

**DANONE INSTITUTE***Nutrition for Health*

Exploring the role of family in nurturing healthy eating habits

3rd International Conference on Nutrition & Growth

18th March 2016, Vienna





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Exploring the role of family in nurturing healthy eating habits

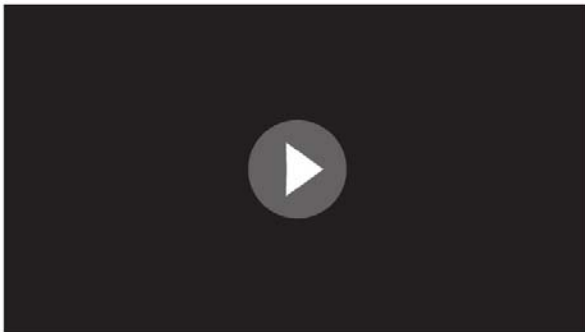
3rd International Conference on Nutrition & Growth
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About

Danone Institute International

The Danone Institute International gathers a network of 16 Danone Institutes. The Danone Institutes are present in 19 countries and gather around 200 experts from around the world including: nutritionists, paediatricians, gastroenterologists, scientists and sociologists.

The Danone Institute International's mission is to promote human health by developing and disseminating knowledge about the links between food and human health, and to highlight the importance of nutrition in human health with a focus on yoghurt, among other food groups.



"the DII [Danone Institute], it is a very important non-profit organisation, aiming to really promote health all around the world through feeding and nutrition"

Professor Olivier Goulet

Foreword

Professor Olivier Goulet

The symposium set out to consider the role of parental modelling and family meals within eating practices.

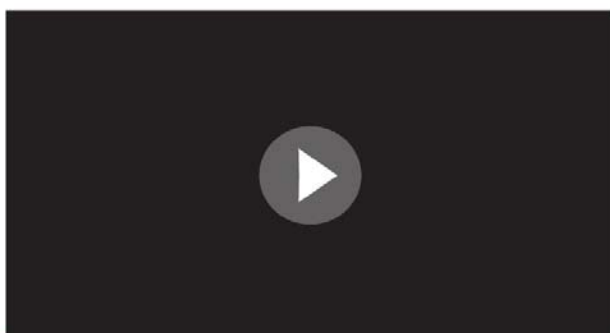
Eating practices vary enormously around the world. A strong body of empirical evidence has demonstrated that children's dietary intake and eating behaviors are influenced by a multitude of interacting factors including community and society, family and home.

Research evidence indicates that family-related factors are the strongest correlates of weight-related outcomes in children and that the home environment plays a particularly important role in shaping children's habits, including eating behaviors.

Parents, as key gatekeepers, strongly influence the physical and social home environment through their behaviors. They have the opportunity to positively influence their child's weight status through role modeling of healthful eating and physical activity behaviors, provision of healthful food choices within the home environment, and establishment of family norms around consistent meal and snack patterns, including regular and frequent consumption of family meals.

Role modelling has been shown to positively affect eating practices, leading to significant health benefits and also prevents undesirable eating practices.

The symposium considered the idea that we are at the very early stages of exploring (reviewing and studying) the role of family on nurturing healthy eating habits.



"the past is the past...the goal is not to go back to the past, it is to try to analyse or challenge and to try to adapt the modernity or good practice to the modern life"

“family meals are an old practice, but a new concept”

Professor Olivier Goulet

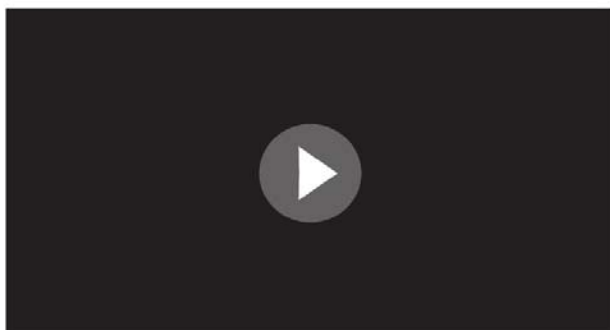
The symposium aimed to:

- Address the question – what are the benefits of family meals?
- Offer guidance on how families can positively influence eating practices
- Promote diversity in feeding and appropriate feeding

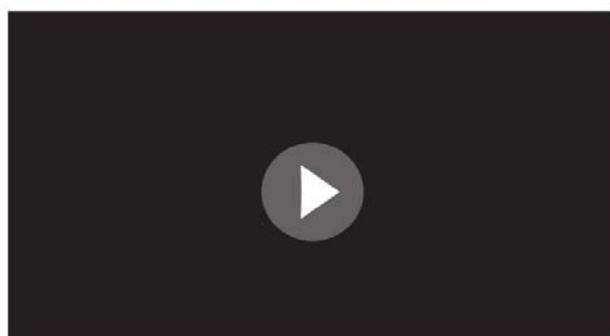


Helping parents to model healthy eating habits

Professor Jayne Fulkerson



"...what can we do to help parents help their children eat healthier and maintain a healthy weight?..."



"We have seen that when parents role model healthy eating that their children are more likely to meet dietary recommendations"

Parents have the opportunity to positively influence the eating behaviors of children, by serving as role models with regard to eating behaviors and deciding which foods are available within the home environment.

Parents have the opportunity to create a positive eating environment through: encouraging 'healthful' eating at home, changing the home food environment to make healthful foods available and serving healthful foods as meals and snacks. Behaviorally parents can both tell children what to eat and role model healthy eating. Some parents may directly influence their children's eating habits by pressuring them to eat by telling them they need to finish their meal or clean their plate.

However, there are some more covert methods where parents only allow healthy foods in the home for both children and adults. This method avoids the parents having to give messages verbally and allows children to see their parents eating healthy foods as the 'norm'.

As children get older and move into adolescence, they gain greater control of their own food intake however, they still eat many of their meals and snacks at home. Whilst the importance of healthy eating habits is multi-factorial, the fact that children eat many of their meals at home is of interest in the area of obesity prevention.

Importance of Obesity Prevention in the Home:

- School-based efforts may not be as effective if the home environment is not conducive to change
- Dietary change conducive to family intervention because children eat many of their meals and snacks at home
- Parents are influential in role modeling and as the decision makers regarding the home environment



The HOME Plus Study

The HOME Plus Study is the first family meals-focused obesity prevention program to date with rigorous evaluation using a randomized controlled trial (RCT) design.^{1,2} The aim was to test the efficacy of the family-based program that provided environmental intervention to prevent excess weight gain amongst 8-12 year old children.^{1,2}

The study showed no significant differences in BMI z-scores between the control group and the intervention group. However, significant differences in BMI z-scores were seen between the prepubescent intervention group and the control group.²

Because of HOME Plus... Parent & Child Reported:

Beyond the primary endpoint, some interesting observations were made surrounding role modelling for parents in regards to nutrition.^{2,3}

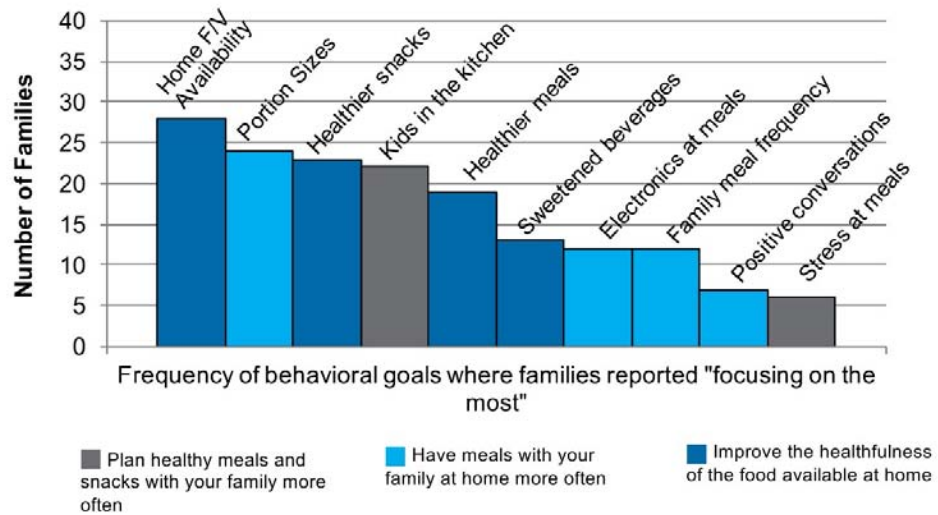


- Being more aware of portion sizes
- Their child is more aware of his/her portion sizes
- Their child is more open to trying new foods



- Being more willing to try new foods
- Eating more fruits and vegetables
- Eating healthier foods

Behavioral Goals Selected by Families³



Adapted from: Draxten M et al., Health Commun. 2016

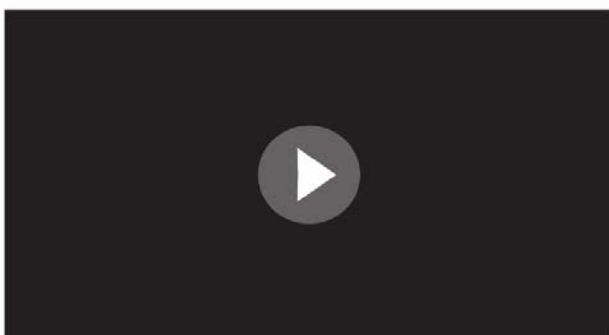
These observations highlight how healthcare professionals have a real opportunity to help parents and children develop improvements in eating behaviors.

Parents need guidance with:

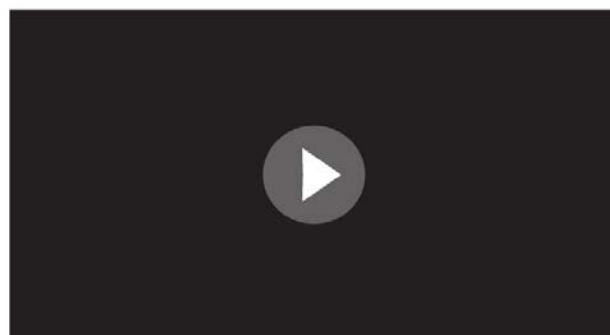
- how to talk about eating habits with their children in a positive and encouraging way
- how to help their children take an active role in food preparation

Children need:

- direct messages to motivate them to change to more healthful eating habits
- suggestions on how to talk with their parents to achieve their goals
- hands-on methods and real-world experiences to solidify and maintain behavior change



"It is important to understand the family's starting point to be able to help them make the small changes and feel more confident."



"Family meals are a vehicle for helping parents and children work together to eat better as a family and maintain healthy weights over time."



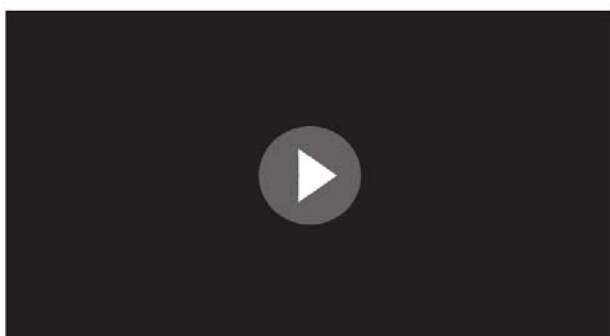
Conclusion

- Role modelling is particularly important during snack times, given the increasing trends over recent decades
- Emphasis on learning appropriate portion sizes is key for both parents and children
- Focusing on family meals may potentially prevent excess weight gain, especially in younger children

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

ESPHAN Committee on Nutrition

One of the objectives of the HELENA (healthy lifestyle in Europe by nutrition in adolescence) cross sectional study was to establish if differences in eating modalities and meal structures affect dietary and weight outcomes.⁸ The results from the family meals section of the HELENA study are due to be published shortly.



“The HELENA study provides associations between family meals and health indicators in European adolescence.”

The study utilized the diet quality index (DQI) to assess the nutrient quality of the meals reported in the study, which considered three main criteria⁹:

1. Dietary quality expressed whether the adolescent made the optimal food quality choices within a food group
2. Dietary diversity expressed the degree of variation in the diet
3. Dietary equilibrium was calculated from the difference between the adequacy component and the excess component

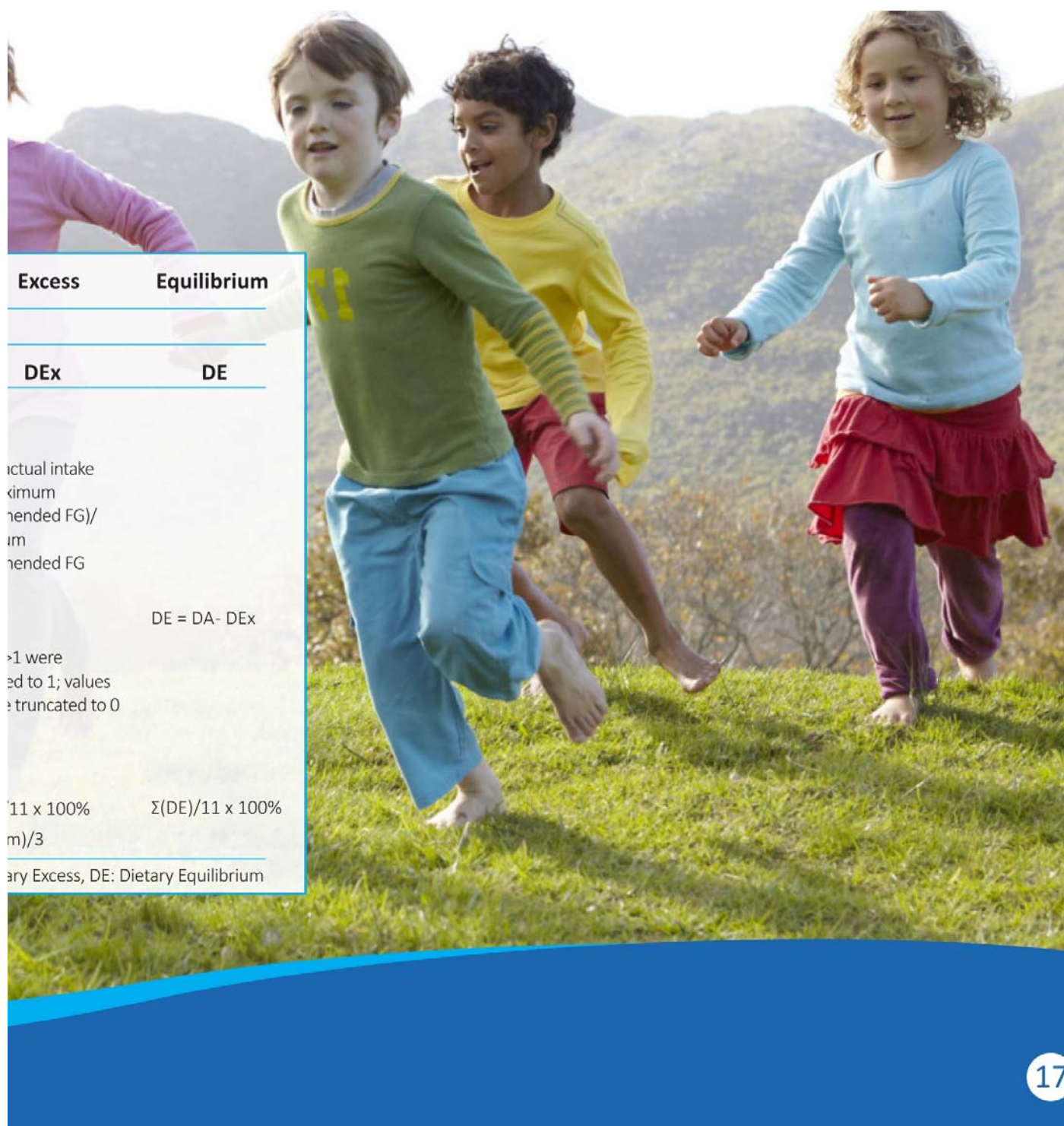
Diet Quality and Family Meals⁹

The DQI also assessed the adequate consumption of the nine recommended food groups as shown below.

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

FBDG: Food Based Dietary Guidelines, FG: Food Groups, DQ: Dietary Quality, DD: Dietary Diversity, DA: Dietary Adequacy, D

FBDG: Food Based Dietary Guidelines, FG: Food Groups, DQ: Dietary Quality, DD: Dietary Diversity, DA: Dietary Adequacy, D

**Excess****Equilibrium****DEx****DE**

Actual intake
Maximum
Dietary Excess (DE)/
Maximum
Dietary Excess

$$DE = DA - DEx$$

Values >1 were
truncated to 1; values
<0 were truncated to 0

$\Sigma(DEx)/11 \times 100\%$
(mm)/3

$\Sigma(DE)/11 \times 100\%$

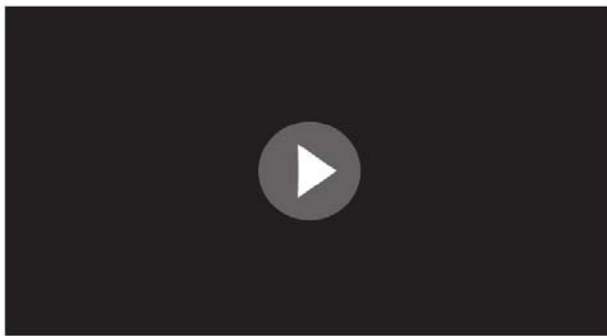
Dietary Excess, DE: Dietary Equilibrium

Food group intake⁹

The study also assessed how different food group consumption at the family dinner contributes to the DQI, when compared to other dinner consumption modalities.⁹ These results will be published soon.

Family meals and body composition⁹

The HELENA study will demonstrate how the differences in dinner modality affect body composition.



"We should recommend promoting family meals because this is a positive strategy for achieving good health indicators."



Conclusion

- There is significant diversity across Europe in relation to diet, eating customs and the frequency of family meals.
- Current research suggests that there are benefits of sharing 3 or more family mealtimes per week; including a lower propensity for overweight, eating unhealthy foods and disordered eating as well as an increase in eating healthy foods.⁵
- Longitudinal studies show an inverse association between childhood obesity and frequency of family meals.⁶
- Some associations have been found between television viewing during dinner and overweight in some European countries.⁷
- One of the aims of the HELENA study is to establish if differences in eating modalities and meal structures affect dietary and weight outcomes.⁹ The results of this part of the study are due to be published later this year.

The benefits of family meals

Professor Jess Haines

Family meals have the potential to offer many benefits to the family and members:

- Consistency/stability
- Augmentation of family cohesion
- Parental modeling – dietary intake, communication, manners
- Healthier food options

However, it is important to question what evidence exists to demonstrate these benefits, how strong the data are and what is the quality of the family meal?

Evidence

There is a significant body of literature to support the benefit of family meals. However, it should be noted that most of the evidence is self-reported, epidemiologic and is based on dinner alone. The data can be broken down into five core measurable areas; dietary intake and weight/BMI, psychosocial, risk behavior and academic outcomes.

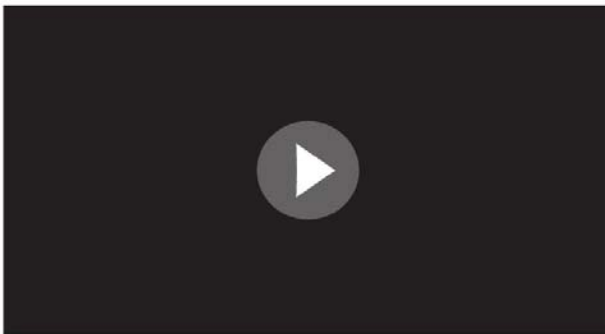
Dietary intake

The effects of family meals on dietary intake can be demonstrated through many studies including a meta-analysis from which we can draw conclusions.¹¹ The frequency of family meals have been shown to be associated with a higher intake of important dietary constituents including protein, fibre, calcium, iron, folate and vitamins (A, B6, B12, C and E). Particularly noteworthy is the association between family meals and the intake of nutrient dense foods.

Family meals are positively associated with healthful dietary habits:

- frequency of breakfast consumption
- higher servings of fruit and vegetable
- higher servings of dairy




Adolescents whose families had family meals at least three times per week had a 24% higher odds of demonstrating these healthful dietary habits (OR: 1.24, 95% CI 1.13, 1.37).



"youth who sit down and enjoy meals with their family, have better dietary intake... We also know that adolescents and children who eat family meals or have meals with their families, are less likely to eat unhealthy foods"

Additionally it has been shown that not only do family meals provide positive eating habits, but they also reduce negative eating habits:

Family meals are inversely associated with unhealthy dietary habits:

-  intake of fast food
-  intake of sugar-sweetened beverages
-  Intake of fried foods; saturated and trans fats

Adolescents whose families had family meals at least 3 times per week had 20% lower odds of having these unhealthy dietary habits (OR: 0.80, 95% CI 0.68, 0.95).

Boys (but not girls) who had daily family meals were more likely to have lower scores for an “energy dense” eating pattern and high sugar-sweetened beverages¹²

The same meta-analysis used for dietary intake has also explored weight and BMI associations with family meal frequency, but, demonstrated inconclusive results.¹¹ However the HELENA study outlined earlier does offer some insight in this area.⁹

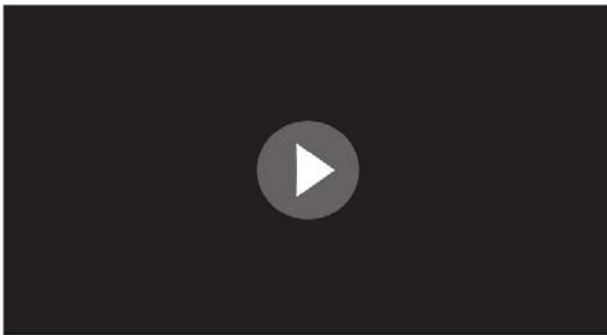
Perhaps some of the most interesting evidence reviewed was the work by Larson et al which demonstrated that those adolescents partaking in more regular family meals demonstrated improved eating habits on a long-term basis into adulthood, with improved intake of nutrient rich dense foods such as vegetables and dairy.¹³

The quality of the family meal

Whilst the frequency of family meals is important, the context of family meals must also be reviewed, as there is some evidence to suggest that adolescents who watch TV during meals had poorer dietary intake¹⁴ and increased risk of becoming overweight.¹⁵ Other screens such as cell phones and tablets were also associated with less healthful foods offered and lower scores on family communication.¹

The work status of the parents also affects the frequency of family meals. Full-time employed mothers report significantly fewer family meals per week and were more likely to have fast food and spend less time preparing food.¹⁶ Higher levels of work-life stress were associated with fewer family meals and more frequent fast food intake.¹⁶

There is some evidence to suggest that the frequency of family meals has reduced over time and is continuing to fall.^{17,18}



"I think it's important as we move forward in our research to be thoughtful about what does constitute a family meal for families?"



Psychosocial benefits

Psychosocial benefits demonstrated by higher frequency of family meals:

- Depressive symptom risk has been shown to be reduced in three cross sectional studies¹⁹⁻²¹
- A lower risk of suicidal ideation (two studies)^{19,20}
- A lower risk of body dissatisfaction and concern about body weight (1 cross sectional and 1 longitudinal study)^{22,23}
- Increased self-esteem (two studies, one study showing benefit in females only)^{19,20}
- Among females, there is a fairly consistent association with lower extreme weight control (diet pills, self-induced vomiting, use of laxatives), less extreme weight control (eating very little food, fasting), binge eating, and chronic dieting (five cross sectional and four longitudinal studies)

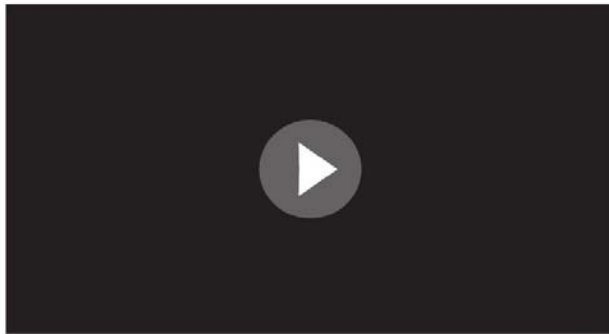
Risk behavior

When considering high risk behavior, substance abuse (tobacco, marijuana, alcohol, and illicit drugs) has shown to be associated with the frequency of family meals in females in eight studies, although the results are inconsistent for males. However, a consistent inverse relationship between family meals and violence has been observed across both genders.



Academic achievement

Academic achievement has been explored in two cross sectional studies. Frequent family meals were positively associated with a higher commitment to learning in both genders and a higher grade average in females only.^{19,20}



"...there certainly is some strong evidence that suggests that family meals are protective for a number of things, for youth which is exciting, but there is also some really key gaps or opportunities for future research."

Conclusion

- Family meals have been associated with a range of positive outcomes, both dietary and psychosocial
- Levels of distraction during family meals can affect the dietary intake
- The work status of the parents can also affect the frequency of family meals and the quality of food provided
- Future research is required to gain a better understanding of the role and types of the family meal, the different intervention points and the factors that affect healthy eating







Summary

Family meals can positively influence:

- Quality of food consumption
- Weight and BMI outcomes
- Reduced TV and other screen time
- Psychosocial outcomes
- Self-esteem, violence, depression, abuse
- Academic achievements

Evidence considerations:

- The majority of research is observational
- The exact definition of family meal is not agreed
- The current evidence concentrates on dinner and sitting and eating
- There is a need for adjustment for general family factors (including socio-economic and cultural factors)

Immediate actions for HCPs:

- Children should have four meals a day
- Regular family meals should be encouraged
- Nutritionists and care givers should be active in promoting family meals and the role of parents should be recognized

In the future:

- Parental 'modelling' should be taught
- Analyse the differences between:
 - Countries and continents
 - Gender

Further reading

Promoting healthful family meals to prevent obesity: HOME Plus, a randomized controlled trial

<http://www.ncbi.nlm.nih.gov/pubmed/26667110>

The HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence) Study

<http://www.helenastudy.com/>

Biographies



Professor Olivier Goulet

Olivier Goulet is a Professor of Pediatrics at the University of Paris-Cité-Sorbonne and Paris Descartes Medical School. He is currently the Chairman of the Department of Pediatric Gastroenterology-Hepatology-Nutrition at the University Hospital Necker-Enfants Malades in Paris. He leads the National Reference Center for Rare Digestive Diseases. He is a European pioneer of pediatric intestinal transplantation, first attempted by his group in 1987. He was member of the Committee of Nutrition of the European Society for Pediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) from 1998 until 2008 and is a member of the Committee of Nutrition of the French Society of Pediatrics. He was the President of the 2nd World Congress of Pediatric Gastroenterology, Hepatology and Nutrition held in Paris in July 2004.

Professor Goulet has been involved for more than three decades in the field of infant nutrition and clinical nutrition with a specific interest in intestinal failure management. He is also interested in gut immunology and intestinal microbiota. Olivier Goulet has published over 315 papers referenced in Pubmed database. Most of these are original papers in English and other are reviews.

As a member of the French Danone Institute since 2010, Professor Goulet was coopted as a member of the Danone International Institute (DII) in 2013 and subsequently elected as President in January 2016. As the new President of the DII, he wishes, with his distinguished colleagues, to develop a new topic involving food habits in children for good health for their life. Therefore, the Nutrition and Growth Congress is a great opportunity to introduce this very interesting and challenging topic.



Professor Jayne Fulkerson

Professor Jayne Fulkerson is a Professor in the School of Nursing at the University of Minnesota. She received her PhD in Psychology in 1997 from the University of Minnesota. Her research and teaching focus on family-based health promotion in community settings. She is currently conducting observational and clinical trial research and developing programs for childhood obesity and diabetes prevention, particularly through the home food environment and family meals. Her current funded research includes an NIH-funded R01 entitled, "Healthy Home Offerings via the Mealtime Environment (HOME) Plus." HOME Plus is a family-based randomized controlled trial (n=160 families of 8-12 year-old children) that aims to reduce childhood obesity by actively engaging the whole family in promoting healthful behaviors in the home. Professor Fulkerson has also received funding to develop and pilot test a similar program for children at risk of developing diabetes called "Families Preventing Diabetes Together". She has published extensively in Public Health, Psychology, Nutrition, Family and Adolescent Health scientific journals. Her research focus synergizes with her role as the Director of the Center for Child & Family Health Promotion Research.



Professor Luis Moreno

Professor Luis A. Moreno is Professor of Public Health at the University of Zaragoza (Spain). He is also Visiting Professor of Excellence at the University of Sao Paulo (Brazil). He completed his training as Medical Doctor and his PhD thesis at the University of Zaragoza. He studied Human Nutrition and Public and Community Health at the University of Nancy (France). He has participated in several research projects supported by the Spanish Ministry of Health and the European commission (HELENA, IDEFICS, EURRECCA, ENERGY, ToyBox, iFamily and Feel4Diabetes). He has published more than 450 papers in peer reviewed journals. He is the coordinator of the GENUUD (Growth, Exercise, Nutrition and Development) research group, at the University of Zaragoza. He is a former member of the ESPGHAN Committee of Nutrition, current President of the Spanish Nutrition Society and President of the Danone Institute of Spain.



Professor Jess Haines

Professor Jess Haines, PhD, MHSc, RD is an Associate Professor in the Department of Family Relations and Applied Nutrition at the University of Guelph in Canada. Professor Haines's current research is focused on developing and testing family-based interventions aimed at promoting healthful behaviors among preschool-aged children. Along with colleagues at Harvard, she led a study which found that a home-based intervention that targets routines associated with obesity risk, i.e., family meals, sleep, activity and screen time, can improve weight status in preschoolers. She is currently testing a similar intervention among Canadian families with young children through the "Guelph Family Health Study". Professor Haines is also the Director of the Parent-Child Feeding Laboratory. The overarching goal of the laboratory research is to identify how parent-child feeding interactions influence children's eating behaviors.

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