



KELLOGG NUTRITION SYMPOSIUM 2007

Brought to you by the Team of Registered Dietitians & Nutrition Professionals at *Kellogg's*

Inspiring Strategies and Solutions to Shape Healthy Eating for Canadians

Highlights of the 2007 Kellogg Nutrition Symposium

Presented in conjunction with the Dietitians of Canada Conference in Vancouver, BC, Friday June 8th, 2007.

Christine Lowry, MSc, RD

Vice President, Nutrition and Corporate Affairs, Kellogg Canada Inc.

At Kellogg's we see our role as partners along with dietitians and other health professionals dedicated to working collaboratively toward strategies and solutions to support healthy eating and living practices. This year's Kellogg Nutrition Symposium brought together key stakeholders to do just that. Our panel of highly esteemed

speakers shared their expertise on three key areas to inspire new solutions and strategies to benefit Canadians:

1. The role of parents in helping children to develop healthy lifestyle behaviours.
2. Preliminary nutrition findings from the Canadian Community Health Survey.
3. Current science on the role of protein and fibre in satiety and weight management.

Moms and Dads Just Know

Jennifer O. Fisher, PhD

Assistant Professor of Paediatrics, Baylor College of Medicine, Houston, TX

Caregiving Influences on the Development of Eating Behaviour

Eating behaviour is a matter of nature and nurture

Evidence from the last few decades indicates that children's eating behaviour is influenced both by genetics and their environment. For example, young children are much better at self-regulating energy intake when consuming lunch after a preload in the absence of adult intervention, compared to their mothers.¹ However, marked increases in childhood obesity seen in recent decades demonstrate the powerful role of the environment on children's health.

Children are born with an innate sense of taste

Infants have an innate sense of taste, including a preference for sweet and sour and a rejection of bitter tastes. A recent study found that a gene responsible for variation in children's taste sensitivity that may explain why children have a stronger dislike of bitter tasting vegetables than others.²

Preferences develop through repeated exposure to foods

Research shows that children develop a preference for foods that they are served repeatedly and less preference for unfamiliar foods.³ Preschoolers that tasted a previously disliked vegetable each day for two weeks had significantly higher preferences and intakes compared to controls.⁴ In Dr. Fischer's lab, milk intake also was highest in nine year old girls served milk most frequently with meals and snacks compared to those who were served milk only sometimes or rarely.⁵

Portion sizes served affect how much children eat

Dr. Fisher's group found that children ate 25% more total energy when served a double size entrée of macaroni and cheese compared to an age-appropriate serving.⁶ Worth noting in this study, children only ate two thirds of the age-appropriate serving; however were still compelled to eat significantly more when served a larger serving. In one of their recent studies, children as young as 2 years old responded to portion size by eating 39% more when served a large meal; however, children seem largely unaware that they are consuming more.⁷ Interestingly, when children are

allowed to serve themselves, they appear to serve themselves smaller and more age appropriate portion sizes.⁶

Energy density also impacts how much children eat

When children were served a more energy dense entrée they ate about 30% more total energy.⁷ When a high density, larger portion entrée was served at a meal children consumed as much as 75% more calories from that food compared to a small portion with regular energy density. What's more they did not reduce the amount of other foods they consumed at the meal with their main entrée.

Caregivers influence children's eating behaviours

Caregivers and parents make important decisions about which foods are available to children and how much of these foods are offered. They also serve as role models and provide instruction that helps guide children's eating behaviours. Children are more likely to try a new food and consume more of it when observing adults eating the same food.⁸ Enthusiastic role modeling by caregivers also increases children's willingness to eat new foods.⁹

Avoid controlling feeding practices

Pressuring children to eat is not a good idea. Nor is using food as a reward or punishment. Statements such as "you can't leave the table until you finish your vegetables!" increases children's dislike for foods over time.¹⁰ Children also loose the ability to self-regulate their food intake when forced to clean their plate.¹¹ Restrictive feeding actually increases the amount of food children consume.¹² A study of parenting styles found that children of strict disciplinarian parents were more likely to be overweight.¹³



THE BOTTOM LINE

Our fridges and our behaviour should match what we want our children to eat. Observational and laboratory studies suggest that feeding approaches involving structure without excessive control support the development of healthy eating behaviour.



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The Weight of Responsibility: Parents and Childhood Obesity

Childhood obesity puts children at risk

Childhood obesity is a complex condition associated with serious health risks. Obese children are at a higher risk for Type II diabetes, hypertension, hypercholesterolemia, orthopaedic problems, depression, adulthood obesity, as well as significant social and psychological concerns. While no one single factor has been identified as the cause of obesity, studies have linked this epidemic to lifestyle choices.

Parents have a duty to protect children

Young children who are not yet autonomous individuals are completely reliant on their parents or guardians. Thus parents act as gatekeepers for their children's food and leisure time choices. Parents also represent the most important influence on their children's health and lifestyle choices. Therefore, when children become obese, parents are necessarily implicated. Any choice that affects others is an ethical choice and is therefore subject to moral scrutiny.

Children's rights are harmed by obesity

Children have an inherent right to be protected from harm. They also have a right to an open future. Obesity prevents healthy development and may infringe on children's rights by interfering with future options, choices and interests. Since parents or guardians are charged with the duty to nurture and promote their child's optimal development, those who raise children in an obesogenic environment may be exposing their children to risk.

Choices should reflect children's best interests

Parents making poor lifestyle choices for their children may be inadvertently exposing their children to preventable risk and present and future ill-health. The best-interest standard (in this case, the child's) is an effective tool for parental decision making. This principal should serve as a guide to find the most acceptable of the available choices, given family circumstances.

THE BOTTOM LINE

The problem of childhood obesity is an ethical issue. Parents or guardians need to be empowered with the proper tools to act according to their children's best interests.

Lynn Roblin, MS, RD

Nutrition Writer and Consultant, Toronto, ON

A Review of Practical Tips and Real-life Experiences for Making Healthy Eating and Active Living a Reality

It's time to make healthy living a family affair

Children are influenced by their families and need to learn healthy living habits at home. They are also influenced by their school environment, teachers and coaches. As they become teens they eat more meals away from home and their food choices become more peer-influenced. It's important to remember that what children eat depends in large part on what is available in these environments. Dietitians have a key role to play in helping to make healthy eating and active living a reality for children and their families.

Healthy living tips to share with your clients

Eating breakfast is linked to children's health and wellbeing, better school performance, higher nutrient and fibre intakes and healthy weights.¹ Tips:

- Make nutritious food choices easily accessible.
- Prepare for breakfast and set table the night before.
- Set a good example by eating breakfast with children.
- Don't leave home without it.

Eating more vegetables and fruit is linked to improved intakes of vitamins A and C, folate, potassium and fibre and healthier weights in children.² Tips:

- Prepare "grab and go" snacks such as raw veggies, fruit smoothies and single serve fruits.
- Have fruit instead of juice.
- Sneak more vegetables and fruit into meals.

Eating meals together as a family improves food choices, promotes healthier weights, provides healthy eating role models and improves communication with children.^{3,5} Tips:

- Involve children in preparing meals and snacks.
- Teach children how to put together a healthy meal.
- Make healthy choices right at the grocery store.

Keeping kids active every day from preschool through the teen years is essential to their health and wellbeing and to promote healthier active adults. Tips:

- Walk or bike to school, with friends or to do errands.
- Encourage outdoor play and participation over competition.
- Find activities they enjoy and be an active living role model.
- Advocate for local access to safe places for kids to play.

Top Ten Sensible Solutions:

1. Eat well following Canada's Food Guide.
2. Set regular meal times.
3. Have a healthy breakfast every day.
4. Pay attention to portion size.
5. Snack smartly.
6. Make healthy beverage choices.
7. Eat together as a family.
8. Be a good role model for healthy eating.
9. Monitor children's growth.
10. Live life to the fullest - get outside and play move more - every way - everyday!

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Daniel Brulé, PhD, RD

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Canadian Community Health Survey, Cycle 2.2, Nutrition (2004): A Gold Mine for Nutrition Professionals

Preliminary results provide valuable insight

For the first time in over 35 years, nutrition professionals have access to a wealth of data from a federally-led national food and nutrition survey. More than 30,000 Canadians of all ages participated in the Canadian Community Health Survey (CCHS) nutrition survey. The data collected provide valuable information on current weight status and eating habits. Preliminary results give us a good sense of how well Canadians are doing in relation to the 2007 Eating Well with Canada's Food Guide (CFG) recommendations.

A complete picture of food consumption

Careful consideration must be given to how food consumption data are analyzed and reported. Mean values of one-day intakes have limited usefulness, the distribution of daily servings provides a more interesting picture of food consumption patterns, considering that the distribution of usual servings was not yet available for this presentation. A closer look at the eating habits of young girls and female adolescents compared to the 2007 CFG recommendations was used to illustrate this. A preliminary look at the distribution of intakes for these two age groups reveals that there is much room for improvement.

Many young girls do not eat enough vegetables and fruit

Results for young girls 4 to 8 years of age indicate that the mean number of servings consumed were a little above the 2007 CFG recommendations for three of the four food groups, with the exception being the Vegetables and Fruit group. On average girls in this group consumed 4.2 servings of Vegetables and Fruit, about one serving short of the recommended intake. Going beyond the mean intake to look at the distribution reveals that two thirds of girls,



about 67%, consumed fewer than the recommended 5 servings of Vegetables and Fruit. Only about 20% of girls in this age group had intakes that are within plus or minus one serving of the recommendations for Vegetables and Fruit.

Data shows intake shortfalls in adolescent girls

A large percentage of teenage girls 14 to 18 years old had intakes below the 2007 CFG recommendations. About 80% had Vegetable and Fruit intakes below the recommended 7 servings; about 60% consumed less than the recommended 6 servings of Grain Products; and, about 80% ate fewer than the recommended 3 to 4 servings of Milk and Alternatives. About 50% had intakes that were within plus or minus one serving of the recommended intake for Meat and Alternatives.

More information is and will be available

Health Canada plans to conduct analysis of usual intake distributions for the four food groups for different age and gender groups. Further analysis on the consumption of certain dietary components such as whole grains and dark green vegetables is also on their agenda. Health Canada is also working on other products to facilitate the use and interpretation of CCHS nutrition data, some of these reports include:

- A Guide to Accessing and Interpreting the Data
- Income-Related Household Food Security in Canada
- Canada's Health & Nutrition Atlas
- Nutrient Intakes from Food – Provincial, Regional and National
- Summary Data Tables, Volume 1

The first two reports are currently available on Health Canada website, the other two products will be available this fall.

Look for these reports at:

www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/index_e.html

THE BOTTOM LINE

The CCHS Nutrition dataset, reports and tools will benefit everyone involved in developing, implementing or evaluating nutrition policies and programs. Dietitians can make a real difference by using this valuable evidence to promote healthy eating.

Richard D. Mattes, PhD

Professor of Foods and Nutrition, Purdue University, West Lafayette, IN

The Role of Protein and Fibre in Appetite Regulation

Increasing body mass is not a new problem

There is evidence that weights have been increasing for centuries, challenging the belief that the obesity problem originated in the 1970s. French data show that the average Body Mass Index (BMI) was about 18 in 1705 and increased steadily to 25 in 1975.¹ It was not until the late 1970s however, that mean BMIs crossed over to the other side of the optimal health curve. Data from United States veterans show that mean BMIs were increasing at a rate of about 4% a year around 1900² similar to today's rate of increase.

Thus if we want to understand the origins of weight problems, we might have to look further back than the 1970s and early 80s. The evidence that body weights have been increasing for a very long time suggests that we may be biologically biased through human evolution to eat more calories than we need for survival.

There are several theories about the primary problem

Feeding may be non-homeostatic, with no system to ensure weight stability. Most animals have weights that fluctuate with food availability. It may be that we are biased to over-eat and only stop due to acute distress, such as gastric distension. Another theory is that feeding is homeostatic and our bodies are doing exactly what they are designed to - eat more calories in case of future famine. Thirdly feeding may be homeostatic, but the regulatory system may be broken. One hypothesis is that humans have high 'throughput' systems with regulatory signals that only work well with high energy input and output. One final theory is that feeding is homeostatic and that there are also non-homeostatic influences on the system, such as the sensory rewards that come with highly palatable foods.

Foods could be leveraged to help solve the problem

The etiological factors promoting overweight and obesity are subtle. This has prompted the view that only small changes will be required to reverse the trend. There are three mechanisms by which such changes may be made with foods. One way is to increase the satiety value of foods. A second is to decrease the efficiency of absorption of energy from foods in the GI tract.

A third is to increase energy expenditure in some way such as increased thermogenesis. Two nutrients that have received attention recently for their satiety value and potential to promote weight loss are protein and fibre.

Dietary Approaches to Manage Energy Balance for Weight Management

Enhanced Satiety	Inefficient Absorption	Inefficient Energy Expenditure
<ul style="list-style-type: none"> • Soups • Fibre • Dairy • Glycemic Index • Rheology • High Protein • Variety • Meal Pattern 	<ul style="list-style-type: none"> • Nuts • Fibre • Dairy 	<ul style="list-style-type: none"> • Tea • Nuts • Dairy • High Protein

Protein may promote satiety and reduced food intake

Research shows that protein augments fullness and reduces hunger and energy intake relative to other macronutrients.³ Protein is better at inducing satiety and subsequent food intake compared to carbohydrate or a protein carbohydrate mixture.⁴ Protein also lengthens the time it takes for people to want to eat again compared to other macronutrients.⁵ A Harvard review of the protein appetite literature showed that while many studies found that protein increased satiety and decreased food intake, some did not show significant results, particularly studies of longer duration.⁶ One factor worth considering is that the form of protein may have an impact on satiety and food intake with protein drinks not having nearly the potency of protein in solid foods.⁷

Protein also provides a small metabolic advantage

Protein has a higher thermogenic effect than other macronutrients. This metabolic advantage is small but measurable.⁸ Higher protein diets are also superior in terms of preserving lean body mass.⁹ Thus a higher protein diet may contribute to the preservation of lean body mass during weight loss. This may result in a small additional advantage since lean body mass is more metabolically active and burns more calories.

Fibre has extensive support as a satiety factor

In controlled trials very high fibre foods have a small but measurable satiating effect. A comprehensive review indicates that higher fibre intakes reduce energy intake by about 10%.¹⁰ Fibre can also exert its effects by decreasing the bioaccessibility of nutrients. It is known to bind with lipids in the GI tract resulting in increased fecal fat and energy loss.¹¹

THE BOTTOM LINE

There are ways to use selected foods and ingredients to moderate energy intake and regulate weight. Protein and fibre may have subtle beneficial effects with small dietary changes. Strong effects may be achieved with higher intakes, but may entail marked dietary changes raising questions about the feasibility and long-term dietary adherence.

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FROM RESEARCH TO PRACTICE



In The Words of Our Speakers...

"We know that feeding doesn't operate in a vacuum. And while we think that promoting healthy eating styles and healthful weights are general goals of parenting, the specific practices that parents use are really tied to their socioeconomic and cultural interpretation of these goals as well as to barriers they face."

Jennifer Fisher says...

Eric Porcellato says...

"When parents make decisions relating to the lifestyle of their children, they ought to employ the best interest standard. This means making choices that most promote the interests of their child, mitigate the risk of harm and produce the maximum resulting good."

"I keep reminding my consumers, that - what you buy is what you eat. This means making sure that what you put in your grocery cart is a healthy choice, because kids are only going to be able to eat what's at home. So, make sure that these are always the healthiest choices possible."

Lynn Roblin says...

Daniel Brulé says...

"The review of the preliminary data from the Canadian Community Health Survey on nutrition shows the importance of instilling healthy eating habits at a young age in order to be able to maintain these habits later in life. You will be well positioned to promote a healthy eating pattern using this evidence to inform your actions."

"We may very well be biologically biased to over-consume, to eat more calories than we need. The evidence is that we have been increasing in BMI for a very long time, suggesting that we have a very tough problem to deal with. Tougher than if the rise in obesity was just some dramatic, acute event that happened 30 years ago."

Richard Mattes says...

And the final words from Johanne Trudeau, Final Words

Director, Nutrition and Consumer Affairs Kellogg Canada Inc.

"When a message is placed in a context that is relevant to our audience, and especially to the audience of children, it makes it memorable. Today I've heard a lot of creative ideas. And I am certainly going to include these in creating a culture around my kids and the athletes I coach and hope that they will get inspired for the rest of their lives."

