Nutrition file™ for Health Educators

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Environment Factors of Obesity: Food Portions and Patterns

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Key Messages

- Canadian adults are struggling to maintain healthy weights.
- Healthy eating based on *Canada's Food Guide to Healthy Eating* supports long term weight management.
- Achieving and maintaining a healthy body weight positively impacts overall health and wellness.

This issue of *Nutrition File for Health Educators* was reviewed by Rory Hornstein, RD, BEd, Fitness Consultant. Her contribution is greatly appreciated.

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The environment, including increasing portion sizes, plays a significant role in the etiology of obesity in Canada. In Canada, rising rates of obesity over the past 20 years have had significant public health implications.[2] The prevalence of overweight and obesity among Canadian children and adults has reached epidemic proportions, and there is no indication that this trend has reached its peak. Close to half of Canadians are overweight and one in six are obese. This year the national nutrition month campaign, *Go the Healthy Way…Eat Well, Live Well and Feel Great*, is taking a solution based approach to promote healthy weights.[1] This issue of *Nutrition File* will discuss the impacts of the environment on obesity.

Understanding Obesity

It appears that adults are now becoming more obese at an earlier age than in previous years.[3] Although positive lifestyle habits can aid in the promotion of healthy body weights, multivariable rather than singular forces such as societal, behavioural and environmental factors can also play a role. These could result in increased energy intake, decreased energy expenditure or both.[1, 3]

Achieving and maintaining a healthy body weight is often very simply described using the Energy Balance Equation. Based on this equation, achieving a healthy body weight is simply balancing energy in (food) with energy out (activity).[1] While this simplistic formula is useful for understanding the basic principles of weight management, it does not emphasize the complex interactions that occur between eating habits, genetics, hormonal influences, activity patterns and the environment in determining body weight. It is important to note that genetics do play a role in obesity. In fact, obesity would not be possible if the human genome did not have genes for it. However the increase in obesity cannot be explained by genetics alone, rather a positive energy balance over time is necessary to realize that potential.[2] If, as has been reported, activity patterns have not changed much in the past decade, the rise in body weights must be caused by increased energy intake.[6]

Environmental Factors

The environment is felt to be a major determinant of the rising prevalence in overweight and obesity in Canada.[1] Unfortunately, several barriers to healthy eating and active living are present in the Canadian environment. Examples of these include increased access to prepared foods, increases in food portions (portion distortion), shifting food consumption patterns, satiety and behaviour.

Increasing Portion Sizes

One of the identified barriers are changing portion sizes. We have all heard the saying that *our eyes are bigger than our stomach*. Recent trends in portion sizes and easy accessibility to food are helping to prove this statement true. As portion sizes increase inside and outside the home, intake is increasing as well. Larger portions equate to more calories.

A recent study showed that people tend to eat more when confronted with larger amounts of food.[11] In fact, several investigators have shown that portion sizes are positively related to energy intake in both children and adults.[10] This was exemplified by a study conducted with Cornell undergraduate students. They were given access to a buffet lunch on Monday, Wednesday and Friday and were instructed to eat as much or as little as they wanted. On the same days of the following week, they were divided into three groups, each were served 100 per cent, 125 per cent or 150 per cent of the amount they consumed the week before. It was found that when large amounts were served, greater amounts were consumed.[11] Not only are larger portion sizes higher in energy, but they actually encourage people to eat more.[6]

Portions started to increase in the 1970s. In that particular decade, 10 new serving sizes were introduced. As time progressed, portion sizes continued to increase. In the early 1980s there was a sharp rise. In fact from 1995 to 1999, 65 new larger sizes of foods were introduced into the market, with the largest portion sizes found at fast food establishments. Most foods are now available in larger portions sizes than they were in the 1970s.[8]

What does this mean to society? In trying to keep up with this market trend, changes are seen in all parts of society. For example, identical recipes for cookies and desserts in old and new editions of classic cookbooks such as *Joy of Cooking* specify fewer servings, restaurants are using larger dinner plates, automobile manufacturers have installed larger cup holders in new models to accommodate the larger sizes of drink cups, diet meals such as Lean Cuisine and Weight Watchers dinners are advertising larger meal sizes, bakers are selling larger muffin tins, pizzerias are using larger pans, and food companies are using larger sizes as selling points – Double Gulp, Supersize.[6] Since an additional 10 calories a day can equal an extra pound of weight per year, it is easy to see the potential impact of large increases in portion sizes.[8]

Just how much have portion sizes increased? Table 1, Portion Sizes for Selected Key Food Items, shows how portion sizes of common foods have increased over the years. Sizes of most commonly available food portions almost universally exceed federal standards for dietary guidelines, labels and sizes in comparison to those offered in the past.[6,8] With the exception of white bread, all of the commonly available food portions measured by Young and Nestle exceeded USDA and FDA standard portions.[6] The largest excess over USDA standards occurred in the cookie category at 700 per cent. Others included cooked pasta 480 per cent, muffins 333 per cent, steaks 224 per cent and bagels 195 per cent. This observation also holds true for french fries, hamburgers and sodas, for which the current size is two to five times larger than the originals.[6] Considerable attention is being focused on increasing soft drink consumption and its implications on nutrient intakes.[10] Soft drinks provide some of the least expensive upgrades; it costs just 16 cents to go from a small to medium, or a 60 calorie bargain.[18] More and more trends are showing decreasing consumption of milk and an increasing consumption of soft drinks, particularly in adolescents and young adults.[2] About 34 per cent of grade 6 boys and 28 per cent of grade 6 girls in Canada drink soft drinks five days a week or more, and the numbers increase to 56 per cent as they get older.[13] Children are replacing

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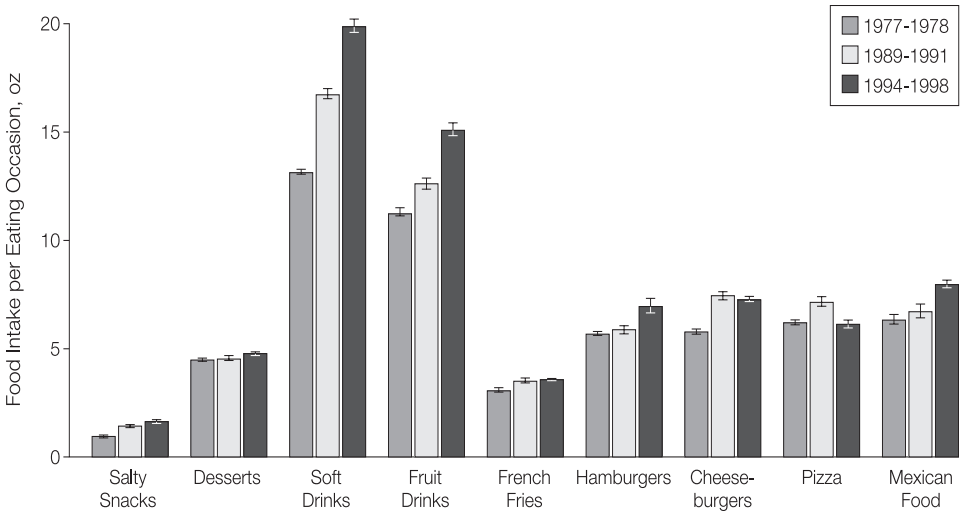
Table 1: Portion Sizes for Selected Key Food Items [8]



more nutritious beverages, like milk with soft drinks and are missing out on nutrients affecting bone health.

By the age of 16, girls have developed 95 per cent of their bone mass[15], and according to a national survey, 75 per cent of teens do not consume enough calcium.[16] This is putting Canadian and American children and youth in a calcium crisis and osteoporosis is expected to triple or quadruple in the next 30 years. In addition, all of these things are contributing to an obesity crisis in Canada and the US. One in three of today's four year olds, will develop type 2 diabetes, many during adolescence or early adulthood, according to the Centers for Disease Control and Prevention.[17] In fact, at the Nutrition File Seminar in 2003 it was pointed out by Nicole Kerr MPH, RD, that children today may be the first generation to not outlive their parents.

Food Consumption Patterns

Food consumption patterns are changing too. Studies now show us that food consumed outside the home accounted for 34 per cent of the food budget in 1970, but in the late 1990s accounted for 47 per cent.[6] Simply put, people are eating out more. In fact, about 17 per cent of children report NEVER eating dinner with family.[14]

Associations have been made between eating patterns and obesity. It was found that there is an increased prevalence of obesity among U.S. adults who frequently consume dinner or breakfast away from home.[2] So what is causing this shift? Along with a large number of new products being introduced to the market, a widespread price competition has caused manufacturers to promote super sizes as a way to keep and expand the market.

Profits for most food items rise consistently when manufacturers increase product size.[6] The reality is, the more heavily a product is advertised, the more it is consumed.[2] In 1997, U.S. food manufacturers, services and retailers spent $11 billion in mass-media advertising. This included $765 million on confectionaries and snacks, $549 million on soft drinks, $571 million on McDonald's and only $105 million on vegetables and fruits.[2] When we look further into advertising we find that about 50 per cent of advertisements aired during children's television programs are for other foods. There are virtually no ads for increasing fruit and vegetable consumption.[19]

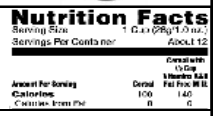
What is the cost of this on our future? Increasing portion sizes (portion distortion), accessibility to prepared foods, shifting food consumption patterns, satiety and behaviour all have significant implications for population obesity trends. Unless we change our habits and end our love affair with fast food and soft couches, we are about to see a health crisis that will blast the top off health care costs and bring diseases such as diabetes and osteoporosis in our children.[17]

This year, let's take a solution based approach to promote healthy weights and *Go the Healthy Way…Eat Well, Live Well and Feel Great.*[1] It is up to health educators to counsel on the importance of decreasing portions and educate about appropriate portion sizes. Use simple household items as examples to help clients eyeball serving sizes and recognize true portions. Following this article you will find examples of ways to simplify portion sizes to household measurements to help you and your clients.

Putting Portions Back into Proportion

Canada's Food Guide to Healthy Eating recommends your daily intake consist of balance, variety and moderation; the corner stones of good nutrition. With serving sizes varying from place to place, it is more and more difficult to determine what the correct portion size is or should be. The Guide to Healthy Eating is a great place to start. To help you determine what is enough, refer to the chart below. It will give you some easy, practical ways to measure your servings. Aim for balanced meals, trying to get three to four groups at breakfast and four groups at lunch and dinner, just watch those portions!

Grain Products

1 serving	equals	equals
1 slice of bread	CD in cover	
½ bagel	hockey puck	
½ cup/125 mL cooked rice, pasta or potatoes	small cupcake wrapper	
1 pancake	CD	
30 g cold cereal	refer to label	

Vegetables and Fruit

1 serving	equals	equals
½ cup/125 mL juice	measuring cup	
½ cup/125 mL fresh, frozen, canned	7 cotton balls or light bulb	
1 medium sized	tennis ball	
1 cup/250 mL salad, raw, leafy	softball	
2 tbsp./30 mL dried fruit	large egg	

Milk Products

1 serving	equals	equals
1 oz./30 g cheese	6 dice	
1 cup/250 mL ice cream	baseball	
1 cup/250 mL milk	measuring cup	
¾ cup/175 g yogurt	single serving container	

Meat and Alternatives

1 serving	equals	equals
3 oz./90 g meat, cooked	deck of cards	
3 oz./90 g fish, cooked	cheque book	
½ - 1 cup/125-250 mL beans, lentils	light bulb	
2 tbsp./30 mL peanut butter	golf ball	
2 tbsp./30 mL nut/seeds	shot glass (1 oz.)	

Fats and Oils

1 serving	equals	equals
1 tsp./5 mL butter	1 stamp or 1 dice	
2 tbsp./30 mL dressing	ping pong ball	

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A complete list of references is available at www.albertamilk.com/nutritioneducation/nutritionfile.aspx or upon request.