



# Ontario Chronic Disease Prevention Alliance

## Evidence-Informed Messages: Healthy Eating



For more information, please visit: [www.ocdpa.on.ca](http://www.ocdpa.on.ca)

## Context

The Ontario Chronic Disease Prevention Alliance (OCDPA), in consultation with external experts, has developed messages for use by individuals, groups and organizations to focus attention and promote collective action on chronic disease prevention issues and to improve the health of Ontarians. The evidence-informed messages address the following chronic disease risk factors:

- High-Risk Alcohol Consumption
- Physical Inactivity
- Poor Mental Health
- Tobacco Use/Exposure
- Unhealthy Eating

The messages use a “socio-environmental approach” (Birse, 1998) to chronic disease prevention and are framed around the central themes of “availability and accessibility”. Each of the evidence-supported messages relate to actions that can be taken as part of a comprehensive approach to support healthier living conditions and to make healthy choices the easy choice for Ontarians.

It is important to note that the messages represent a comprehensive package, all of which need to be pursued over time in order to achieve a comprehensive approach to health promotion and chronic disease prevention. Partnership and shared responsibility across sectors are needed to influence sustainable system change. Different organizations might be involved in the various aspects of the promotion, use, and action of the messages which may not occur simultaneously. In order to maximize impact, all messages are necessary.

## Benefits in Advancing Key Messages

Working in parallel to advance OCDPA's evidence-informed messages can result in:

- Focused attention and action on chronic disease prevention issues;
- Strategic alignment of policy, planning and practice to support chronic disease prevention efforts;
- A shift in policy and practice to an evidence-informed, multiple-risk factor, multiple-setting approach that strengthens the chronic disease prevention agenda;
- Increase impact of chronic disease prevention efforts; and
- A comprehensive, system-wide approach to chronic disease prevention.

The production of OCDPA's evidence-informed message documents was made possible through in-kind contribution from the OCDPA membership and its stakeholders.

## Unhealthy Eating & Chronic Disease

It is well established that unhealthy eating is associated with poor health conditions. For example, consuming too much sodium can lead to negative health effects and chronic disease such as hypertension, heart disease, stroke and certain types of cancer (World Cancer Research Fund and the American Institute for Cancer Research, 2007). The consumption of saturated and trans fats has been linked to increased risk of heart disease and stroke (Micha and Mozaffarian, 2008; Heart and Stroke Foundation of Canada, 2009). A recent global review of the literature linked the consumption of a primarily plant-based diet containing lots of vegetables and fruit with cancer prevention (World Cancer Research Fund and the American Institute for Cancer Research, 2007) and a diet rich in fibre may help prevent the development of type 2 diabetes (Canadian Diabetes Association, 2003).

### Health Related Consequences

Poor eating habits and physical inactivity along with many other factors contribute to the increasing rate of overweight and obesity in Ontario. In general, adults who are less active are more likely to be obese while active individuals are more likely to have healthy weight (Canadian Fitness and Lifestyle Research Institute, 2007). Similarly, individuals who consume a healthy diet, including higher amounts of vegetables and fruit, are more likely to be at a healthy weight, be physically active, not smoke, and in women, to not be alcohol-dependent (Perez, 2002). The consequences of excess body weight are well-known and its link to increasing risk of chronic disease, such as heart disease, cancer and type 2 diabetes is well established. The World Health Organization (1999) recognizes weight gain and obesity as an emerging danger to world-wide health and identifies obesity as a chronic disease.

### Prevalence

Canadians have significant room for improvement when it comes to healthy eating. At most ages, Canadians consume less than the recommended servings of vegetables and fruit a day (Garriguet, 2004). In Ontario, only 50% of women and 36% of men (aged 18 and over) are consuming vegetables and fruit five or more times daily (Statistics Canada, 2005). Based on data from the 2004 CCHS, 59% of Canadian children and adolescents were reported to consume vegetables and fruit less than five times a day (Sheilds, 2005). These young people were significantly more likely to be overweight/obese than were those who ate vegetables and fruit more frequently (Sheilds, 2005). Children, adolescents and the majority of seniors do not get the daily recommended servings of milk products, while men are heavy consumers of meat (Garriguet, 2004; World Cancer Research Fund and the American Institute for Cancer Research, 2007). Overall, Canadians are falling short of meeting recommendations for grain products and are consuming more foods and beverages that are low in nutrients and higher in sugar, sodium or fat (Garriguet, 2004).

### Cost

Unhealthy eating is a key modifiable risk factor for chronic diseases that plays a major role in morbidity, disability and premature death in Canada. The economic burden of unhealthy eating has been estimated at \$6.3 billion in Canada each year, including direct health care costs of \$1.8 billion (Health Canada, 2000).

## Reason for Action

The benefits of healthy eating include lower risk of chronic diseases including type 2 diabetes, heart disease and hypertension, and certain cancers; lower risk of overweight and obesity; and lower risk of micronutrient deficiencies (Health Canada, 2007d). Furthermore, individuals who eat healthy foods are more likely to lead longer, healthier lives.

In addition, poor eating habits and physical inactivity along with many other factors contribute to the rising rate of overweight and obesity in Ontario. Annually, obesity costs Ontario \$1.6 billion including \$647 million in direct costs - such as hospital care, pharmaceuticals and physician services - and \$905 million in indirect costs - such as lost earnings due to illnesses and premature deaths associated with obesity (Katzmarzyk & Janssen, 2001).

## OCDPA's Messages to Address Healthy Eating

The OCDPA encourages the dissemination, promotion, integration and use of OCDPA's Messages to ensure consistent communication that addresses healthy eating. Depending on the purpose, please integrate and/or use the information provided below:

### 1. For Actions at the Individual Level:

Provide individuals with information to help them make informed decisions about healthy eating:

- Follow the “Eating Well with Canada’s Food Guide”, available at: [www.healthcanada.gc.ca/foodguide](http://www.healthcanada.gc.ca/foodguide) (Health Canada, 2007a)
- Follow the recommendations listed in the “Nutrition for Healthy Term Infants - Statement of the Joint Working Group: Canadian Paediatric Society, Dietitians of Canada and Health Canada”, available at: [www.hc-sc.gc.ca/fn-an/pubs/infant-nourrisson/nut\\_infant\\_nourrisson\\_term-eng.php](http://www.hc-sc.gc.ca/fn-an/pubs/infant-nourrisson/nut_infant_nourrisson_term-eng.php) (Health Canada, 2005)

### 2. To Influence System Level Change:

Ensure access to adequate, nutritious, safe, and culturally appropriate foods for all Ontarians:

- Increase the availability of healthy foods and food choices (i.e. food from the four food groups in Canada’s Food Guide) in schools, workplaces and public facilities and limit food and beverages high in calories, fat, sugar or salt.
- Ensure access to nutritious food for all Ontarians by using the cost of the “Nutritious Food Basket” (calculated annually by each Public Health Unit) in determining the rates for social assistance and the minimum wage and in the formulation of ODSP/Social Assistance payouts.
- Encourage community planning, zoning and funding which supports healthier food choices, develops and promotes the local food sector, and reduces access to unhealthy food choices, particularly in low-income communities.
- Provide opportunities for individuals to develop food selection, food preparation and food safety skills in school and community settings.

## Evidence Supporting OCDPA's Messages

### 1. Individual Level

**Message: Follow the “Eating Well with Canada’s Food Guide”.**

The food intake pattern in Eating Well with Canada’s Food Guide, released by Health Canada (2007b), is based on current nutritional science. The Canada’s Food Guide has been designed to meet nutrient standards (Dietary Reference Intakes) and is consistent with evidence linking diet to a reduced risk of chronic diseases.

**Message: Follow the recommendations listed in the “Nutrition for Healthy Term Infants - Statement of the Joint Working Group: Canadian Paediatric Society, Dietitians of Canada and Health Canada”.**

These recommendations were released in January 2006 and are based upon the advice of the Dietary Reference Intake Expert Advisory Committee, the leading Canadian Vitamin D experts, the Expert Advisory Panel on Exclusive Breastfeeding and stakeholder input (Health Canada, 2005).

### 2. System Level

**Message: Increase the availability of healthy foods and food choices (i.e. food from the four food groups in Canada’s Food Guide) in schools, workplaces and public facilities and limit food and beverages high in calories, fat, sugar or salt.**

Children’s eating patterns are strongly influenced by characteristics of both the physical and social environment. Children are more likely to eat foods that are available and easily accessible, and they tend to eat greater quantities when larger portions are provided (Patrick & Nicklas, 2005). Increasing the proportion of nutritious foods relative to foods of low nutrient value available in school cafeterias via nutrition standards or other interventions has increased the purchase and consumption of the more nutritious foods (Snelling & Kennard, 2009; French et al., 2004; Burgess-Champoux et al., 2008; Wojcicki & Heyman, 2006; Cullen & Zakeri, 2004).

School programs can support the adoption of healthy diets by adopting policies that enable healthy diets and limit the availability of unhealthy options, as well as supporting contracts for locally grown foods (WHO, 2004). Farm-to-school salad bar programs, which deliver produce from local farms to schools, have been shown to increase fruit and vegetable consumption among students (Institute of Medicine, 2007).

Implementing environmental changes, nutrition standards or policies in schools is not without its challenges. Some recommendations to ensure success include developing a shared vision and action plan, having nutrition standards for all food sold in schools, consistent implementation across all schools in the board, and making eating environments pleasant in schools (Dietitians of Canada, 2008; American Dietetic Association, 2003; Mckenna, 2003; Kramer-Atwood et al., 2002).

In workplaces, successful strategies to improve the availability of healthy food choices include offering buffet-style to healthier items (Lassen et al., 2006) and lowering prices of healthier items relative to items of low nutrient density (Michels et al., 2008; Battle, Horgen & Bronwell 2002; French et al., 1997; French et al., 2001; Epstein et al., 2006; Hannan et al., 2002). A systematic review of worksite health promotion programs with environmental changes found strong evidence of the effectiveness of these programs on fruit, vegetable and fat intake (Engbers et al., 2004).

Other public service venues positioned to influence the availability of healthier foods include after-school programs, child care centers, community recreational facilities (e.g. parks, playgrounds, arenas and swimming pools), city and county buildings, prisons, and juvenile detention centers (Centers for Disease Control and Prevention, 2009). Healthier food and beverage choices need to be both available and affordable for people to consume them. In addition to pricing strategies to improve access, interventions that provide coupons redeemable for healthier foods and bonuses tied to the purchase of healthier foods increase purchase and consumption of healthier foods in diverse populations (Centers for Disease Control and Prevention, 2009; Anderson et al., 2001; Cincirpini, 1984; Jeffery et al., 1994).

**Message: Ensure access to nutritious food for all Ontarians by using the cost of the “Nutritious Food Basket” (calculated annually by each Public Health Unit) in determining the rates for social assistance and the minimum wage and in the formulation of ODSP/Social Assistance payouts.**

‘Food security’ is defined as the situation “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life” (World Health Organization). Poor availability of local food outlets offering fresh, nutritious foods, barriers to the local production, and affordability of nutritious foods can influence what Canadians eat (Heart and Stroke Foundation of Canada, 2008). A number of studies have shown that low income households do not have enough income to pay for the basic costs of living, including the cost of a nutritious food basket (Ford & Berrang-Ford, 2009; Meldrum & Willows, 2006; Palermo et al., 2008; Rush et al., 2007; Tarasuk & Vogt, 2009; Tarasuk et al., 2007; Vozoris et al., 2002; Metallino-Katsaras et al., 2009; Welsh, 1998; Fulp et al., 2009; Hyman et al., 2002; Kirkpatrick & Tarasuk, 2007; Williams et al., 2006; Willows et al., 2009). People of lower socio-economic status often have fewer transportation options resulting in reliance on local food sources. They are also more likely to live in communities that have more fast food restaurants (Forsyth, 2007). It has long been contended that socio-economically deprived areas are less well served in terms of price, quality and variety of food, with an over representation of corner stores in underprivileged areas (Bertrand et al., 2008; Hosler et al., 2008).

The relationship between socio-economic factors and food security is complex; however, evidence shows food availability and accessibility are powerful predictors of the food choices and food intake of all Canadians. Changes to the environment affect food choices from all age groups at home, at work, in school and in the community. Low-income Canadians face the most restricted choices and would gain the most from environmental changes to support healthier food choices (Heart and Stroke Foundation of Canada, 2008).

Priority should be given to activities that have a positive impact on the poorest population groups and communities. Such activities will generally require community-based action with strong government intervention and oversight (WHO, 2004). In 2004, 8.8% of the population, or approximately 2.7 million Canadians, lived in households experiencing food insecurity (Health Canada, 2007c). Among Aboriginal Canadians living off-reserve, one third (32.9%) lived in households experiencing food insecurity (Health Canada, 2007c).

Canadian studies of university students and of food insecure residents of rural Victoria, Nova Scotia, Ontario, the City of Toronto and Nunavut have shown that the purchasing of healthy foods is unaffordable for those receiving welfare income, student financial aid or minimum wages (Ford and Berrang-Ford, 2009; Meldrum & Willows, 2006; Palermo et al., 2008; Rush et al., 2007; Tarasuk & Vogt, 2009; Tarasuk et al., 2007; Vozoris et al., 2002). The Ontario-wide study identified three potent socio-demographic correlates of household food

insecurity in the province: “low income adequacy”, social assistance as the main source of income, and not owning one’s dwelling. These findings highlight the need for more adequate social assistance benefit levels, and the need for better income supports for low wage earners in Ontario so that they have sufficient financial resources to purchase the food they need (Tarasuk & Vogt, 2009).

Health effects such as inadequate intake, risk of overweight status among children and type 2 diabetes have been observed in association with food insecurity (Rush et al., 2007; Metallino-Katsaras et al., 2009; Welsh 1998; Tarasuk and Beaton, 1999; Casey et al., 2006). The food intakes and nutrient status of low-income women with children in deprived circumstances are sensitive to the decline in household resources following the receipt of a monthly cheque (Tarasuk & Beaton, 1999). Similarly, immigrant food bank users new to Canada experience various degrees of food insecurity, which is associated with inadequate food intake (Rush et al., 2007). Cultural factors were also described as barriers to food banks and food security programs as some immigrant women considered food banks to be stigmatising, intrusive (in terms of screening), and inappropriate in terms of the foods provided (Welsh, 1998). An evaluation of data from the National Health Examination and Nutrition Examination Survey (NHANES) 1999-2002 in the United States showed that participants with severe food insecurity were more likely to have type 2 diabetes than those without food insecurity, after adjusting for socio-demographic factors and physical activity level (Seligman et al., 2007).

**Message: Encourage community planning, zoning and funding which supports healthier food choices, develops and promotes the local food sector, and reduces access to unhealthy food choices, particularly in low-income communities.**

Emerging evidence in Canada and beyond suggests that residents of lower income communities have less access to healthy food choices than those in higher income areas. Studies conducted in Montreal, Edmonton and across Canada have confirmed that areas with lower education and income have less access to fresh fruits and vegetables and greater access to fast food restaurants (Daniel et al., 2009; Seliske et al., 2009; Hemphill et al., 2008; Franco et al., 2008).

Studies outside of Canada have often focused on the “obesogenic environment”, which has been coined to express ‘the sum of influences, opportunities or conditions that life has on promoting obesity in individuals or populations’ (Swinburn et al., 1999). Several environmental factors that are implicated in the obesity epidemic include fast-food restaurants, convenience stores, marketing of unhealthy foods and availability of larger portions (Giskes et al., 2007). Higher restaurant and convenience store density is associated with higher body mass index (BMI) among local residents (Powell et al., 2007; Veuglers et al., 2008). Increased availability of chain supermarkets is associated with healthier food intake and lower BMI and overweight in both adolescents and adults (Franco et al., 2008; Swinburn et al., 1999; Giskes et al., 2007; Powell et al., 2007; Veuglers et al., 2008; Cheadle et al., 1991; Laraia et al., 2004). Increasing the shelf-space devoted to fresh vegetables and fruit in corner stores has been shown to increase intake of these foods (Morland et al., 2002). Children, however, most often purchase energy-dense, low-nutritive foods and beverages in corner stores, which contribute significantly to their energy intake (Bodor et al., 2008; Borradaile et al., 2009).

The connection between health status (beyond obesity) and the local food environment has also been studied. In the United States, an association has been found between the number of fast food restaurants and incidence of ischemic stroke in neighbourhoods; the risk of stroke increased by 1% for every fast food restaurant

(Morgernstern et al., 2009). Americans were more likely to report having excellent health if they had access to more supermarkets per roadway mile in their census tract (Brown et al., 2008). Having access to more convenience stores per roadway mile in a census tract was associated with lower health ratings among adults with a chronic health condition.

Adolescents report that one of the most influential factors in their food choices is food availability (World Cancer Research Fund and the American Institute for Cancer Research, 2007), unfortunately fast-food restaurants tend to cluster around schools (Forsyth, 2007).

A review of studies about the built and food environments and associations with physical activity, healthy eating and obesity suggests that disparities in environments and policies disadvantage low-income communities and racial minorities (Sallis and Glanz, 2009; Larson et al., 2008). Evidence to date suggests that communities should improve geographic availability of supermarkets in underserved areas (Centers for Disease Control and Prevention, 2009).

Walkability of neighbourhoods is an especially important factor for youth, elderly and other groups which, do not drive and are more reliant on the food choices in their immediate environments (Frank et al., 2006). Adolescents and young adults are obtaining less of their energy intake at home and more at nearby restaurants and fast food places so the healthy food choices outside the home need to be readily available and accessible (Nielsen et al., 2002).

Local food initiatives such as linking local farmers to cooperatives, schools, churches and community centres as previously described in this paper will also improve access to healthier food choices (Frank et al., 2006, Region of Waterloo Public Health, 2007). Environment policy and multilevel strategies for improving diet, physical activity and obesity control are recommended based on a rapidly growing body of research (Sallis and Glanz, 2009).

A multi-faceted approach that changes the whole community food environment and that engages children, parents, teachers, school food service providers, city departments, policy makers, healthcare providers, before- and after-school programs, restaurants, and the media is an effective and promising long-term strategy to prevent obesity (Economos et al., 2007).

**Message: Provide opportunities for individuals to develop food selection, food preparation and food safety skills in school and community settings.**

There is considerable evidence demonstrating the positive impact of cooking lessons on children's future health. Food skills, and particularly the confidence to use them, could be an important determinant of health behaviour. Cooking is an essential life-skill and no child should leave school unable to cook for themselves. It is also desirable for children to have a practical understanding of where food comes from, and how it is produced and treated (Children's Food Campaign).

School, camp and community-based interventions for children and youth which aimed to improve fruit and vegetable knowledge, attitudes, access and preparation skills have succeeded in improving enjoyment, intake preparation skills and safety practices (Sallis & Glanz, 2009; Larson et al., 2008; Frank et al., 2006; Economos et al., 2007; Children's Food Campaign). Garden-based experiential learning increases vegetable preferences, increases fruit and vegetable asking behaviour at home and increases the number of fruits and vegetables eaten (Heim et al., 2009). Food preparation by young adults is also associated with better diet quality (Larson et al.,

2006). Having limited food skills or access to kitchen appliances contributes to a perceived lack of control over food choices and lower intake of energy, selected nutrients and greater food insecurity (Barker et al., 2008; Holmes et al., 2008; Broughton et al., 2006). To improve dietary intake, interventions among young adults should teach skills for preparing quick and healthful meals, using foods that are accessible and affordable (Larson et al., 2006).

Breastfeeding rates are lowest among ethnic minority and low-income women and the decision about infant feeding is dependent upon knowledge, attitudes, and social support (Dungy et al., 2008). Lack of knowledge, misinformation, inability to communicate in English and lack of effective transportation are key barriers to ethnic minority women in accessing mainstream prenatal and postnatal health programs and services (Dungy et al., 2008; Sutton et al., 2007). Community-based breastfeeding support in Ontario has been shown to lengthen the duration of breastfeeding and the women who received breastfeeding support reported enhanced satisfaction with their breastfeeding experience (Adams et al., 2001).

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