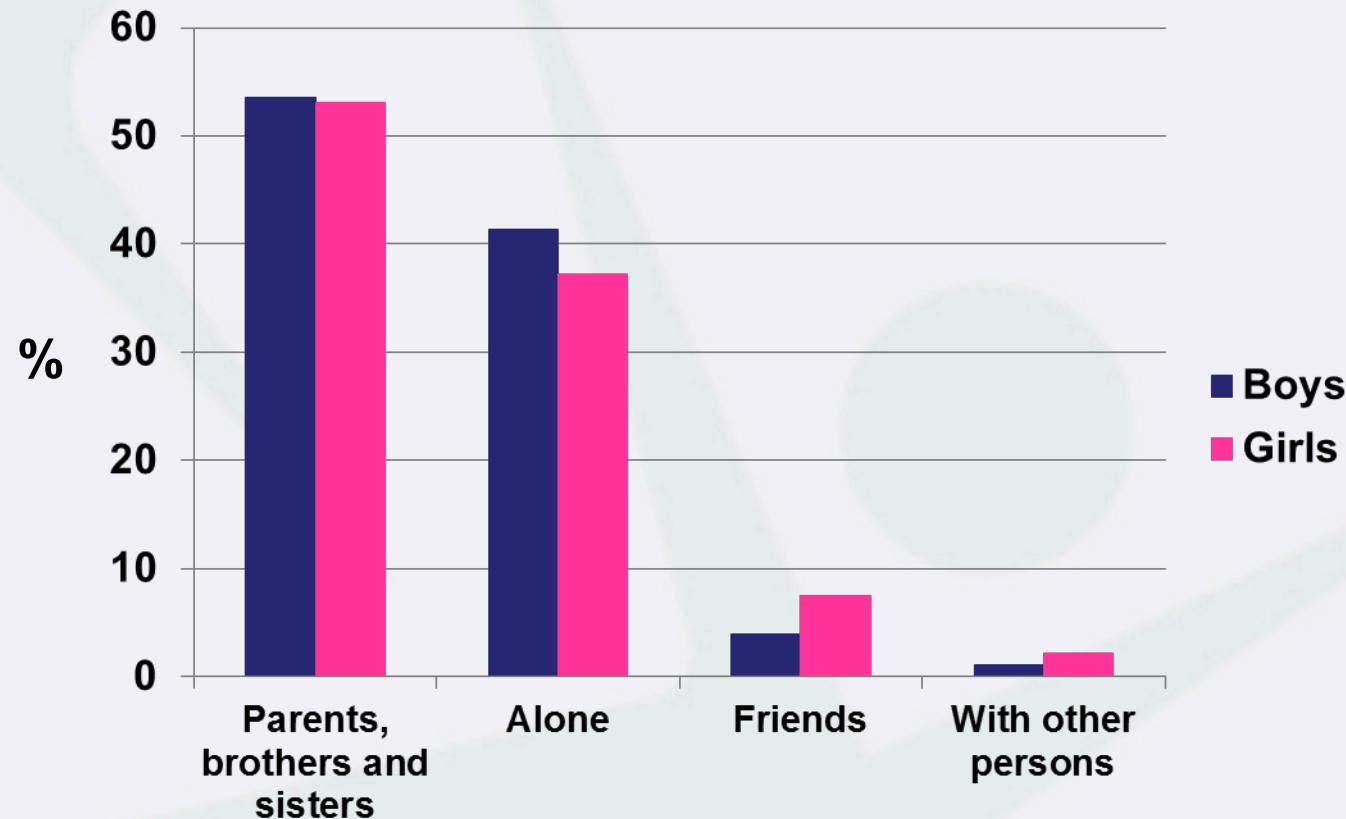
Dietary quality expressed whether the adolescent made the optimal food quality choices within a food group

Dietary diversity expressed the degree of variation in the diet

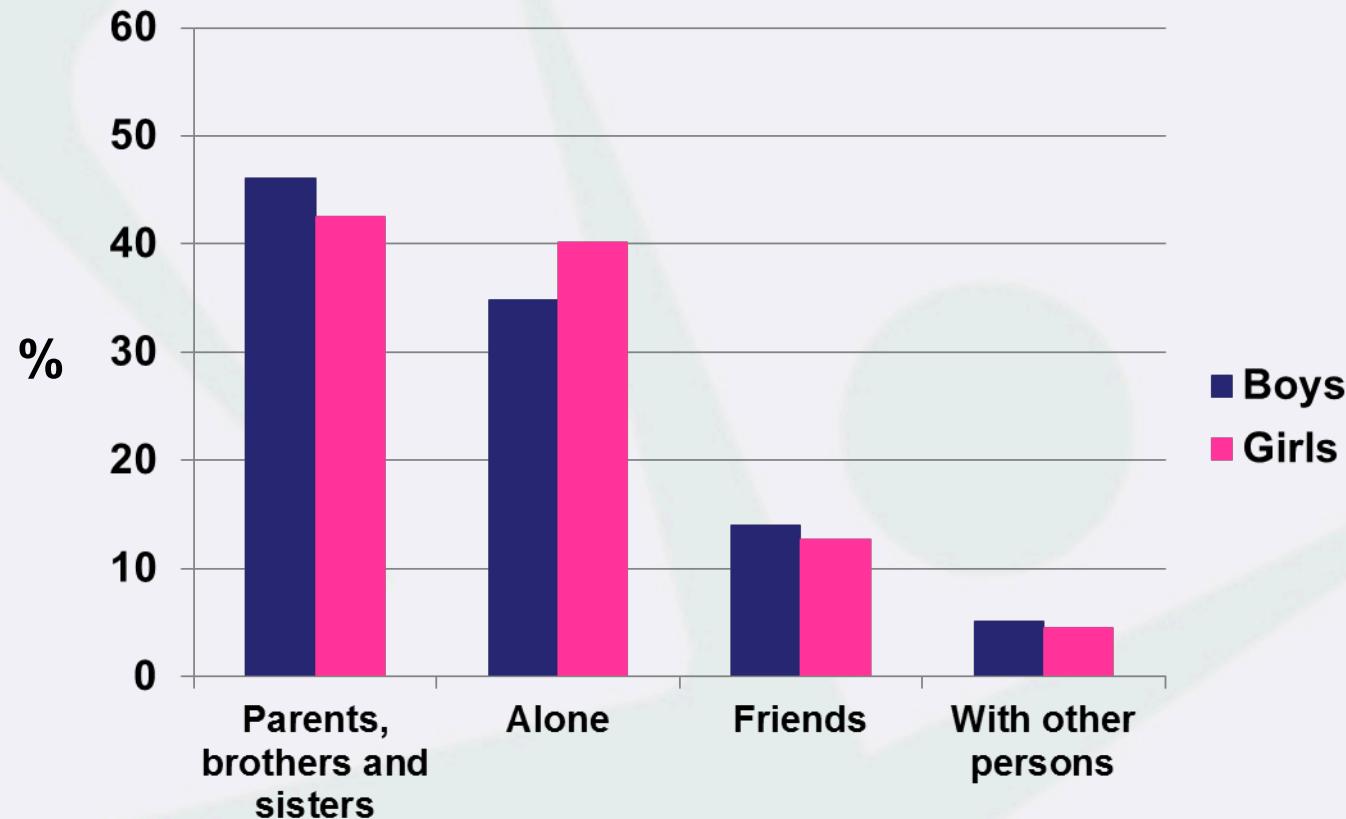
Dietary equilibrium was calculated from the difference between the adequacy component and the excess component

Studied sample

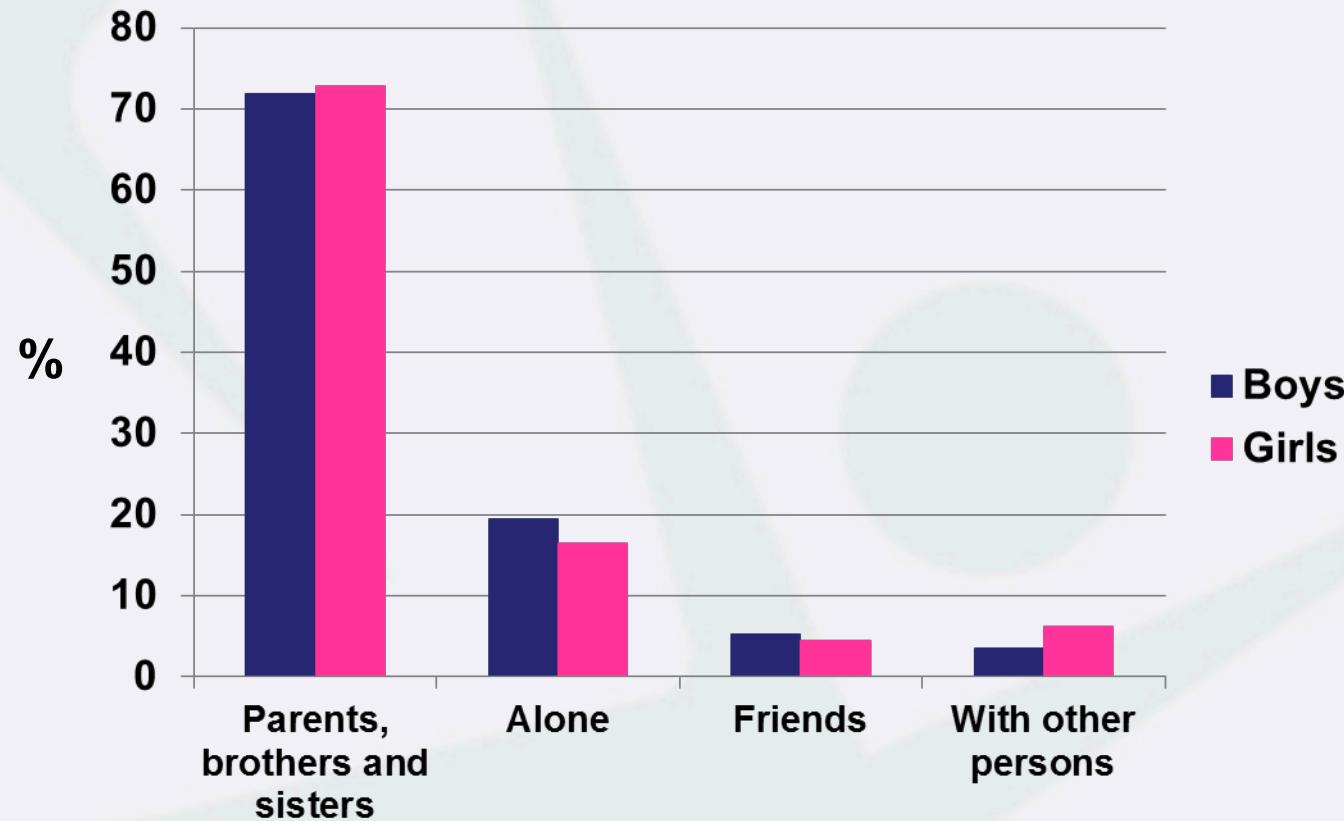
- Adolescents aged 12.5–17.5 years with complete measurements on family meals, dietary intake and body composition assessed by anthropometry
- 2792, 45.8 % boys
- No significant differences ($P < 0.05$) were found between included and excluded participants in mean age, weight, height and BMI

 Breakfast

Lunch



Dinner



Petit déjeuner en famille

Garçons

Consommation plus élevée de fruits et végétaux et moins élevée de boissons sucrées chez ceux qui prenaient le petit déjeuner en famille, comparés avec ceux qui prenaient le petit déjeuner seuls

Filles

Consommation plus élevée de fruits chez celles qui prenaient le petit déjeuner en famille, comparés avec celles qui prenaient le petit déjeuner seuls

Adjusted by: SES, Tanner stage and energy intake

Déjeuner en famille

Garçons

Consommation plus élevée de légumes, fruits, végétaux, eau, lait et produits laitiers et moins élevée de boissons sucrées et snacks chez ceux qui prenaient le petit déjeuner en famille, comparés avec ceux qui prenaient le petit déjeuner seuls

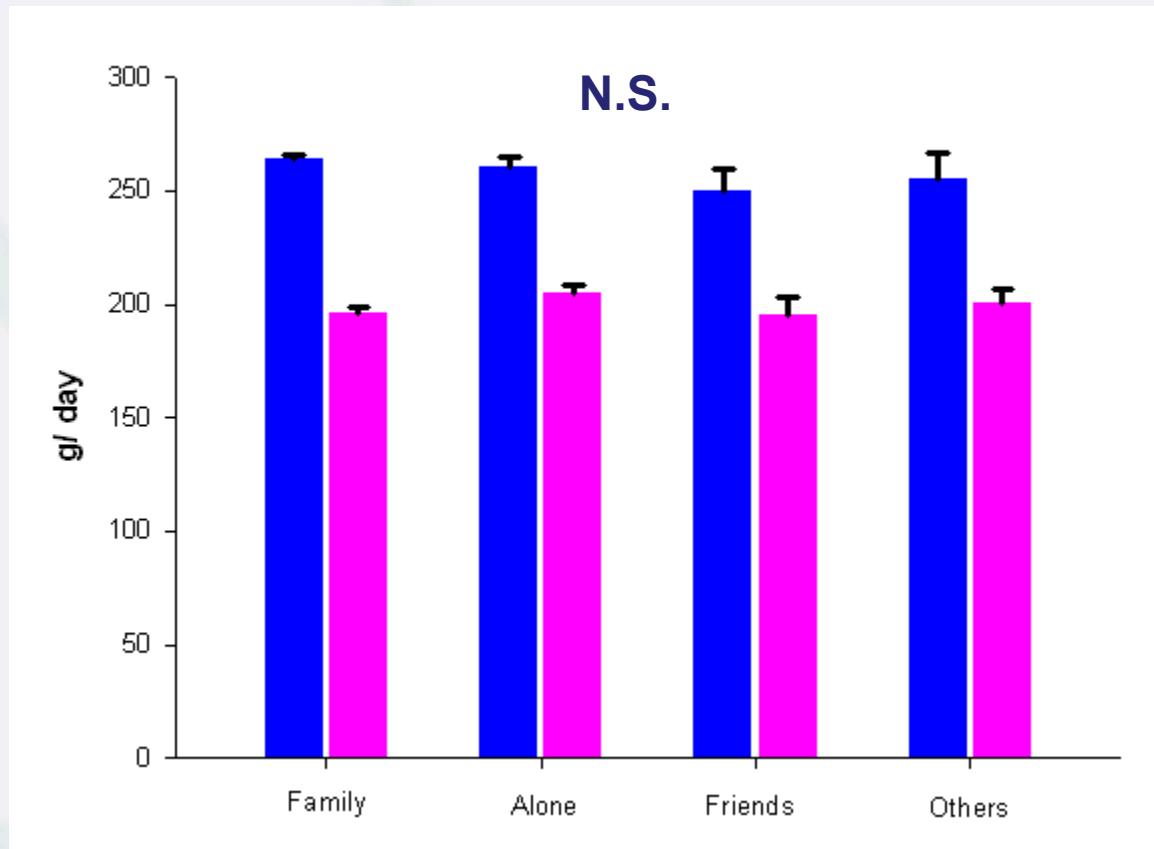
Filles

Consommation plus élevée d'eau chez celles qui prenaient le petit déjeuner en famille, comparés avec celles qui prenaient le petit déjeuner seules

Adjusted by: SES, Tanner stage and energy intake

Family dinner

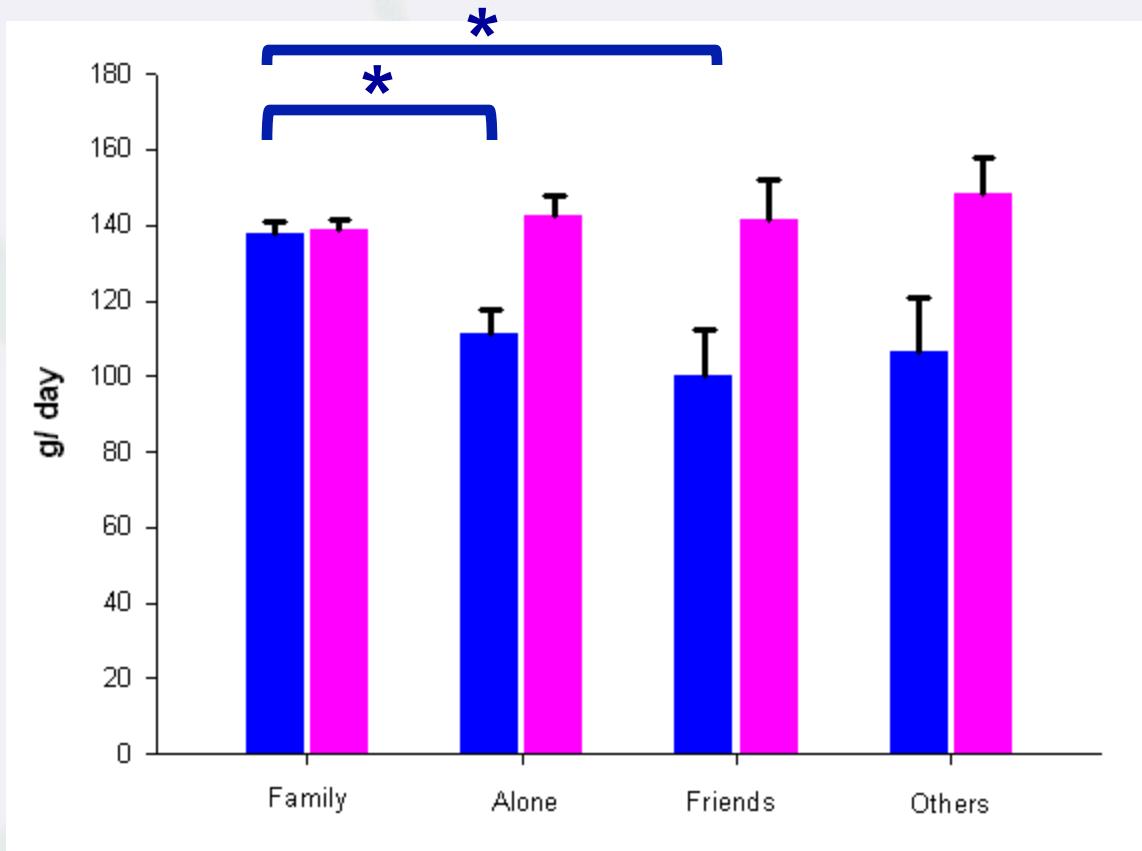
Cereals based food intake by family dinner



Adjusted by: SES, Tanner stage and energy intake

Family dinner

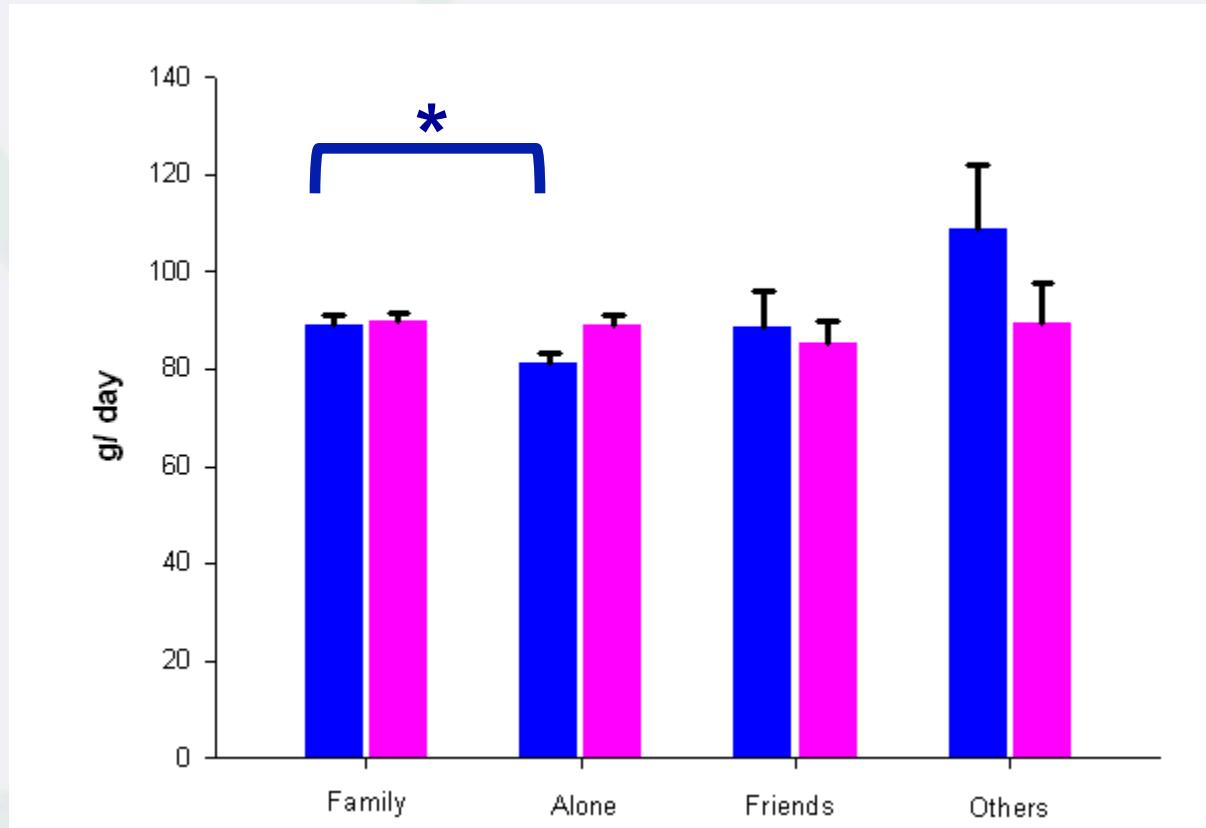
Fruits intake by family dinner



Adjusted by: SES, Tanner stage and energy intake

Family dinner

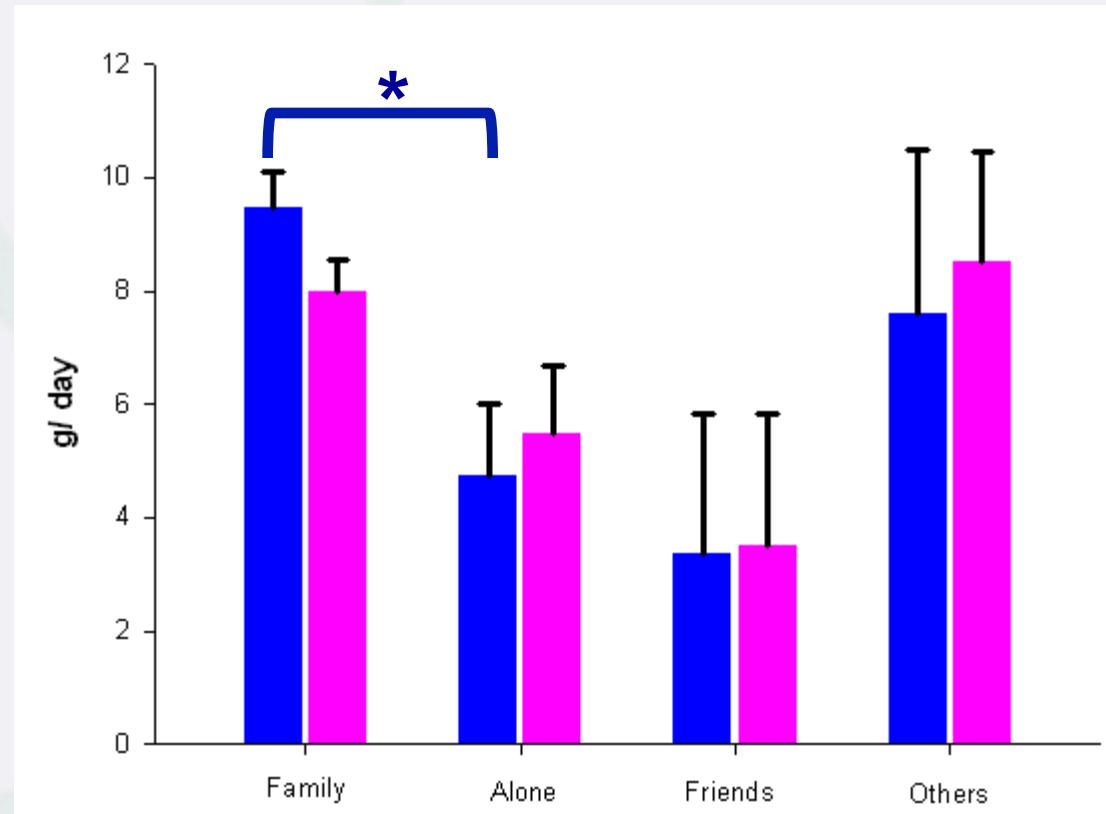
Vegetables intake by family dinner



Adjusted by: SES, Tanner stage and energy intake

Family dinner

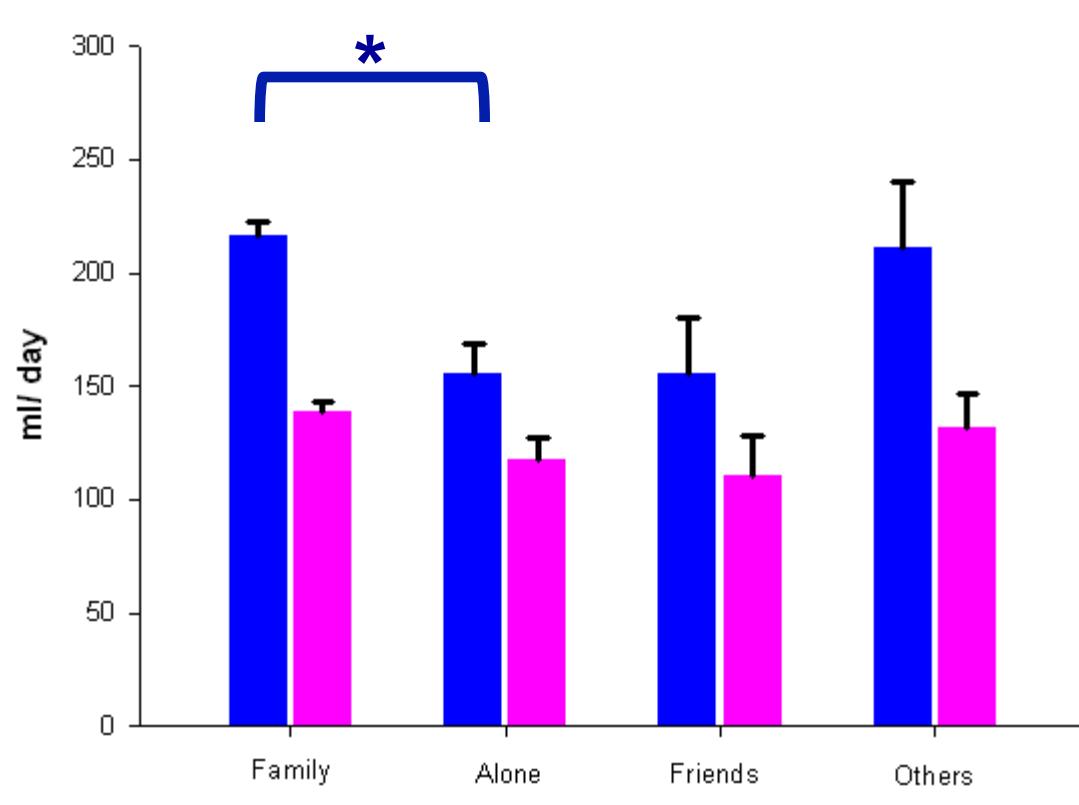
Legumes intake by family dinner



Adjusted by: SES, Tanner stage and energy intake

Family dinner

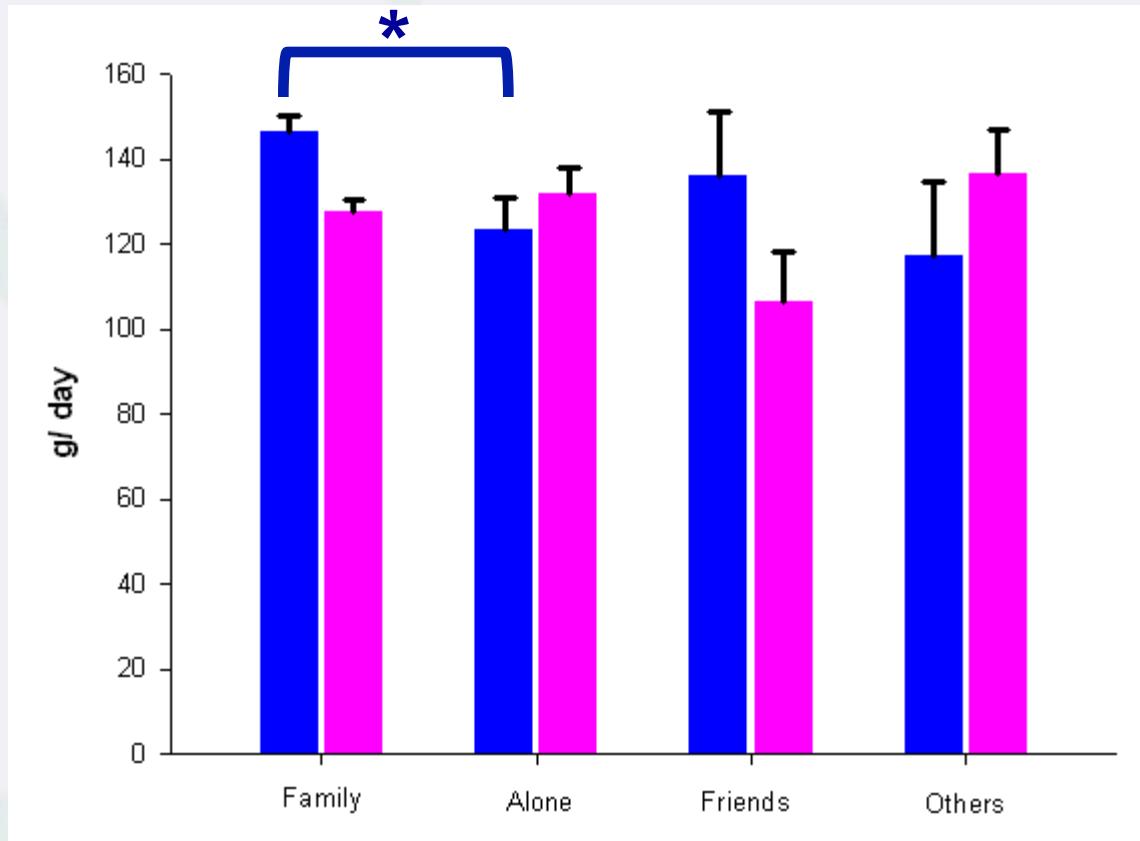
Milk intake by family dinner



Adjusted by: SES, Tanner stage and energy intake

Family dinner

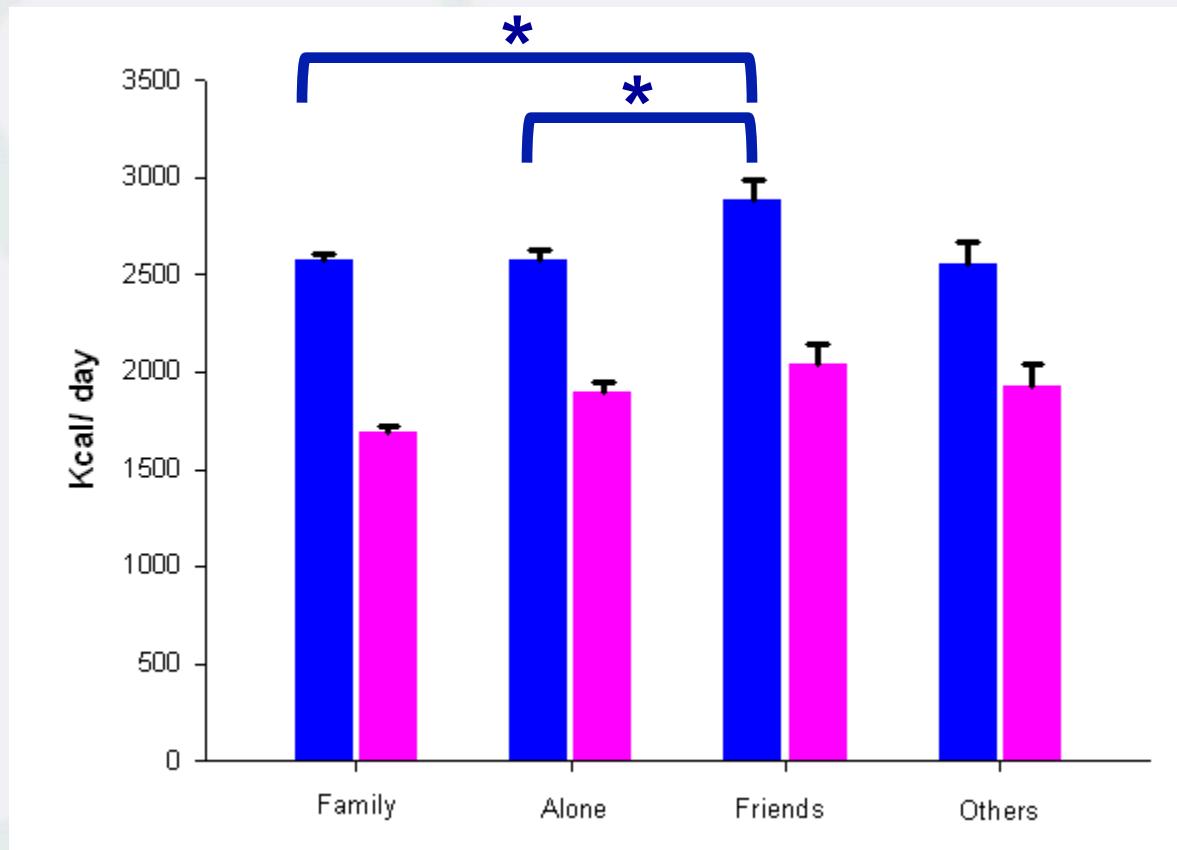
Dairy products intake by family dinner



Adjusted by: SES, Tanner stage and energy intake

Family dinner

Total daily energy intake by family dinner



Adjusted by: SES and Tanner stage



Index de qualité de la diète

Garçons

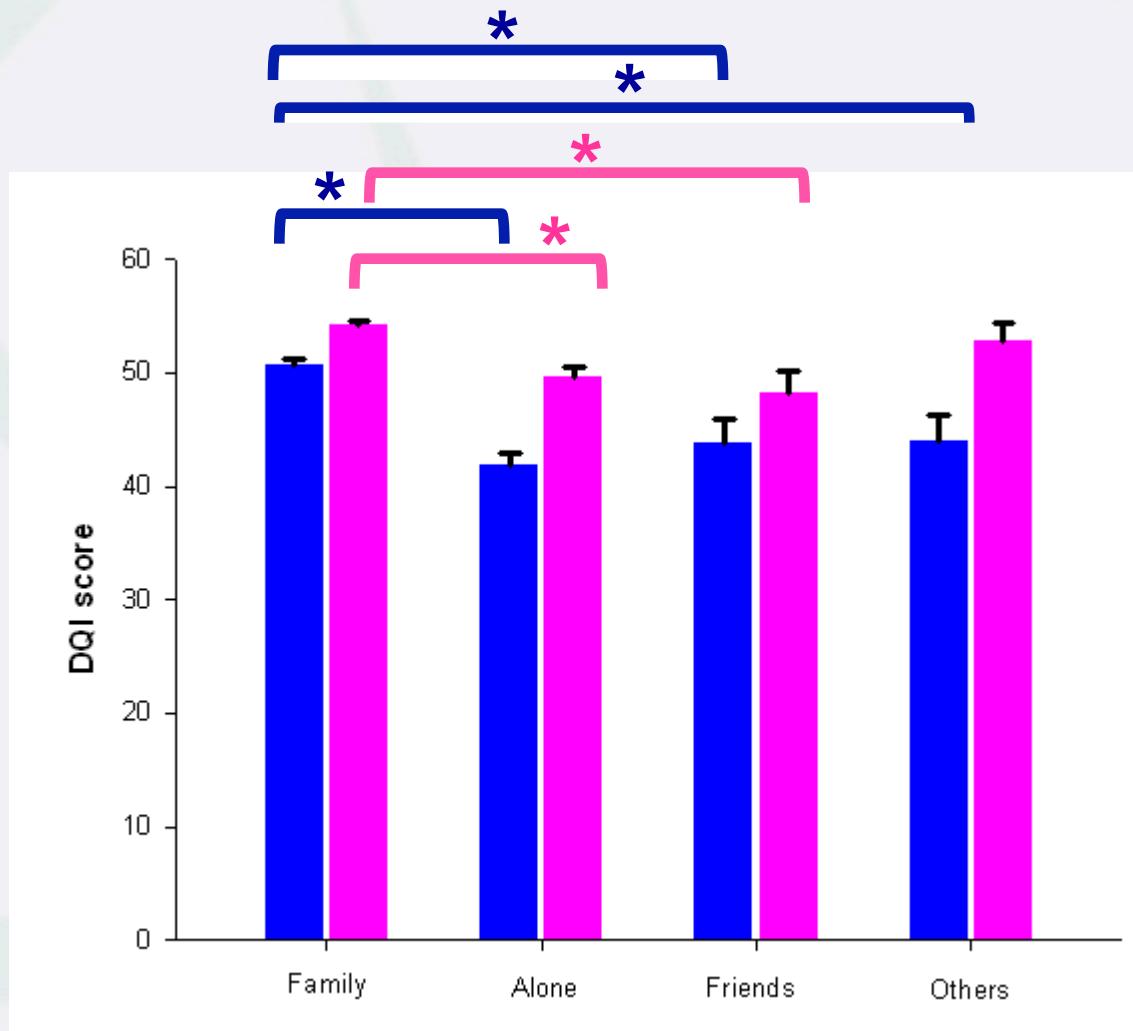
Index de qualité de la diète plus élevé quand le petit déjeuner, déjeuner et dîner étaient pris avec la famille, comparés avec ceux qui prenaient les repas seuls

Filles

Index de qualité de la diète plus élevé quand le déjeuner et dîner étaient pris avec la famille, comparés avec celles qui prenaient les repas seules

Adjusted by: SES, Tanner stage and energy intake

Diet quality index by family dinner



Adjusted by: SES, Tanner stage and energy intake

IMC, CC and IMG

Garçons

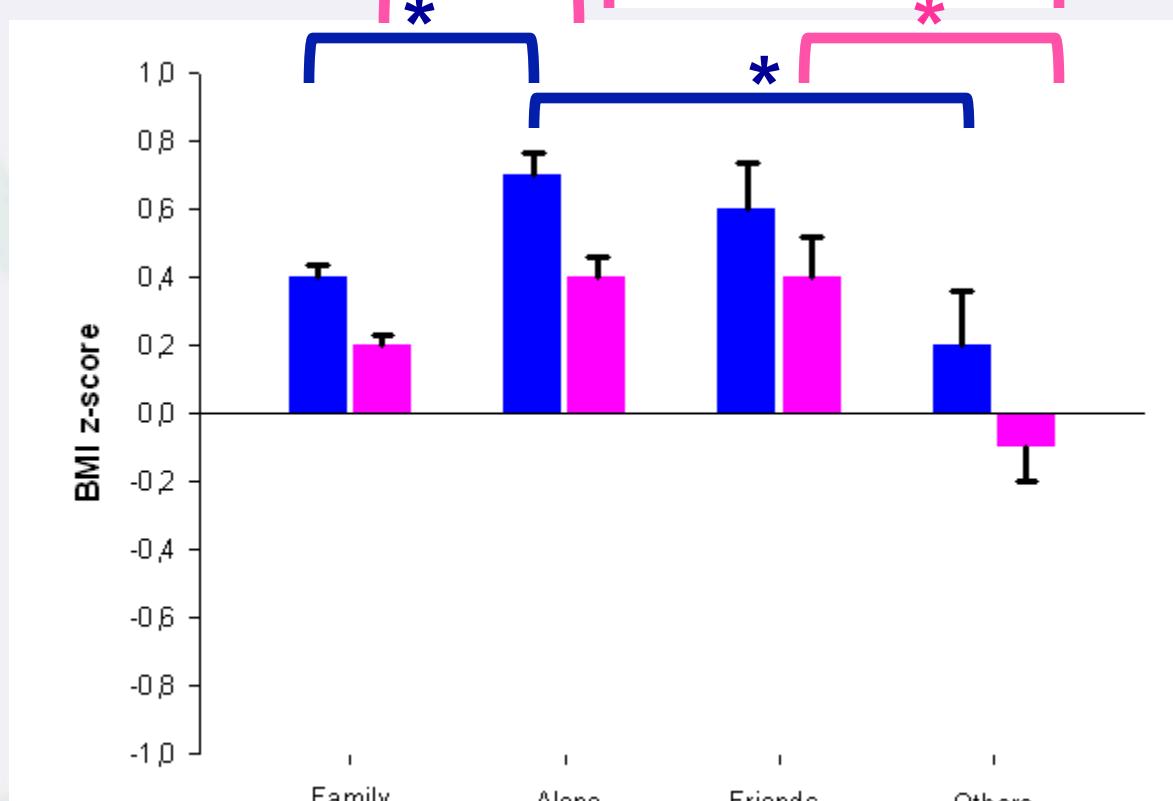
**Moins élevées chez ceux qui avaient le petit déjeuner,
déjeuner et dîner en famille, comparés avec ceux qui
prenaient les repas seuls**

Filles

**Moins élevées chez celles qui avaient le dîner en famille,
comparés avec celles qui prenaient le dîner seules**

BMI z-score by family dinner

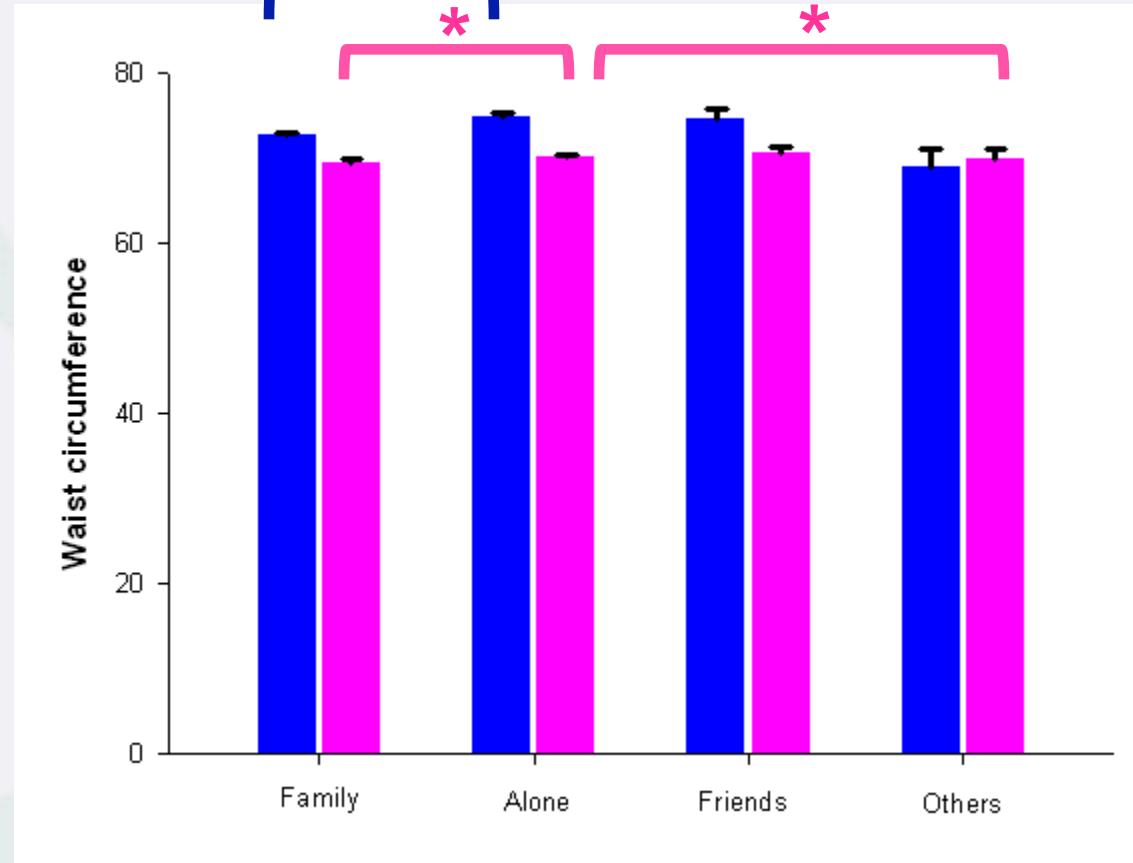
BMI z-score



Adjusted by: SES and Tanner stage

Waist circumference by family dinner

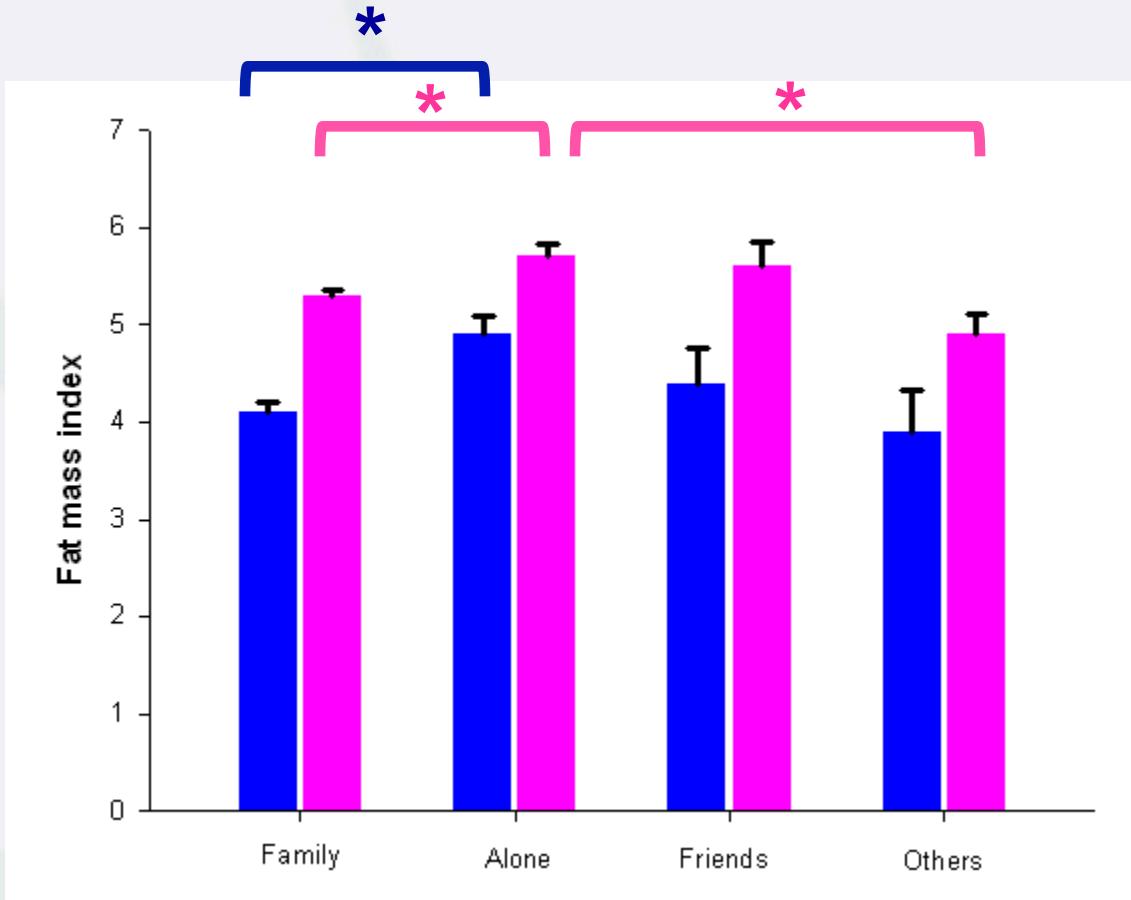
Waist circumference



Adjusted by: SES and Tanner stage

Fat mass index by family dinner

Fat mass index



Adjusted by: SES, Tanner stage

Conclusions



- **Chez des adolescents Européens, 50% consommaient le petit déjeuner avec la famille, 40% le déjeuneur, et 70% le diner**
- **La consommation alimentaire pendant la journée étais associée avec les repas avec la famille, spécialement chez les garçons et au moment du déjeuner et le diner**
- **Les garçons ayant le déjeuner/diner avec la famille avaient une consommation plus élevée de légumes, fruits, végétaux, eau, lait et produits laitiers et une consommation moindre de boissons sucrées et snacks, comparés avec les garçons ayant le déjeuner/diner tous seuls**

Conclusions



- Les garçons ayant le petit déjeuner/déjeuner/diner avec la famille ont une qualité de la diète (DQI) plus élevée si l'on compare avec ceux qui prenaient les repas seuls
- Les garçons ayant le petit déjeuner/déjeuner/diner avec la famille avaient des valeurs inférieures de IMC, circonférence de la ceinture et index de masse grasse, comparés avec ceux qui prenaient les repas seuls



 **Healthy Lifestyle
in Europe
by Nutrition
in Adolescence**

 **Sixth Framework
Programme 2002 - 2006**

[The Project](#) [Research Groups](#) [Participating Adolescents](#) [News & Events](#) [Public Documents](#) [Staff Login](#) [Links](#)



What is HELENA?

Healthy Lifestyle in Europe by Nutrition in Adolescence

Adolescence is a crucial period in life and implies multiple physiological and psychological changes that affect nutritional needs and habits. The HELENA proposal includes cross-sectional, crossover and pilot community intervention multi-centre studies, as an integrated approach to the above-mentioned problem.

[Learn more here...](#)

European Research Portal



Researchers come together to study European adolescent's nutritional status...

[Guide to researches...](#)

Coming Events



Be part of our next event.

[Join our next event...](#)

Adolescent Community



- Assess your diet
- Assess body weight
- Improve your diet
- Improve your physical activity

[Play with us...](#)

© 2005 HELENA All Right Reserved

002935

Designed by  micemultimedia

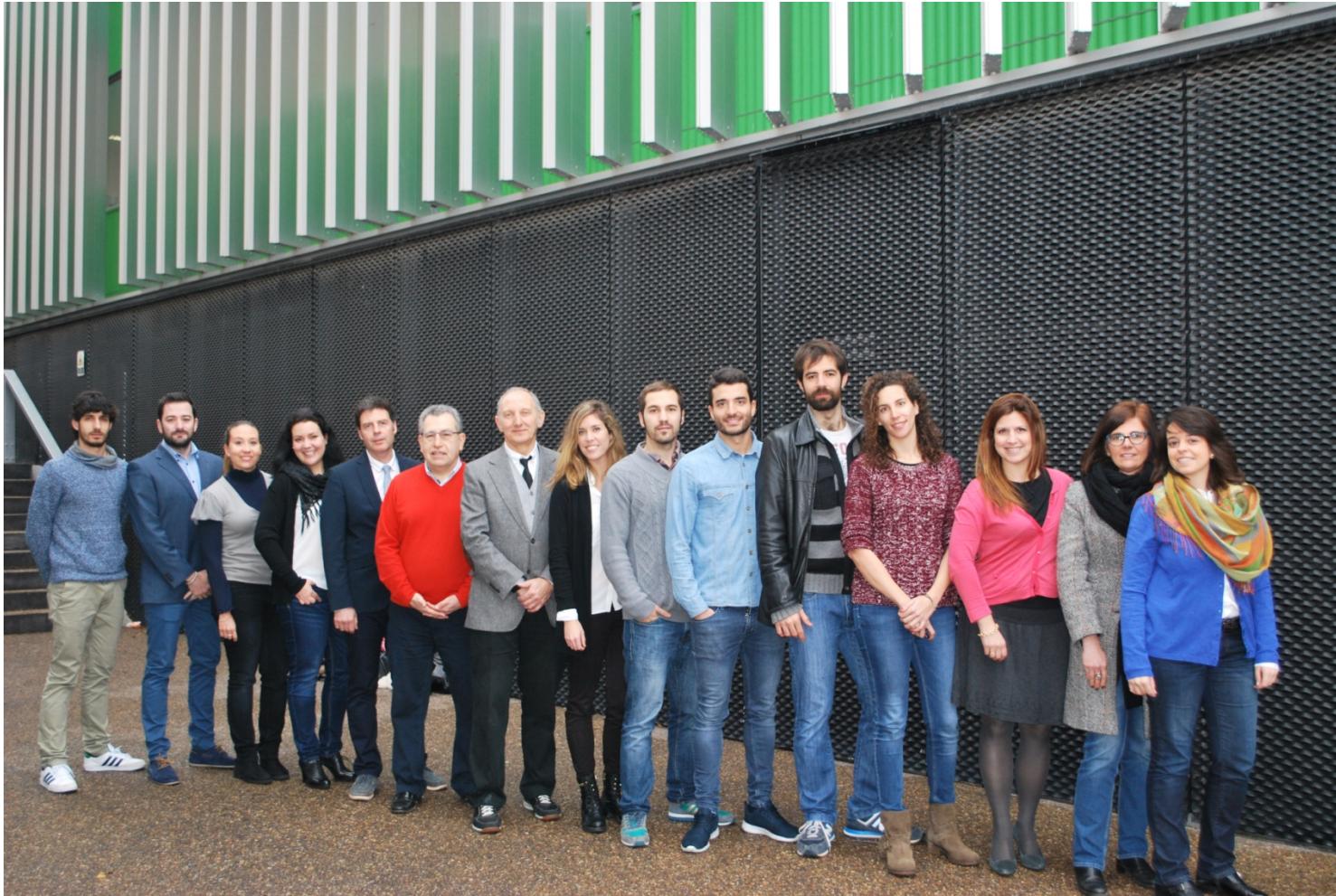
www.helenastudy.com



Acknowledgement



GENUD Research Group
Growth, Exercise, NUtrition and Development
Universidad Zaragoza



Luis A. Moreno Aznar
GENUD Research Group

imoreno@unizar.es
Universidad de Zaragoza



Universidad
Zaragoza

Family breakfast

Males

Higher intake of fruits and vegetables and lower intake of sugar sweetened beverages in the family group, when compared with breakfast alone

Females

Higher intake of fruits in the family group, when compared with breakfast alone

Adjusted by: SES, Tanner stage and energy intake

Family lunch

Males

Higher intake of legumes, fruits, vegetables, water, milk and milk products and lower intake of sugar sweetened beverages and snacks in the family group, when compared with lunch alone

Females

Higher intake of water in the family group, when compared with lunch alone

Adjusted by: SES, Tanner stage and energy intake

Diet quality index

Males

Higher DQI for breakfast, lunch and dinner in the family group, when compared with meal occasion alone

Females

Higher DQI for lunch and dinner in the family group, when compared with meal occasion alone

Adjusted by: SES, Tanner stage and energy intake

BMI, WC and FMI

Males

**Lower for breakfast, lunch and dinner in the family group,
when compared with meal occasions alone**

Females

**Lower for dinner in the family group, when compared with
meal dinner alone**



Conclusions



- In European adolescents 50% were consuming breakfast with the family, 40% at lunch and 70% at dinner
- Food consumption during the day was related with family meals, specially in males and at lunch and dinner times
- Male adolescents having lunch/dinner with the family had higher intake of legumes, fruits, vegetables, water, milk and milk products and lower intake of sugar sweetened beverages and snacks in the family group, when compared with having lunch/dinner alone

Conclusions



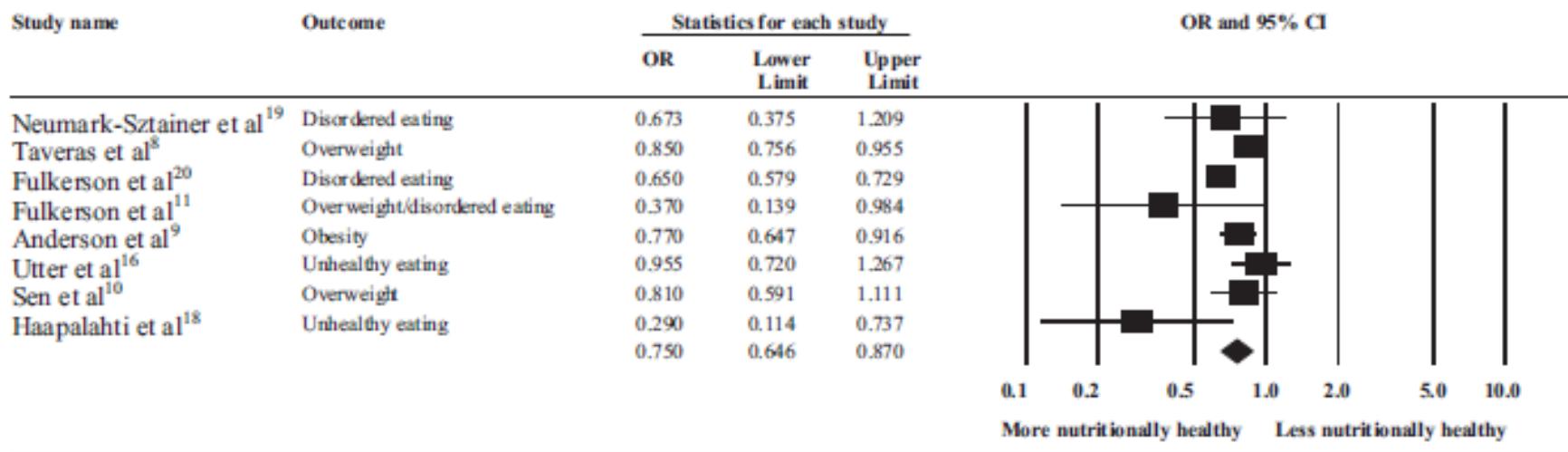
- Male adolescents having breakfast/lunch/dinner with the family had higher DQI, when compared with having meal occasions alone
- Male adolescents having breakfast, lunch and dinner with the family had lower BMI, waist circumference and fat mass index, when compared with having that meal occasions alone

Studies that examined ≥ 5 versus ≤ 1 meals



GENUD Research Group
Growth, Exercise, NUtrition and Development
Universidad Zaragoza

Is Frequency of Shared Family Meals Related to the Nutritional Health of Children and Adolescents?

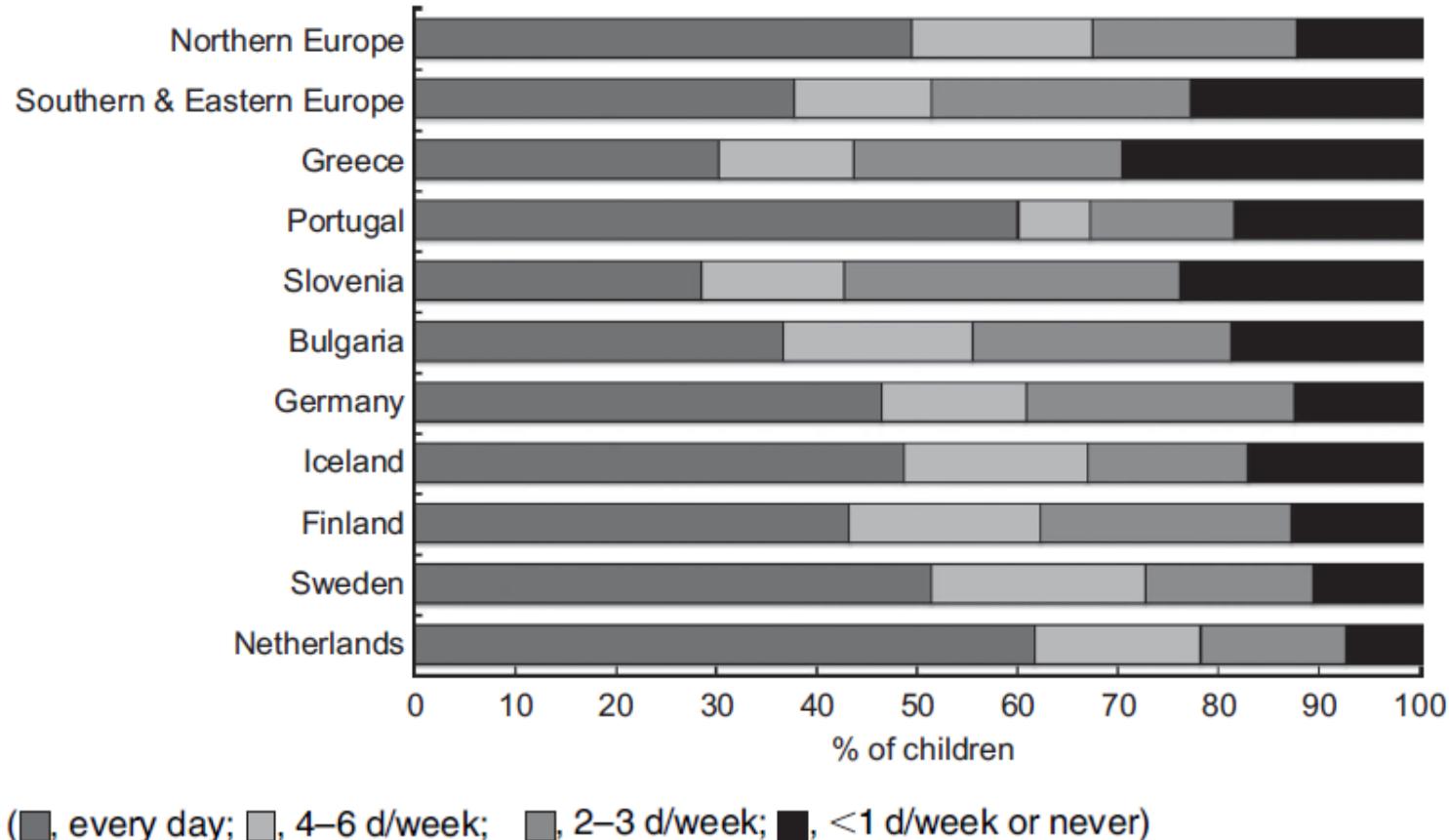


(Hammons AJ, Fiese BH. Pediatrics 2011; 127: e1565-1574)

Eating breakfast together with their family in 11-year-old children in Europe. PRO GREENS project



GENUD Research Group
Growth, Exercise, NUtrition and Development
Universidad Zaragoza



(Roos E et al. Public Health Nutr 2014; 17: 2528-2536)

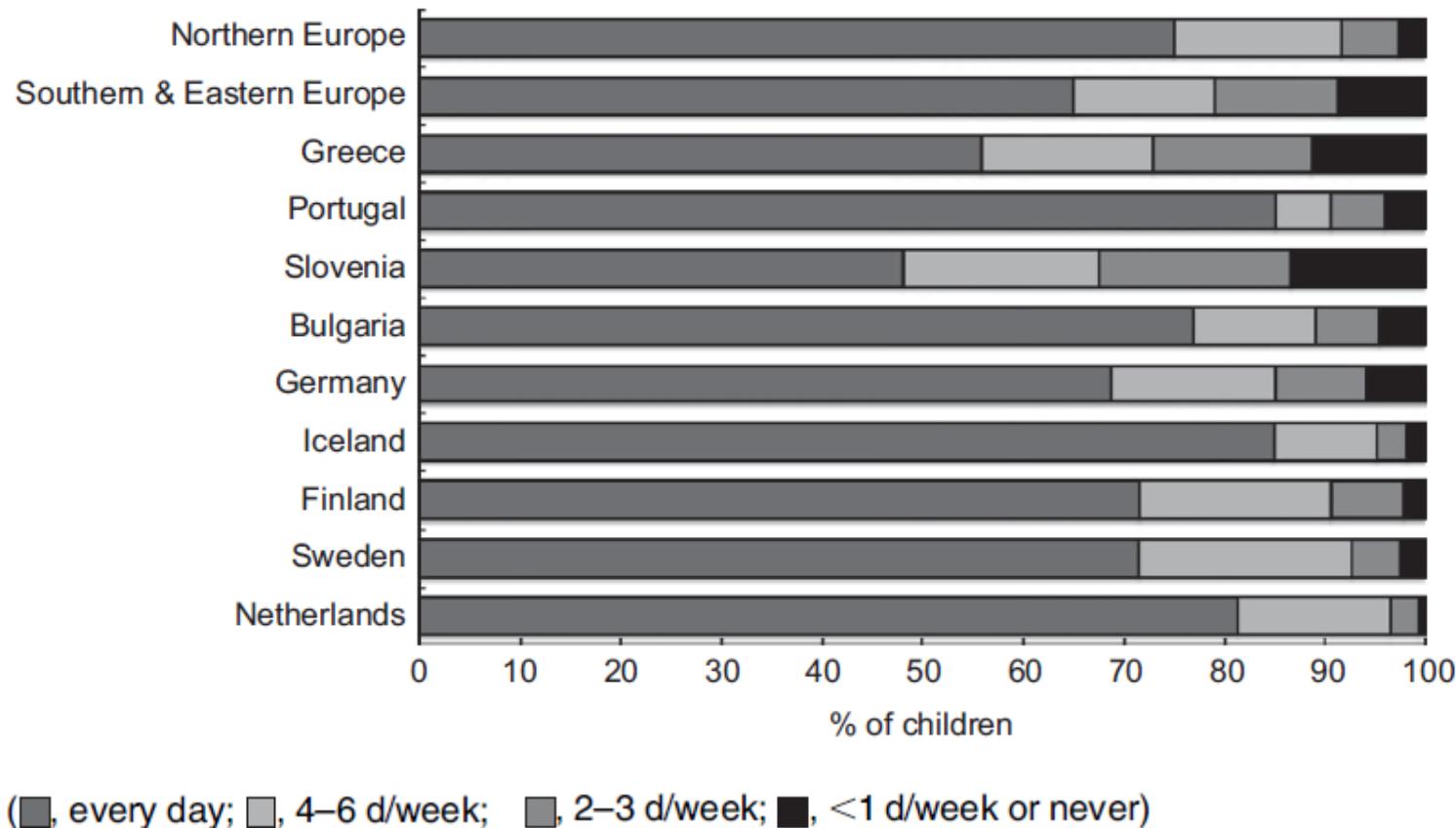
Luis A. Moreno Aznar
GENUD Research Group

lmoreno@unizar.es
Universidad de Zaragoza

Eating dinner together with their family in 11-year-old children in Europe. PRO GREENS project



GENUD Research Group
Growth, Exercise, NUtrition and Development
Universidad Zaragoza



(Roos E et al. Public Health Nutr 2014; 17: 2528-2536)

Diet Quality Index (DQI)

Quality Diversity Adequacy Excess Equilibrium

FBDG		DQI-A components				
FG	Recommended daily intake	DQ	DD	DA	DEx	DE
Recommended foods						
Water	1500–2250 ml					
Bread and cereal	150–360 g					
Potatoes and grains	210–350 g	DQ = amount consumed food item (m) × weighting factor	DD = 1 point for each FG if at least one serving is consumed	DA = actual intake FG/minimum recommended FG	DEx = (actual intake FG – maximum recommended FG)/maximum recommended FG	
Vegetables	300–450 g			Values >1 were truncated to 1		
Fruits	250–375 g					
Milk products	450–600 ml					
Cheese	20–40 g					
Meat, fish and substitutes	75–100 g	Weighting factor: + 1 'preference group' 0 'intermediate group' - 1 'low-nutrient, energy-dense group'				DE = DA – DEx
Fat and oils	10–15 g				Values > 1 were truncated to 1; values < 0 were truncated to 0	
Non-recommended foods						
Snacks and candy	<50 g					
Sugared drinks and fruit juice	<300 ml					
Score of components		$\Sigma(DQ)/\Sigma m \times 100 \%$	$\Sigma(DD)/9 \times 100 \%$	$\Sigma(DA)/9 \times 100 \%$	$\Sigma(DEx)/11 \times 100 \%$	$\Sigma(DE)/11 \times 100 \%$
DQI-A score		(Dietary quality + dietary diversity + dietary equilibrium)/3				

FBDG, food-based dietary guidelines; FG, food groups; DQ, dietary quality; DD, dietary diversity; DA, dietary adequacy; DEx, dietary excess; DE, dietary equilibrium

*Further details on 'preference group', 'intermediate group' and 'low-nutrient, energy-dense group' can be found in Table 2.

(Vyncke K et al. Br J Nutr 2013; 109: 2067-2078)