

# Background Information Grades 7-8

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# Background Information

## Grades 7-8

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### 1. What is Healthy Eating?

Healthy eating provides youth with the energy and nutrients they need for:

- Healthy growth and development,
- Academic performance, and
- Participation in regular physical activity.



Learning about healthy eating not only means understanding Canada's Food Guide, but it also means learning how to develop healthy habits that will last a lifetime.

This section discusses how having a healthy attitude towards food is just as essential to healthy eating as actual food choices. Critical at this age is an awareness of the factors that affect food choices.

The role of physical activity in supporting healthy eating is also discussed. Body image and self-esteem are important issues that influence eating habits in youth. Disordered eating and dieting may be areas of concern and teachers are often looking for information and support. Discover Healthy Eating! may provide support and references other helpful resources.

#### 1.1 Eating Well with Canada's Food Guide

In 2007, *Canada's Food Guide to Healthy Eating* was redesigned and renamed *Eating Well with Canada's Food Guide*. This revision was intended to reflect the updated nutrient recommendations (Dietary Reference Intakes) and to help make the Guide easier to understand and use. Canada's Food Guide describes the amount and types of food considered to be part of a healthy eating pattern. This type of pattern helps individuals meet their nutrient needs, reduce their risk of chronic disease and achieve overall health and vitality.

When teaching Canada's Food Guide, use the rainbow design to help communicate that the different sizes of the arcs represent the proportion of each food group in a healthy eating pattern. Canada's Food Guide recommends enjoying a variety of foods from each of the four food groups: Vegetables and Fruit, Grain Products, Milk and Alternatives, and Meat and Alternatives.

##### a) Food Guide Serving Sizes

Canada's Food Guide recommends a different number of **Food Guide Servings** for different age and gender groups. The amount of food youth will eat also depends on their appetite, their activity level and how fast they are growing. Although energy needs tend to increase through puberty, this increase is not steady and varies according to each youth's own growth pattern. As a general rule, if youth eat according to their appetite and meet, at a minimum, the recommended number of Food Guide servings for all four food groups, they will get the nutrition they need.

A **Food Guide Serving** is simply a reference amount. **Food Guide Servings** help you understand how much food is recommended every day from each of the four food groups. In some cases, a **Food Guide Serving** may be close to the amount you eat, such as an apple. In other cases, you may serve yourself more than one **Food Guide Serving**, such as rice or pasta, at a meal. It is important to note that the serving size on a nutrition label is not always equivalent to a **Food Guide Serving** or to the amount you normally eat.

## b) The Four Food Groups' Key Messages

### 1) Vegetables and Fruit

**Eat at least one dark green and one orange vegetable each day.**

- Dark green vegetables are important sources of **folate**. Examples include broccoli, spinach, romaine lettuce, green beans, brussel sprouts and bok choy.
- Orange vegetables are rich in carotenoids such as beta-carotene, which the body converts to **vitamin A**. These include carrots, squash and sweet potatoes. Some orange-coloured fruit such as apricots, cantaloupe, mango and papaya are also important sources of carotenoids. You can eat them in place of an orange vegetable.



**Choose vegetables and fruit prepared with little or no added fat, sugar or salt.**

Most vegetables and fruit are naturally low in fat. Examples of higher fat choices include french fries, onion rings, salads with large amounts of dressing, and fruit served with cream. Fruit packed in heavy syrup has more sugar and adds extra calories. Choose fresh fruit, unsweetened frozen fruit or fruit packed in water or juice. Look at the Nutrition Facts table on the package to find the amount of fat and **salt** (sodium) in prepared and packaged vegetables. Use fresh or dried herbs, spices, flavoured vinegars or lemon juice instead of **salt** to enhance the flavour of vegetables.

Beware of packaged food with the word 'fruit' and 'vegetable' in their name. Examples of these types of foods include fruit snacks, vegetable chips, fruit jams, and fruit 'drinks', 'cocktails' or 'punches'. Most of these products are high in sugar, salt and/or fat, and contain little amounts of real fruit or vegetables. As a result, they do not belong to this food group.

**Have vegetables and fruit more often than juice.**

Vegetables and fruit contain fibre while their juices contain little to none. Fibre can help you feel full and satisfied. Youth should be encouraged to try a variety of vegetables and fruit.

Many of the fruit 'drinks', 'beverages' 'cocktails', or 'punches' available are mostly sugar, with some vitamins added and do not provide youth with the other vitamins and minerals naturally found in 100% pure fruit or vegetable juice. See the 'Rethink What You Drink' section for more information on beverages.

## 2) Grain Products



### **Make at least half of your grain products whole grain each day.**

Whole grains and whole grain foods are composed of all three layers of the grain seed or kernel:

- The bran (outer layer): provides all of the fibre as well as B vitamins; minerals such as magnesium, iron and zinc; **phytochemicals**; and some **protein**.
- The endosperm (middle layer): accounts for the majority of the weight of the grain and is composed mostly of **carbohydrate** and **protein**.
- The germ (inner layer): provides B vitamins, **unsaturated fats**, vitamin E, minerals and **phytochemicals**.

Examples of whole grains include brown rice, bulgur, pot barley, quinoa, whole oats or oatmeal, whole grain wheat and whole rye. You can find out if a product is made with whole grain by reading the ingredient list on the food label. Whole grain foods will have the words ‘whole’ or ‘whole grain’ followed by the name of the grain as one of the first ingredients.

Claims such as ‘Multigrain’, ‘Stone-Ground’, ‘Made with Whole Grains’ do not indicate that the product is whole grain. Products with these labels may actually contain little to no whole grains. For example, some brown bread may really be white bread coloured with molasses.

### **Choose grain products that are lower in fat, sugar or salt.**

Baked goods such as cakes, croissants, doughnuts, pastries, pies and most cookies and muffins will add extra **calories**, fat, sugar and/or **salt** (sodium) to the diet and should be limited. These foods are typically low in fibre and are not usually made with whole grains. Use the ingredient list and Nutrition Facts table on food labels to compare products and make informed choices. Choose products that have as little **trans fat** and **saturated fats** as possible. Avoid products that have ‘**partially hydrogenated**’ and ‘vegetable oil shortening’ in the ingredient list.

## 3) Milk and Alternatives

### **Drink skim, 1% or 2% milk each day.**

Everyone should drink two cups of low fat milk each day to obtain adequate vitamin D. Drinking low fat milk is an effective way to consume **protein**, calcium, magnesium, riboflavin, vitamin A, vitamin B12, vitamin D and zinc while minimizing the amount of **saturated fat** and **calories**. **Fortified** soy beverage can be used as an alternative to milk. Rice, potato and almond beverages may be **fortified**, however, these types of beverages do not contain the level of **protein** found in milk and **fortified** soy beverage. Look for the word ‘**fortified**’ on the label of soy beverages, as only these contain added vitamins and minerals to make them a nutritionally adequate alternative. It’s important to shake the container since added calcium may stick to the package lining.



### Select lower fat milk alternatives.

Lower fat yogurts are those with 2% milk fat (M.F.) or less. Lower fat cheeses have 20% M.F. or less. Selecting these lower fat products helps to reduce **saturated fat** intake.

Cream cheese, sour cream, and ice cream are not a part of the Milk and Alternatives food group since they tend to be higher in fat and sugar and their calcium content is very low. The ‘chocolate bar’ milkshakes available are high in sugar and fat. Chocolate milk is a healthy choice, as it contains the same amount of nutrients as white milk.

## 4) Meat and Alternatives

### Have meat alternatives such as beans, lentils and tofu often.

Beans, lentils and tofu are sources of protein, fibre and **folate**. Eating more of these meat alternatives helps to minimize the amount of **saturated fat** in the diet.

### Eat at least two Food Guide Servings of fish each week.

Fish is a great source of **protein**. It is low in **saturated fat**, with some types containing the **omega-3 fatty acids**. People are encouraged to eat at least two Food Guide Servings (150 grams) of fish each week to help reduce the risk of **cardiovascular disease**. Choose fish such as char, herring, mackerel, rainbow trout, salmon and sardines as these are good sources of **omega-3 fats**. Fish should be cooked using lower fat preparation methods, such as baking or broiling. Deep-fried fish or fast food fish sandwiches do not offer the same cardiovascular benefits.

Certain types of fish contain high levels of **methylmercury**, a strong toxin that concentrates in the muscle tissue of fish and shellfish. Higher **methylmercury** levels are typically found in large predatory fish, such as white (albacore) tuna, shark, king mackerel and swordfish; which accumulate **methylmercury** over their life span. Choose fish that are low in **methylmercury**. In terms of canned tuna, youth should be offered canned ‘light’ tuna.

### Select lean meat and alternatives prepared with little or no fat.

Canada’s Food Guide emphasizes lean cuts of meat and skinless poultry to minimize the amount of **saturated fat** in the diet. Lean meat, poultry and fish become higher fat choices once they are fried, deep-fried or served with higher fat sauces. Canada’s Food Guide recommends baking, broiling, poaching or roasting meats and allowing the fat to drain off.

When looking for processed deli meat, it is best to choose those that are lower in fat, like chicken, turkey and black forest ham. Foods such as hot dogs, bologna, chicken nuggets etc. are not the best choices as they tend to be high in **saturated fat**.

## c) Oils and Fats in our Diet

Oils and fats play an important role in supplying calories and essential fats, and to help our bodies absorb the fat-soluble vitamins A, D, E and K. The type of fat we eat is as important as

the amount of fat. **Unsaturated fats** can help keep blood cholesterol levels healthy. There are two types of **unsaturated fats**: monounsaturated and polyunsaturated. Vegetable oils like canola, olive and soybean contain mainly monounsaturated and polyunsaturated fats. Canada's Food Guide recommends that we use a small amount of **unsaturated fat** each day: 30 to 45 mL (2 to 3 tablespoons). This includes oil used for cooking, salad dressings, and non-hydrogenated margarine.

**Saturated fats** and **trans fat** are harmful to heart health since they raise blood cholesterol and increase the risk of **cardiovascular disease**. **Saturated fats** are mainly found in animal products like meats, butter, milk, cheese and eggs. **Trans fat** is mostly found in processed foods containing shortening or **partially hydrogenated** oil. Canada's Food Guide recommends choosing foods that contain less fat, saturated fat and trans fat.

For more information on fats, see section **1.3 Calories and Nutrients** on page 132.

#### **d) Foods and Beverages to Limit**

Canadians get 23% of their calories from the foods and beverages that are not part of the four food groups (Garriguet, 2004). Food and beverages that are high in calories, fat, sugar and/or **salt** (sodium) and low in nutrients are considered foods to limit.

Examples of foods and beverages to limit:

- Cakes and pastries
- Chocolate and candies
- Cookies and granola bars
- Ice cream and frozen desserts
- Doughnuts and muffins
- French fries
- Potato chips, nachos and other salty snacks
- Alcohol
- Fruit flavoured drinks
- Soft drinks
- Sports drinks
- Energy drinks
- Sweetened hot or cold drinks

The portion sizes of foods to limit have increased considerably over the years, contributing to excessive caloric intake. This is why it's important to be aware of portion sizes when selecting foods and beverages and to listen to your body's **hunger and satiety cues**. It is encouraged to choose foods and beverages that are **nutrient dense** more often. By choosing foods from the four food groups we ensure that we are consuming **nutrient dense** foods and beverages.

## e) Rethink What You Drink

### Water

Canada's Food Guide recommends drinking water to satisfy thirst. Water maintains normal body functions and prevents dehydration. Fortunately, in most areas of the province, municipal tap water is safe to drink. In rural areas many people use well water that needs to be regularly tested by the homeowner. This service is free from your local health unit/department.

### Milk

Canada's Food Guide recommends two servings of fluid milk daily for everyone. Youth 9 to 18 years of age should consume an additional 1-2 servings of Milk and Alternatives daily. **Fortified** soy beverage can be used as an alternative to milk. Chocolate milk is a healthy choice, as it contains the same nutrients as white milk and the same amount of sugar as unsweetened orange juice.

### Juice

100% unsweetened vegetable or fruit juices can also be a healthy beverage choice, however, juice intake should be limited to about 1 cup per day for youth. Vegetables and fruit should be consumed more often than juice to get more fibre and to help feel full and satisfied. When choosing fruit juice, it is important to look for '100% juice' on the label. Many fruit drinks, punches and cocktails contain less than 10% juice and are mostly water and sugar.

### Sweetened Beverages

Soft drinks and other sweetened beverages like fruit drinks, sports drinks and energy drinks contain large amounts of sugar with little nutritional value. These beverages have come to displace more nutritious beverages and foods from our diets. The consumption of these beverages should be limited.

Studies suggest that when we drink liquids, the body's **satiety cues** are not triggered in the same way as eating solids (Della Valle et al, 2005; DiMeglio et al 2000). This means that our bodies do not register calories from liquids in the same way as calories from food. Therefore, we don't make up for liquid calories by eating less solid food. This is exacerbated by the increased consumption and larger portion sizes of sweetened beverages over the last few decades.

Some beverages such as pop or energy drinks may contain caffeine. Energy drinks are not recommended for children and youth due to their high caffeine content. Caffeine can cause nervousness, irritability, headaches and difficulty sleeping. Drinking one can of pop with caffeine affects a child in the same way as three to four cups of coffee would affect an adult. Cola and diet cola drinks also contain phosphoric acid. Phosphoric acid weakens tooth enamel and increases the risk of dental cavities. It is important that nutritious drinks like milk not be replaced by pop or other sweetened beverages.

## 1.2 A Healthy Attitude Towards Food

It is important to emphasize healthy eating and the development of a positive approach to food. Canada's Food Guide recognizes that healthy eating is the overall pattern of foods eaten. It is important to be able to recognize your body's **hunger and satiety cues** in order to respond to the physiological need to eat instead of eating for emotional or social reasons.

### Eating Breakfast

Students who do eat breakfast daily are more likely to have an overall adequate diet, when compared to those who do not eat breakfast. A survey of breakfast habits in youth found that in grade 6, 78% of boys and 67% of girls ate breakfast (more than a glass of milk or fruit juice) on all five weekdays (Boyce, 2004). However, as grade level increased, there was a decline in the proportion who ate breakfast daily (Boyce, 2004).



A complete breakfast should include foods from three to four of the four food groups: Vegetables and Fruit, Grain Products, Milk and Alternatives, and Meat and Alternatives. Choose a variety of different foods for breakfast to ensure that the body gets the nutrients and energy that it needs. Foods served at breakfast do not have to be 'traditional' breakfast foods such as toast or cereal. All kinds of food can be eaten. For example, people from some cultures eat soup, rice, fish, dal, tortilla, leftover pizza or spaghetti for breakfast. Breakfast does not have to be eaten as soon as a child wakes up, or even before the child leaves the home. If breakfast can't be eaten at home, eating a traveling breakfast or arriving early and eating at school are also possibilities.

Student Nutrition Programs allow students have at least one healthy meal or snack each day without singling out those who may come to school hungry. The Ontario Ministry of Children and Youth Services funds *Student Nutrition Programs* and they can be found in some elementary and secondary schools. These programs are developed by local schools and community agencies and are often run by volunteers (i.e. parents, teachers and school staff). They must follow Ministry guidelines for nutrition standards. For more information on Student Nutrition Programs, go to the Ministry website at [www.gov.on.ca/children/english/programs/beststart/nutrition/index.html](http://www.gov.on.ca/children/english/programs/beststart/nutrition/index.html). For information about local programs contact your local health unit/department.

### Healthy Snacking

Adolescents need snacks to fuel their high energy and nutrient needs. Research shows that approximately 41% of Grade 7 students and 46% of Grade 8 students consume candy and chocolate bars five days a week or more. (Boyce, 2004) Since youth are often on the run, they need to learn how to choose snacks that are fast, convenient and healthy. Here is a list of some ideas to share with students:



- Milk, chocolate milk, pudding made with milk
- Yogurt, yogurt drink, smoothie made with yogurt
- Fruits such as grapes, bananas, cantaloupe, and fruit cups. Top with vanilla yogurt.
- Vegetable sticks with low fat salad dressing or low fat sour cream-based dips
- Whole wheat crackers topped with cheese, peanut butter or hummus

- Trail mix with cereal, nuts and dried fruit
- Cereal with milk
- Whole wheat bagel, bread or pita with light tuna or salmon salad



### 1.3 Calories and Nutrients

Healthy eating helps youth meet their energy needs for growth, development and activity. Nutrients in food provide energy, facilitate growth, and help the body to function properly. There are two main categories of nutrients: macronutrients and micronutrients.

Macronutrients are needed in relatively large quantities and they provide energy for the body. The three types of macronutrients are:

- Carbohydrate
- Fat
- Protein

Micronutrients are needed in relatively small quantities, perform specific functions, and help the body use the macronutrients. Micronutrients do not provide energy. The three types of micronutrients are:

- Vitamins
- Minerals
- Water

#### Calories

A calorie (or kilojoules in the metric system) is a measure of how much energy food can supply the body. The body uses the food eaten as fuel, burning it to produce energy. The body needs energy to function. Some nutrients have more calories than others do. There are four calories in each gram of carbohydrate and each gram of protein. There are nine calories in each gram of fat. Alcohol has seven calories per gram. Vitamins, minerals and water do not provide calories.

#### Carbohydrate

Between 4 and 18 years of age, 45-65% of total calories should come from carbohydrates. Carbohydrate is the body's major source of energy. There are three main types of carbohydrates:

- Sugar/simple carbohydrates - found in milk, fruit, table sugar, and candy
- Starch/complex carbohydrates - found in grains, breads, crackers, pasta, beans and lentils
- Fibre - found in vegetables, fruit, whole grains, beans and lentils. Fibre is the portion of plant foods that the body cannot digest.

#### Fibre

Canada's Food Guide encourages people to eat foods that are high in fibre. Eating patterns high in dietary fibre are associated with a healthy digestive system, and a lower incidence of **cardiovascular disease** and some types of cancer. Males between 9 and 13 years of age need 31 g of fibre daily and girls between 9 and 18 years of age need 26 g. At age 14 to 18, the requirement increases to 38 g for males. It is important to teach about the benefits of fibre. A study of nutrient intakes showed 94% of Ontario students in grades 6, 7 and 8 were below the requirement for fibre (Hanning et al., 2007).

Adolescents tend to eat fast foods and other ready-to-eat foods that contain minimum amounts of fibre. They should be encouraged to eat more foods of plant origin such as grains, cereals, fruit, vegetables, legumes, nuts and seeds.

## **Fat**

Between 4 and 18 years of age, 25-35% of calories should come from fat. Fats and oils play an important role in that they supply calories and essential fats and help our bodies absorb the **fat-soluble** vitamins A, D, E and K. There are three main types of fat in our diet:

- **Unsaturated fats**, such as monounsaturates and polyunsaturates, are found in vegetable oils like canola, olive and soybean oils. These types of fat are healthy.
- **Saturated fats** are mainly found in animal products like meats, butter, milk, cheese and eggs. Large amounts of these types of fat are known to raise blood cholesterol and increase the risk of **cardiovascular disease**.
- **Trans fat** is mainly found in processed foods, baked goods and hard (stick) margarines containing shortening or **partially hydrogenated** oil. **Trans fat** raises blood cholesterol and increases the **risk of cardiovascular disease**.

### **Tips to Avoid Trans Fat:**

- Avoid products that have ‘**partially hydrogenated**’ and ‘vegetable oil shortening’ in the ingredient list.
- Use the Nutrition Facts panel to choose products that have as little **trans fat** as possible.
- When choosing margarine, look for ones that say ‘non-hydrogenated’ on the package.

## **Protein**

Between 4 and 18 years of age, 10-30% of total calories should come from protein. Aside from water, proteins are the most abundant substances in the human body. Proteins are found in every body cell and are essential for many body functions. Proteins are made up of **amino acids**. The body uses amino acids to develop bone, muscle, skin, and blood. Some common sources of dietary protein are fish, poultry, meat, legumes (beans, lentils), eggs, tofu, nuts, and milk products (milk, cheese, yogurt).

## **Vitamins**

Vitamins do not provide energy but do help the body grow and stay healthy. Fruits, vegetables and enriched grain products are good sources of many vitamins. **Vitamin A** is an example of a vitamin that helps keep our skin and our eyes healthy. Carrots, spinach and broccoli are excellent sources of **Vitamin A**. Other examples of vitamins our bodies need are vitamins C, D, E, K and the B vitamins (e.g., folate).

Folate is a B vitamin that helps form new cells in the body. This vitamin is typically low in most adolescents’ diets. Folate can be found in many foods, such as beans and lentils, peanuts, spinach, orange juice, asparagus, broccoli, avocado and enriched breads, cereals and pasta.

## **Minerals**

Minerals help build bones and teeth, help muscles work and are involved in various metabolic pathways. Calcium is an example of a mineral that helps build bones and teeth. Other examples of minerals our bodies need that we get from food are potassium, sodium, iron, zinc, phosphorus, magnesium, and copper.

An optimal intake of calcium during adolescence contributes to peak adult bone mass. In one study, it was found that 70% of grade 6, 7 and 8 students in Ontario were below the requirement for calcium (Hanning et al., 2007). Calcium intake is an important factor in the prevention of osteoporosis. The best sources of calcium include milk, yogurt, cheese and calcium-fortified soy beverages. Vitamin D is also important in calcium absorption. Canada's Food Guide recommends that everyone drink 2 cups of milk everyday because it is the main food source of vitamin D. Youth between the ages of 9 and 18 need 3-4 servings of milk and alternatives daily. Other sources of calcium are canned salmon and sardines with bones, green leafy vegetables, and tofu set with calcium.

Iron is an important mineral found in our blood. With the help of a molecule called hemoglobin, iron carries oxygen to body cells. Once there, oxygen helps cells produce energy. When iron is in short supply, there is less oxygen available to produce energy, leading to a feeling of fatigue.

Males and females have high requirements for iron during adolescence. Adolescent males need iron because the development of muscle mass is accompanied by greater demand for blood volume. Adolescent females require more iron than children because they lose iron monthly during menstruation. Iron is found in a variety of foods such as meat, poultry and seafood, as well as legumes, enriched grains and some vegetables.

## **Water**

About 50-60% of our total body weight is water. A person can survive only a few days without water. Water has many functions including carrying nutrients and oxygen to cells, maintaining body temperature, and assisting in digestion and respiration.

Under normal circumstances, the body loses water through breathing, sweating and excreting wastes. When it's hot outside, your body loses even more water through sweat, especially if you're active. Your physical performance and your ability to think can be impaired by losing as little as 1-2% of your body weight from fluids. It is important to teach students about the importance of drinking enough water to prevent dehydration. Beverages provide 80% of daily water intake while the other 20% comes from food. Youth between the ages of 9 to 13, need 1.6-1.8 litres of liquids per day; with water being the main contributor. Listening to one's thirst signal is not enough. Thirst is often one of the last signs of dehydration – you need to drink fluid before you become thirsty. Ensure that youth have easy access to water and encourage them to drink frequently throughout the day.

## 2. Factors Influencing Food Choices

For children and youth, eating is usually a social occasion with the people in their lives, including parents, older adults, peers and siblings. Observing others' eating behaviour influences the development of youth's own preferences and eating behaviour (Birch and Fisher, 2006). Eating behaviour can also be influenced by culture, family, personal likes and dislikes, etc. The media is highly influential with regards to food selection, body image and self-esteem.

As children get older, sources of food and influences on eating behaviour increase (American Heart Association, 2006). At a young age, adults provide all meals and snacks; at older ages, children begin daycare, go to school, begin to prepare their own snacks, and purchase more meals and snacks outside of the home. These factors influence children & youth's food choices, eating behaviour, body image and self-esteem.

### 2.1 Individual Preferences

Youth's food preferences are often guided by taste or liking (Taylor et al., 2005). Children & youth choose foods because they taste good and because eating those foods makes them feel good. For example, some foods (e.g., candy, cake) are associated with special occasions where people tend to be happy. Another common situation is when people eat out of habit rather than hunger, like eating while watching television. These factors can lead to less healthy choices.

Children & youth come to like and eat what is familiar. What is familiar is usually what is present in the environment (Birch and Fisher, 2006), consequently making the food environment that surrounds them very important. Healthy choices should be available in all settings, including at home and at school, so that children & youth are exposed to a variety of healthy foods. For example, dislike for vegetables is one of the three most important predictors of fruit and vegetable intake in children (Taylor et al., 2005). However, if children & youth are eating vegetables and fruit with friends in a social setting, this can influence what types of foods they 'like'.

### 2.2 Allergies

The incidence of life-threatening food **allergies** is increasing. Allergic reactions can happen anywhere - at home, in school or recreational facilities, at camp and on field trips. Severe **allergic** reactions (e.g. anaphylactic shock) occur when the body's immune system reacts to a particular allergen or irritant. Nine food substances are most frequently associated with food **allergies** and **allergic**-type reactions. These substances are often referred to as the nine priority food allergens and include peanuts, tree nuts, sesame seeds, soy, milk, eggs, fish including crustaceans and shellfish, wheat and other cereal grains containing gluten, and sulphites.

Children & youth with **allergies** face many situations at school which could potentially place them at risk for exposure to food allergens. Contamination of tables, desks, books or toys with the foods, or inadequate or infrequent cleaning of tables, desks, and equipment can result in

exposure to allergens. Other occasions that can pose risk include: sharing foods between youth, special occasions and parties where food is served and/or available. It is important that all school community members are aware of the potential life threatening nature of food **allergies** and the proper treatment of an allergic reaction.

In 2005, the provincial government passed a bill known as ‘Sabrina’s Law’ to create safer school environments for children & youth living with life-threatening **allergies**. Under the law, school boards are required to have **allergy** management plans and training in place for all schools. School anaphylaxis plans ensure that children & youth at risk are identified, strategies are in place to reduce the risk of exposure to allergens, and school staff are trained to respond to emergencies.

Sabrina’s Law can be found at:

<http://www.edu.gov.on.ca/eng/healthyschools/anaphylaxis.html>

More information on severe allergic reactions can be found on the Health Canada website at:

[http://www.hc-sc.gc.ca/iyh-vsv/med/allerg\\_e.html](http://www.hc-sc.gc.ca/iyh-vsv/med/allerg_e.html)

Health Canada and the Canadian Food Inspection Agency have created a series of pamphlets with information on each of the nine priority food allergens. These can be found at

<http://www.hc-sc.gc.ca/fn-an/securit/allerg/fa-aa/index-eng.php>

## 2.3 Culture

Food is only one aspect of cultural traditions, yet it is probably one of the most talked about. In different cultures food can be a source of pleasure, comfort, security, and a symbol of hospitality, social status and religious significance. Culture can influence what we select to eat, how we prepare and serve it, and even how we eat.

The Canadian population consists of many diverse ethno-cultural groups, providing an ideal opportunity to choose from a large variety of foods. For example, pizza and a variety of pasta dishes came from Italy, sausages and hamburgers from Germany, stir-fry dishes from China, and pita bread sandwiches from Lebanon. People from different ethnic backgrounds have traditionally based their food choices on what has grown in the climates of their country of origin. For example, North Americans have traditionally built their meals around wheat or corn, and Asians around rice. Colder countries, like Scotland, have relied on heartier grains such as oats and barley. Special foods that people eat on holiday occasions are also related to ethnic background. For example, many families have special food practices associated with festivals and days of significance.

The school community can help youth learn about the differences in peoples’ eating habits, likes and dislikes, and culture. This learning helps to support the diversity in healthy eating patterns. Students can learn that people from other parts of the world can choose different, nutritious foods (e.g., bread, rice, tortillas or roti). Parents are usually interested in sharing ethnic food and recipes. Discussion in the classroom about different foods can enable each youth to feel individually involved by including foods that relate to their own eating habits.

Before discussing the food practices of multicultural groups, understand their value systems. Food habits are greatly influenced by a group's values and the perception of healthy foods differs from one cultural group to another. On occasion, because of family, culture, and religious reasons, some children may not eat foods from the four food groups, but still meet their nutritional needs. It is important that you do not make the students feel that one value system and food practice is superior to another.

When there is discussion around cultural foods:

- Do not assume that students from a particular group have or have not adopted the food and dietary practices of the general Canadian population. Ask students to share their family's food practices and eating patterns.
- Ask questions with an open mind – don't be judgmental; youth sharing food experiences can help establish trust, as well as knowledge, among classmates.

To support your teaching efforts in the classroom, translated copies of *Eating Well with Canada's Food Guide* are available. Visit Health Canada, [www.healthcanada.gc.ca/foodguide.ca](http://www.healthcanada.gc.ca/foodguide.ca) for more information.

## 2.4 Family and Traditions

Parents are children & youth's most important source of information and influence for healthy eating. Parents shape their children & youth's eating behaviour in a variety of ways: by the choice of an infant feeding method (i.e., breastfeeding or formula feeding), by the foods they make available and accessible, by direct modelling influences, by the extent of media exposure in the home, and by the way they interact with children & youth in the eating context (Birch and Fisher, 2006).

**a) Parental role-modelling** is important in establishing children & youth's food choices. Depending on their own food choices, parents can either be positive or negative role models (AHA et al., 2006). An example of positive role-modelling is when parents eat breakfast daily; it's likely that their children will do the same. Meanwhile those who reward children with high-fat/ high-sugar foods or restrict the intake of such foods, generally have children who develop an increased preference for these foods. Modelling certain behaviours may play a role in the emergence of dieting activities in childhood and adolescence. For example, research suggests that dieting daughters are likely to have dieting mothers and that parents who report problems in controlling their eating are likely to have daughters who show similar patterns (Birch and Fisher, 2006).

**b) Family meals** can have a positive influence on children and youth food selections. Family eating patterns include what, when they eat, where they eat and why they eat. These eating patterns accommodate the schedules, family size, and activity levels of different members. Families that eat meals together are associated with higher intakes of vegetables and fruit, milk products and improved nutrient intakes (Taylor et al., 2005). Children who eat together with the family have also been shown to have healthier eating habits (Gillman et al., 2000), do better in school, and have more self-esteem (Eisenberg et al., 2004).

**c) Family income** is another factor that influences what children & youth eat and the food choices that are available to them. Everyone has a right to access healthy foods. However, due to a variety of reasons, families might not have the means to offer healthy choices at home.

Food security is said to exist when people can get enough food to eat that is safe, that they like to eat and that helps them to be healthy. They must be able to get this food in ways that make them feel good about themselves and their families (Ontario Public Health Association, 1995).

There are many reasons why families may not have enough money to obtain food. Factors that affect the ability to shop for and prepare nutritious foods include: inadequate household income, lack of time, lack of knowledge and skills, a single parent household, etc. High unemployment, low incomes for the working poor, high housing costs, transportation and other basic necessities, and inadequate social assistance payments all contribute to the poverty which limits access to a healthy diet (OPHA, 1995). Low literacy levels, a lack of opportunities for skill development and lack of childcare make it difficult for people to access healthy food (OPHA, 1995).

It is important for teachers and other school community members to be sensitive to the fact that the foods students bring to school (e.g., in lunch bags, for snacks) will be influenced by the home situation and the level of food insecurity experienced by their parents and caregivers.

Well-documented research shows that there is a clear link between good nutrition and school performance (Ontario Society of Nutrition Professionals in Public Health, 2004). Well-nourished students do better and behave better in school.

Students may come to school hungry because they have missed breakfast, have forgotten their lunch or their family is unable to consistently provide lunch. Hunger affects students in various ways. Some may become tired while others may become hyperactive. Other warning signs may include aggressive behaviour, irritability, high anxiety, depression, difficulty concentrating, stealing food, short attention span, hyperactivity, and anti-social behaviour. Keep in mind these warning signs may instead indicate an underlying medical condition such as diabetes, an eating disorder or allergies.

### **Actions You Can Take if a Child is Hungry**

- Speak to the parent/caregiver to try and determine why the student might be hungry.
- Offer the student an opportunity to eat part of their lunch or snack before the next scheduled snack or meal.
- If your school has an emergency food pantry, offer the student a snack until they can have their next meal. Stock the pantry with non-perishable food items from each of the four food groups: Vegetables and Fruit, Grain Products, Milk and Alternatives, and Meat and Alternatives. Consider storing perishable milk products in the school's refrigerator if space allows.
- Contact your local public health unit/department for more information about community food programs that can assist the family.
- If hunger is a chronic issue for the student and their family, speak to the principal about other options for support.

## **2.5 Peers**

Although youth may identify with their family, positive role modeling of healthy eating can also come from youth's friends and classmates. Peer pressure influences children of all ages. Acceptance in a peer group can depend on eating, liking and doing the same things as the others in the group. If youth see their classmates and friends enthusiastically eating healthy foods such as fresh fruit and vegetables, they will be more willing to enjoy them as well. Offering healthy choices for classroom celebrations provides the perfect opportunity for youth to socialize and role model healthy eating behaviour with each other.

## **2.6 Volunteers and Professionals Who Work with Youth**

Positive role modeling of healthy eating and positive body image by adults working with youth encourages students to value and enjoy healthy eating and promotes student preferences for healthy foods and beverages (Creating a Healthy School Nutrition Environment Health Unit Collaboration, 2007). Teachers, along with other school community members (e.g., secretaries, coaches, custodians, and school bus drivers) can have powerful effects on youth through the example they set. Outside the school environment, camp leaders, coaches and others who work with youth can also strongly support or hinder what they know about healthy eating and healthy living.

It is important for all adults, including parent volunteers, to reinforce the healthy eating education learned in the class, during class trips or at special events. For example, encourage them to pack nutritious lunches or drink water instead of pop. Discourage the use of foods as a reward for good behaviour; instead, offer a class reward such as extra physical activity time upon return to the school.

## **2.7 School Environments**

In addition to providing opportunities for academic learning, schools have the capacity to enhance students' health, self-esteem and development of lifelong skills and healthy eating behaviour. Schools are one of the most effective and efficient ways to reach almost all children & youth, school personnel and families (World Health Organization, 1998).

It is important to help your school create an environment that supports healthy eating. A Healthy School Nutrition Environment is one where students can get the same message about food, nutrition and healthy eating wherever food is served – in the classroom, in the school and at home. An environment that supports healthy eating may influence the youth's preference for certain foods. For example, research has shown that children consumed more fruit and vegetables when schools served such foods. The authors concluded that the extent to which fruit and vegetables are made available and accessible to children may shape children's liking for consumption of those foods (Birch and Fisher, 2006).

A healthy school nutrition environment contains nine essential elements (OSNPPH, 2004). Below is a list of the elements along with some questions to think about to help in practicing all nine elements.

10. Provide healthy, reasonably priced and culturally-appropriate food choices. For example when you have a classroom party, are healthy food choices offered? Do you reward children with non-food rewards?
11. Encourage positive role modeling of healthy eating by school staff and volunteers. Do you eat and drink healthy foods and beverages when in the presence of students?
12. Offer daily universal Student Nutrition Programs. Does your school have a snack or breakfast program?
13. Ensure safe food practices and allergy-safe surroundings. Do you monitor how the food-safe policy is being followed?
14. Schedule nutrition breaks at appropriate times. Are students getting a full 20 minutes to eat their lunch?
15. Implement school food and nutrition policies. Does your school have a food and nutrition policy that addresses all foods and beverages being sold or offered in school?
16. Offer nutrition education for staff. Do you participate in professional development opportunities on nutrition?
17. Offer nutrition education for students. Do you have up-to-date nutrition resources to support the healthy eating expectations in the curriculum? Are you spending enough time teaching the healthy eating expectations from the curriculum?
18. Provide student, parent and community education about healthy eating? For example, do you include nutrition activities that involve students', parents and families?

Some of these elements can be directly influenced by teaching staff.

To learn more about healthy schools, contact your public health unit and/or visit [www.osnpph.on.ca](http://www.osnpph.on.ca) and click on *New Publications Call to Action: Creating a Healthy School Nutrition Environment*.

## 2.8 Media Messages

The media has significant influence on youth and food choices. Companies deliberately target this age group because they have money to spend, can influence their parents shopping decisions, and will eventually become adult consumers.

There are different marketing strategies that companies use on their target groups. Internet sites aimed at children and youth include advertising as part of interactive games, contests and free promotions. Online surveys provide marketing information which help companies understand what influences youth and how to sell to them. Endorsements by celebrities and sports stars promote brand loyalty.

The majority of food advertising has a negative effect on youth's health by making high fat, high sugar foods more desirable. Content analyses of television advertisements have shown that food is the most frequently advertised product category on children's television, and the majority of

these ads target highly sweetened products and are increasingly promoting fast food meals (Coon et al, 2002).

Teaching media literacy helps students learn how to critically analyze the intention of media messages. Schools can resist the influence of corporations that market unhealthy foods by avoiding: offers of teaching materials, fast food for fundraising, financial support for children's events, and promises of school equipment and vending machine contracts that include unhealthy foods and beverages.

### **3. Physical Activity and Youth**

Healthy eating and regular physical activity play important roles in growth and development. Both are important components of a healthy lifestyle. Healthy eating provides the energy required for physical activity. Regular physical activity provides young people with opportunities for increasing their self-esteem and appreciation for their own bodies.

Regular physical activity in adolescence helps to develop cardiovascular fitness, strength, flexibility and bone density. Encouraging youth to build physical activity into their daily routine helps to create a healthy pattern for a lifetime. Every youth, no matter their age, height, weight, natural abilities or skills, needs to be physically active to be healthy and strong. Everyone has different interests, abilities and strengths, and need to be introduced to a variety of activities. It is important for youth to know that sports are not the only way to stay active. Identifying other non-competitive activities is essential.

Activity ideas include:

- Building a snowman
- Skating
- Swimming
- Roller-blading
- Bowling
- Chasing the dog
- Climbing trees
- Tobogganing
- Throwing a Frisbee
- Playing catch

#### **What is Active Living?**

Active living promotes a way of life in which physical activity is valued and integrated into daily life, whether it's taking the dog for a walk or riding your bike to the store. It stresses the importance of doing moderate activities that feel good and fun. It is more than fitness and sport - it is a commitment to a healthy mind, spirit and environment, all linked through physical activity. Active living encourages people of all ages to get up and get moving. *Canada's Physical Activity Guide to Healthy Active Living* supports the concept of active living.

When fun and enjoyment are part of skill development and physical activity, youth are more likely to develop a positive attitude towards active living. Parents and educators can play a role in promoting this message. Children need to be given both encouragement and the opportunities to get up and move. Integrating physical activity as an enjoyable part of a daily lifestyle helps to prevent heart disease, bone disease and other health conditions. Young people who are physically active are also less likely to smoke, drink, or do drugs, and more likely to have healthy eating habits (Prince Edward Island Healthy Eating Alliance, 2005).

## Benefits of active living

- Improved fitness
- Better sleep and more alert
- Fun
- Healthy body weight
- Healthy heart and lungs
- Relaxation
- Optimal learning ability
- Positive feelings about self / self-confidence
- Strong muscles and bones
- Flexibility
- Good balance and posture

## How much Physical Activity should Children and Youth get?

*Canada's Physical Activity Guides for Children and Youth* provide a set of national guidelines to help children and youth improve their health through regular physical activity.

The Guides recommend children and youth:

- Increase the amount of time currently spent doing physical activity by 30 minutes per day in periods of 5-10 minutes. Over several months, children and youth should try to accumulate over 90 minutes of physical activity per day.
- Reduce non-active time spent on sedentary activities like watching TV, videos, 'surfing' the Internet and playing computer games, starting with at least 30 minutes less per day and eventually trying to eliminate at least 90 minutes of non-active time.

## Types of Physical Activity

There are three different types of physical activities that help keep the body healthy: endurance, flexibility and strength. A variety of each type of activity will provide the most health benefits.



**Endurance activities** help the heart, lungs, and circulatory system stay healthy and also provide more energy. These activities make you breathe deeper, your heart beat faster, and make you feel warm. Examples include walking, cycling, skating, taking the stairs and dancing.

**Flexibility activities** help move the body easily, keep muscles relaxed and joints mobile. This involves gentle reaching, bending, and stretching all of the muscle groups. Examples include bowling, curling, gardening and yoga.

**Strength activities** help the muscles and bones stay strong and improve posture. Examples include lifting weights, wearing a backpack carrying school books, carrying groceries, and exercises like abdominal crunches and push-ups.

## Physical Activity at School

The Ministry of Education supports and promotes the participation of students in Daily Physical Activity (DPA) and has implemented a policy on this, entitled, Policy/Program Memorandum No. 138, “Daily Physical Activity in Elementary Schools, Grades 1–8”, October 6, 2005. This policy requires that all students in Grades 1 to 8, including students with special needs, to be provided with opportunities to participate in a minimum of twenty minutes of sustained moderate to vigorous physical activity each school day during instructional time. The goal of DPA is to enable all elementary students to improve or maintain their physical fitness and their overall health and wellness, and to enhance their learning opportunities.

The electronic versions of *The Ontario Curriculum, Grades 1–8: Health and Physical Education, 1998*, which are posted on the Ministry of Education website at <http://www.edu.gov.on.ca>, have been revised to reflect this requirement. On this website, there are also a variety of DPA resources available as PDF files for teachers to download.

Teachers can play a large role in teaching students about the need for physical activity. Teachers can create a classroom environment that values physical activity by including DPA or other related activities and by encouraging students to try something new. Introduce new activities and let them try them in the classroom. You may want to initiate a class physical activity project for a week or month, in an effort to get them to be more active every day. The most important result is that students find physical activity fun! Do not make physical activity a punishment, for example having them miss recess or doing laps around the track, as this will take the fun right out of physical activity!

## 4. Factors Influencing Body Shape and Size

Steps towards a healthy lifestyle include:

- Eating the recommended amount and types of food each day.
- Limiting foods and beverages high in calories, fat, sugar or salt (sodium).
- Being active every day.

Healthy people come in a variety of shapes and sizes. Adolescents’ weight and shape are influenced by many factors, including heredity and puberty. A Body Mass Index (BMI) is a tool that **is not suitable for growing children and teenagers**. Instead, health care providers use the BMI-for-Age growth charts to track their progress over time.

## 4.1 Heredity

It is important that youth understand and appreciate that they are individuals with unique physical characteristics, personalities, and natural abilities. Discuss students' personality and physical traits compared to their siblings, parents and grandparents. Just as eye, hair and skin colour are genetically determined, to a certain degree, so is body weight and shape.

Unfortunately, many youth compare themselves to their peers and to unrealistic media images, becoming pre-occupied and dissatisfied with their weight and shape. They may begin to restrict their eating in an effort to lose weight and change their body shape. Professionals need to focus on strengthening children's self-esteem and helping them understand and accept that, to an extent, their bodies are programmed to be a certain size and shape. By recognizing and appreciating their genetic background, youth can learn to be comfortable with their own bodies and develop a good sense of self. Teachers and parents should promote physical activity and healthy eating as a way of taking good care of oneself, rather than being used as tools for weight loss. All students, regardless of size, should be encouraged to enjoy a variety of foods, while practicing moderation; and to participate in regular physical activity for fun and to feel healthy, energetic and fit.

## 4.2 Hunger and Satiety Cues

All human beings are born with the ability to eat when their body is hungry and stop when they feel full. Babies and small children are in tune with these hunger and satiety cues.

Unfortunately, as children grow older they may learn to ignore these internal cues due to restrained eating or weight loss dieting. When people are insensitive to their feelings of hunger and satiety they are more likely to engage in disordered eating.

Parents and teachers can encourage and respect children's natural abilities to recognize hunger and fullness. Adolescents need to eat adequate amounts of food to sustain rapid growth during puberty. Regular snacks maintain their energy and help them reach their learning potential. Teachers can discuss with students:

- How they feel when they're hungry; (i.e., stomach grumbles or hurts, they feel tired, cranky, restless, etc.)
- How they know when they've had enough to eat (i.e., feel 'full'; not interested in eating anymore)
- That it's 'normal' for people to occasionally overeat (e.g., holiday meals)
- Sometimes we eat when we're not hungry (e.g., for emotional reasons—boredom, sadness; a favourite food or treat is appealing; it's lunch or dinner 'time', etc.)

### School Policies

Some schools have developed policies that allow students to eat healthy snacks in class. Policies include statements such as when, where and what type of foods/drinks are allowed. Allowing healthy snacks in class promotes the importance of eating well and listening to the body's hunger and fullness cues, which helps individuals to achieve and maintain a healthy weight.

## 4.3 Puberty

During puberty, adolescents undergo a growth spurt, gaining 20% of adult height and 50% of adult weight. For girls, this usually begins at 8 to 10 years of age, and for boys 11 to 13 years of age. Some children will grow taller before they gain weight and have a thin, long legged appearance. Other children gain weight before they gain height, often developing weight around their middle. This may cause the child, parent or teacher to worry that the child is ‘getting fat’ which may result in adults encouraging a child to eat less or exercise more. This type of concern can lead to weight preoccupation and restrictive dieting at a time when children need optimal nutrition for growth and development. Furthermore, dieting practices can trigger weight gain (Field et al, 2003), interrupt normal physical growth (Lock, et al, 2001) or set the stage for more disturbed levels of eating (Hsu, 1997). See section 8.2 Why is Restrictive Dieting a Concern.

### Girls

Between the ages of 9 to 16, girls gain on average 2-5 kg. (5-10 lbs.) every year (National Centre for Health Statistics, 2000). Girls require 18-22% body fat in order to begin menstruation (Frisch, 1990) and mature sexually. When talking about puberty and menstruation, it’s important that weight gain is discussed and that girls understand this is a normal expectation. Puberty becomes a particularly difficult time for girls because their natural weight gain moves them away from the ideal thin body shape and size promoted by society and the media. This can negatively affect girls’ self-esteem and body image. Early maturing girls are at further risk for body dissatisfaction (Ohring et al., 2002) because they are more apt to naturally gain weight before later maturing peers, and are more likely to receive sexual teasing and attention when they are still emotionally immature.

### Boys

Boys may also gain weight around their middle or develop enlarged breasts due to hormone levels and increased body fat during puberty. This can be very embarrassing for boys, especially if asked to remove their shirts in physical education class as a way of differentiating between teams (‘skins’ vs. ‘shirts’). Boys naturally grow bigger, stronger and more muscular during adolescence which follows the cultural ideal for males. However, with the unrealistic standards shown in the media, boys may experience dissatisfaction too, because their bodies are unlikely to develop to the extent they want.



## 5. Self-Esteem During Puberty

Self-esteem is the confidence and satisfaction a person has in oneself. It determines how worthwhile, valuable and competent we feel we are. Self-esteem develops from birth through experiences and relationships within the family and continues to be influenced by the significant people in one's life. Supportive parents, teachers, coaches and friends are the key to maintaining and enhancing healthy self-esteem.

Adolescence is a time of transition and confusion, during which boys and girls often experience decreased self-esteem. However, girls' self-esteem tends to drop further than boys during adolescence (Orenstein, 1994). This may be due in part to the socialization of girls that focuses on their appearance and the need to seek approval from others as a means of defining self-worth.

### Factors Influencing Self-esteem:

- Social skills
- Relationships
- Talents
- Intellectual abilities
- Interests
- Personal characteristics (e.g., kindness, honesty, humour)
- Physical appearance

### Tips for Strengthening Self-esteem:

- Encourage students, especially girls to develop interests and abilities in a variety of areas, like sports, education, hobbies and clubs. This helps youth recognize that their appearance is only one aspect of themselves.
- Acknowledge and compliment students on their skills, abilities and character.
- Challenge students to think of things they like about themselves beyond physical appearance (e.g., swimming skills, musical talents, friendship skills).
- Help youth develop skills for coping with the stresses of adolescence, rather than turning to dieting and over-exercise as a way of feeling in control of their lives.
- Teach skills related to friendship, communication and stress management.
- Listen to students concerns and feelings about their changing bodies.
- Encourage students to talk to parents and trusted adults to help sort through problems.

Strong self-esteem helps students cope with stress and anxiety; enables them to be more resilient in difficult times and helps them make healthy choices (O'Dea, 2005). Students who feel good about themselves are less likely to engage in risk-taking behaviours such as disordered eating, smoking, drugs, alcohol and early sexual behaviour.

## 6. Body Image during Puberty

Body image is part of self-esteem. It's a person's perception of their body size, shape, and attractiveness. It also includes a person's attitudes and feelings about their body and how they think others see them.

### Body Image Dissatisfaction

Adolescents often become preoccupied and dissatisfied with aspects of their appearance and may think their peers notice and dislike these aspects too. Furthermore, increasing numbers of adolescents are also dissatisfied with their weight and shape. Research shows that early adolescence is a risky time for developing body image dissatisfaction and disordered eating (Smolak et al., 1996; Levine et al., 2006). These behaviours may be triggered by common stressors that adolescents experience. As a way of coping, some youth turn to dieting in an attempt to achieve an 'ideal' body and gain control over their rapidly changing lives.

### Stressors Contributing to Body Image Dissatisfaction and Disordered Eating:

- Physical changes of puberty such as gaining weight and increased body fat in girls
- Peer pressure from friends who diet
- Social pressure to 'fit in' and be accepted (girls are supposed to be 'beautiful' and thin; boys are socialized to be 'strong' and 'macho')
- Developing feelings of attraction and wanting to impress
- Teasing and harassment—kids may suffer from rude comments about their weight, body shape, eating habits, race, culture, etc.
- School transitions—moving to middle school is a significant adjustment
- Misinterpretation of health messages— 'good' foods vs. 'bad' foods; eating fat is 'bad'; obesity messages about the dangers of gaining weight and the need to 'lose weight' (O'Dea, 2005)
- Influence of the media with its unrealistic expectations for appearance, weight and shape

### 6.1 Media and Body Image

Media has a powerful influence on how young people view themselves. The 'ideal' look portrayed in the media makes people feel inadequate and unhappy with their bodies. Research suggests that up to 80% of girls and women and 40 to 60% of males in our society are dissatisfied with their bodies. (<http://research.aboutkidshealth.ca/thestudentbody/home.asp>)

Advertisers go to great lengths to sell products and convince people, especially women, that their bodies are never good enough. Advertising promotes the false belief that everyone can achieve the 'ideal look' if they just work hard enough and buy the right products (e.g., cosmetics, hair products, clothes, exercise equipment, supplements and diets).

The female models that are used to sell products are typically tall, thin, young, white, and appear perfect. Male models are lean, muscular and equally 'perfect' in their appearance. Youth struggle to achieve a similar look, but the image isn't even real.

## In Reality...

- Specialized photographic techniques and computer technology alter the models appearance to create a look that is flawless.
- Body features are enhanced with props, lighting angles and computer techniques.
- Shapes and sizes are altered.
- Blemishes, freckles, lines, wrinkles, skin folds and other unwanted features are edited out.
- Body parts or features from photos of different people are combined to create the ‘perfect’ image.
- ‘Body doubles’ are common in films when body parts of lead actors don’t measure up to the ‘perfect’ image.
- Photo images can be completely computer generated to fit the popular look of the day.

Source: Adapted from Region of Peel ([www.bodyimagecoalition.org](http://www.bodyimagecoalition.org)).

## Media Literacy Can Help

Teaching media literacy can help students recognize that media images are unrealistic and manipulated to create perfection. This understanding can improve students’ body image and decrease their risk of eating problems (O’Dea, 2005). Media literacy has also been shown to help improve self-esteem and reduce unhealthy dieting in young adolescent girls (McVey et al., 2003). See the ‘Additional Resources’ section for resources related to media literacy.

## 6.2 Girls and Body Image

During adolescence, youth have a strong need to belong and feel accepted. Girls in particular get conflicting and unhealthy messages from our society, media and peers about what it takes to be popular and fit in (Friedman, 1997). Young adolescents often become interested in reading teen or fashion magazines, which are correlated with body dissatisfaction (Jones et al, 2004). Studies show that girls compare themselves to media images and feel worse about themselves as a result (Then, 1992).

Another complicating factor is that during puberty, girls naturally put on weight and gain body fat which goes against the cultural ideal of a thin, ‘beautiful’ body. This makes adolescence a risky time to develop unhealthy eating patterns, negative body image and poor self-esteem as girls strive to achieve an unrealistic ‘ideal’ standard of beauty.

In Western society, the thin ‘ideal’ standard of beauty represents attractiveness, success, and self-control. However, over a hundred years ago, full, rounded figures were considered beautiful and fashionable. The poster shown here is an advertisement used by a department store in San Francisco in 1891. The ideal woman was ‘plump’ and if you weren’t, then you could eat ‘fat-ten-u foods’.



The table below summarizes the popular look of the day for women over the decades.

<b>The Era</b>	<b>The Fashionable Look for Women</b>
1800's	A large body is a sign of health and fertility. Corsets narrow the waist and enhance the bust.
1890's	Actress Lillian Russell at 200 lbs. or 91 kg is the most celebrated beauty of the time.
1910's	Paris designer creates slim sheath dresses, declares that breasts are "out".
1920's	Era of the flat-chested, slim-hipped flapper. First dieting craze of the 20 <sup>th</sup> Century begins.
1950's & 60's	Voluptuous full figured shapes of Marilyn Monroe and Jayne Mansfield are popular.
1967	British model Twiggy (5'6" or 168 cm. and 91 lbs. or 41 kg.) arrives on the scene – and the diet industry explodes.
1970's & 80's	Models gradually become taller, thinner and begin to show toned muscle definition. Breasts make a fashion come-back. Models in the 1970's weighed 8% less than the average woman.
Early 1990's	Waif-like figure of Kate Moss presents a wasted 'heroin chic' look and a pre-teen body.
Late 1990's	Tall, very thin models with no visible body fat and muscles highly toned by hours of working out. Large breasts remain in style – but are rare in this body type without the help of breast implants. By the 1990's models weighed 23% less than the average woman.
2000 and beyond	Real bodies come in all shapes and sizes....set your own trend!!!!

Source: Adapted from Region of Peel ([www.bodyimagecoalition.org](http://www.bodyimagecoalition.org) )

### 6.3 Boys and Body Image

Body dissatisfaction and unhealthy eating habits among males are becoming more common (Woodside, 2002). Like girls, boys are also affected by pressure to be a certain shape based on current ideals. Fitness, muscle and body sculpting magazines and products increasingly target young men. Advertisers often show male models with bare chests, depicting the 'ideal' male body as being lean with broad shoulders, defined upper body muscles and a 'six pack' abdomen. Boys may feel pressure to achieve this look and experiment with unhealthy weight control methods and extreme forms of exercise or weight training, which can cause physical damage to muscles and bones. A number of teen boys will turn to steroids to build muscle.



#### Steroids

About 8% of boys in grade 9 and 10 used anabolic steroids (Boyce, 2004). Some are trying to improve their performance in sports; others want to change their physical appearance. 'Anabolic-androgenic steroids', commonly referred to as anabolic steroids are manufactured drugs designed to have an effect similar to testosterone, the male sex hormone. These steroids have two main effects; 'anabolic' or muscle building which is the result most users are looking

for and ‘androgenic’ or masculinising effects. The androgenic effect causes the body to become more masculine resulting in facial hair and a deeper voice, even if the user is female. Steroids may be taken orally, in a gel or cream applied to the skin or injected intramuscularly.

Health hazards associated with short term use of steroids:

- Stunted growth, especially when used during adolescence
- Increased irritability and aggressiveness
- Severe facial and body acne
- Baldness
- Bloated appearance
- Changes in sex drive, impotence and decline in sperm production

Some of these effects are reversible but long term effects are unknown.

## **6.4 How Teachers can Promote Positive Body Image**

### **1. Be a positive role model**

- Be aware of the messages you send about your own body and the comments you make about other people's bodies.
- Refute common stereotypes and prejudices.
- Celebrate multicultural diversity in beauty, body weight and shape.
- Discourage youth from weighing themselves.
- Never reward with food or withhold it as punishment.

### **2. Help youth celebrate their bodies**

- Focus on what bodies do well rather than what bodies look like.
- Teach students the joy of being active and to notice how their bodies feel and perform.
- Focus on positive non-appearance traits (e.g., being caring, friendly, or musical).
- Stress that there isn't an ‘ideal’ body shape and that people come in all shapes and sizes.
- Teach them ways of coping with put downs and negative comments.
- Explain that their bodies will change and grow, especially during puberty and that weight gain is natural and normal at this time.

### **3. Promote a supportive school environment**

- Weighing students or using fat callipers should not be done in schools
- Discuss media pressures and the ideals of the popular culture
- Provide activities that promote an individual's self-esteem without focusing on appearance
- Set standards for respectful behaviour with their peers—no bullying or harassment
- Encourage students to eat according to their feelings of hunger and fullness
- Encourage youth to participate in enjoyable physical activity

Source: Adapted from the Body Image Coalition of Peel ([www.bodyimagecoalition.org](http://www.bodyimagecoalition.org))

## 7. Obesity

Obesity is a complex condition that is not well understood. There are many theories as to why the prevalence of obesity is increasing in children and adolescents. Heredity, the food supply, eating habits, physical activity levels, labour saving devices, culture, and socioeconomic and psychological factors all have an effect on the regulation of appetite, satiety, and how calories are used or stored as fat. The tendency to gain weight may vary from one person to another, even when food intake, physical activity and lifestyle appear to be the same.

Overweight or obese students have a greater risk of developing type 2 diabetes and cardiovascular problems. However, overweight adolescents are also at increased risk for depression, poor body image and reduced self-esteem. (Braet et al., 1997; Erermis et al., 2004; Sjoberg et al., 2005). Overweight and obese students experience bullying and ‘jokes’ about their weight and are often excluded from social situations, which can lower self-esteem. Due to the strong social stigma about being overweight, overweight students are at increased risk of:

- Using dangerous weight loss methods
- Binging as a result of hunger and food restriction and as a way of coping with poor treatment by others
- Weight gain due to binging
- Eating disorders

Overweight adolescents should **not** be put on a diet. As with all students, encourage overweight individuals to pay attention to their hunger and fullness cues; use Canada’s Food Guide as a tool to make wise food choices and participate in enjoyable, sustainable physical activity. Do not make weight-related comments, give advice about weight loss or treat large students differently than thinner students. Overweight or obese students need support and understanding to make healthy choices and take good care of themselves.

For more information about obesity contact your local health unit/department. Contact info can be found at: [www.alphaweb.org/ont\\_health\\_units.asp](http://www.alphaweb.org/ont_health_units.asp).

## 8. Disordered Eating, Dieting and Where to Get Help

In the past, it was believed that teaching students about the details and dangers of **eating disorders** or having a guest speaker talk about their recovery would serve as a warning for youth. However, research has shown that this approach can actually glamorize the process, not to mention the possibility of teaching students new weight change techniques they hadn’t thought of.

### Teaching Tips:

- The focus should be on prevention strategies and promoting health for every student, regardless of size. (See section 6.4 How Teachers can Promote Positive Body Image)
- If students ask specific questions about **eating disorders**, keep the discussion away from signs and symptoms.

- Discuss the pressures and difficulties students face that may cause them to turn to dieting or to develop **eating disorders** as a way of coping. (See section 6. Body Image During Puberty)
- Weighing students (or using fat calipers) should be done by health professionals and is not generally recommended in a school setting. It is emotionally damaging and may lead students to begin restrictive dieting which is harmful to their health and well-being.

## 8.1 Healthy Eating vs. Disordered Eating - What's the Difference?

It's important to distinguish the difference between healthy eating and disordered eating.

**Healthy eating** means:

- Recognizing internal hunger and satiety cues; eating when hungry and stopping when full or satisfied.
- Eating three meals a day plus snacks in-between to satisfy hunger.
- Enjoying food as a natural, pleasurable part of life and having a healthy appetite.
- Not feeling guilty for eating certain foods.
- Generally eating the recommended amount and type of food from Canada's Food Guide, while limiting foods and beverages high in calories, fat, sugar, and/or salt.

**Disordered eating:**

- Can be thought of as a continuum of inappropriate or abnormal eating behaviours usually practiced in order to lose or maintain body weight.
- May be used as a way to relieve stress or deal with uncomfortable emotions.
- Includes consistent over or under-eating and restrictive dieting; with **eating disorders** being at the extreme end of the continuum.

### **Disordered Eating Behaviours**

Instead of using **hunger and satiety cues** to guide their eating behaviours, people with **disordered eating** may:

- Drink lots of water or diet pop to delay eating
- Skip meals or deliberately under-eat
- Regularly eat 'no fat' or very low fat foods
- Count calories or grams of fat or carbohydrates
- Smoke cigarettes to curb their appetite
- Avoid eating nutritious foods such as milk products and meat because they contain some fat
- Practice restrictive dieting
- Over-exercise
- Practice purging behaviours (e.g., using vomiting, laxatives and enemas)
- Overeat and binge

## 8.2 Why Restrictive Dieting is a Concern

Restrictive dieting is a form of disordered eating. Dieters may cut out an entire food group (e.g., Grain Products) in the belief that the food group is ‘fattening’ or avoid other healthy foods because they contain some fat.

Did you know that 25 % of Canadian boys and 30% of girls between 10-14 years of age are dieting to lose weight, despite being within a healthy weight range? (McVey et al., 2002; McVey et al., 2004; McVey et al., 2005).

Dieting behaviours have become increasingly common in schools. We live in a society that is obsessed with thinness and fearful of gaining weight. Dieting is often seen as an acceptable behaviour but there are many problems associated with it.

### Problems with restrictive dieting:

- Difficulty learning and concentrating due to a lack of calories and nutrients.
- Risk of undernourishment and health problems (e.g., inadequate calcium intake decreases bone mass which can eventually lead to osteoporosis; iron deficiency anaemia).
- Dieters lose touch with internal **hunger and satiety cues** which can lead to over-eating and bingeing due to feelings of hunger, low energy and depriving oneself of desired foods.
- Dieters crave ‘restricted’ foods (i.e. high-fat, high sugar foods) and may eat to the point of feeling ‘stuffed’.
- Weight gain due to bingeing.
- Metabolism slows down during dieting which makes it hard to lose more weight and easy to gain when the diet is finished.
- Body composition changes during dieting. Muscle and fat are lost, but the weight gained back is fat. Since muscle tissue burns more calories than fat, losing muscle tissue decreases metabolism.
- Emotional concerns such as feelings of failure, low self-esteem, and increased stress.
- Social issues including social withdrawal, relationship problems, and depression.
- Increased risk of eating disorders.
- Increased risk of obesity due to slower metabolism, and body composition changes. Some people look back at the end of many years of dieting and realize that they weren’t that big when they started dieting but have gained weight over the years.

## 8.3 Over-eating and Under-eating

When people ignore and eventually lose touch with their internal hunger and satiety cues, they may develop a pattern of consistently over-eating or under-eating. These behaviours may lead to **eating disorders** and/or obesity. Occasionally eating too much such as during a holiday dinner is quite normal. Over-eating on a daily basis, past the point of feeling satisfied and beyond the body’s growth and maintenance needs may lead to obesity. Eating less food on a daily basis than the body needs for energy, growth and maintenance may lead to under nourishment/anorexia.

**Factors contributing to over-eating:**

- Losing touch with hunger and satiety cues; bingeing as a result of dieting.
- Poverty and food insecurity. People who go hungry for periods of time, such as those on Social Assistance or using food banks, naturally tend to binge when food does become available.
- Waiting until feeling ‘starved’ before eating can lead to bingeing and overeating. People eat very quickly and can easily eat past their ‘stopping point’ of feeling satisfied. People are also more likely to make poor food choices, reaching for convenient high fat, high sugar foods.
- Eating as a way to relieve stress or deal with emotions such as anger, anxiety, boredom or loneliness.
- Eating in front of the TV or while engaged in another task distracts people from recognizing feelings of satisfaction.

**Factors contributing to under-eating:**

- Dieting and other disordered eating behaviours (see list above).
- Poverty and food insecurity.
- Being pressured to eat more food than a person is hungry for, or eating food that is less appealing can cause people to lose touch with their feelings of hunger.
- Being too busy or distracted to take time to eat.

## 8.4 Sports Dieting

Athletes often want to reduce their body weight in order to compete at a lower weight class, improve appearance for the judges, or achieve perceived improvements in performance. Athletes who try to lose weight rapidly may engage in harmful practices that compromise their athletic performance or may go on to develop an **eating disorder**. Many dietary recommendations for athletes have not been proven to enhance athletic performance. For example, a high protein diet that is meant to build muscle may, in fact, build fat stores in the body. High protein diets also put a strain on the liver and kidneys and the long term affects are unknown.

A healthy approach for athletes is to:

- Follow Canada’s Food Guide to get the right balance of nutrients (carbohydrate, fat, protein, vitamins, minerals and water).
- Choose enough servings from each food group to ensure that adequate calories are consumed.
- Consume fruit, vegetables, breads and grains to provide carbohydrates which are the primary energy source for exercising muscles.

Most diets are fad diets and tend to be nutritionally unbalanced with respect to Canada’s Food Guide and often lack sufficient calories for adolescent growth and development. In contrast, specialized clinical or ‘therapeutic’ diets are necessary for some medical conditions, but these meal plans are nutritionally balanced and usually prescribed by a registered dietitian or doctor.

## Over-exercising

Over-exercising is often associated with **disordered eating** or an **eating disorder**. It is characterized by exercising frequently, intensely, or compulsively for long periods of time, to compensate for food eaten recently or food that will be eaten in the near future. Over-exercisers define their self-worth in terms of athletic abilities yet are rarely satisfied with their performance. Individuals will exercise even when ill or injured and feel guilty if they miss a workout. They often like to exercise alone and will give up time from school and relationships to do so.

## 8.5 Where to Get Help for Students

If you have concerns about a student's **disordered eating** or suspect they may have an **eating disorder**:

- Consult with your school principal or guidance counsellor.
- Access community resources and services by talking to your school nurse or contacting your local health unit/ department. ([www.alphaweb.org/ont\\_health\\_units.asp](http://www.alphaweb.org/ont_health_units.asp))
- For more information or support services contact the National Eating Disorder Information Centre [www.nedic.ca](http://www.nedic.ca). (or see Additional Resources)

When expressing your concerns to a student/their family:

- It's important to be informed of and follow your school's procedures
- Students and parents may not appreciate your concern at first and may be in denial or respond with anger. See the 'Give and Get Help' section at [www.nedic.ca](http://www.nedic.ca) for discussion tips.
- Although your concern and support for the individual and their family are important, don't try to take on the role of a therapist

## 8.6 Professional Development

The *Ontario Community Outreach Program for Eating Disorders* [www.ocoped.ca](http://www.ocoped.ca) offers a workshop for teachers on the prevention of body image concerns and eating problems. Workshops are led by experts in the field of eating disorders and include resources for classroom or group settings.

### Grades 6-8

- *Body Sense: Promoting Positive Body Image in Sport* [www.bodysense.ca](http://www.bodysense.ca) provides background information on positive approaches to food and physical activity. Promotes positive body image and the prevention of disordered eating in athletes.
- *Mission Nutrition* [www.missionnutrition.ca](http://www.missionnutrition.ca) provides lesson plans and activities specific to self esteem and body image as well as healthy eating and physical activity. Available in French and English.
- *QuEst for Health Program* [www.sheenasplace.org/index.php?page=quest](http://www.sheenasplace.org/index.php?page=quest) contains lesson plans and activities aimed at improving body image, self-esteem and wellbeing.

For other curriculum resources, see Additional Resources.

## 9. References

- American Heart Association, Gidding S.S., Dennison B.A., Birch L.L., Daniels S.R., Gilman M.W., Lichtenstein A.H., Rattay K.T., Steinberger J., Stettler N. and Van Horn L. (2006). Dietary Recommendations for Children and Adolescents: A Guide for Practitioners. *Pediatrics*, 117(2): 544-559.
- Anabolic Steroid Abuse. (2006). *National Institute on Drug Abuse Research Report Series*, 1-8. U.S. Department of Health and Human Services; National Institutes of Health.
- Birch L.L., Fisher J.O. (1998). Development of Eating Behaviours Among Children and Adolescents. *Pediatrics*, 101(Supplement 3): 539-549.
- Boyce, W. (2004) *Young People in Canada: Their Health and Well-Being*. Health Canada.
- Braet, C., Mervielde, I., Vandereycken, W. (1997). Psychological aspects of childhood obesity: A controlled study in a clinical and nonclinical sample. *Journal of Pediatric Psychology*, 22(1): 59-71.
- Comuzzie, A. G., Allison, D.B.(1998). The Search for Human Obesity Genes. *Science*, 280 (5368): 1374 -1377.
- Coon KA and Tucker KL. (2002) Television and Children's Consumption Patterns: A Review of the Literature. *Minerva Pediatrica*, 54(5):423-436.
- Creating a Healthy School Nutrition Environment Health Unit Collaboration. (2007). *Nutrition Tools for Schools: A Toolkit for Ontario Public Health Units to Support Elementary Schools in Creating a Healthy Nutrition Environment*.
- Della Valle D.M., Rose L.S., Rolls B.J. (2005). Does the consumption of caloric and non-caloric beverages with a meal affect energy intake? *Appetite*, 44:187-93.
- DiMeglio D.P., Mattes R.D. (2000). Liquid versus solid carbohydrate: effects on food intake and body weight. *International Journal of Obesity*, 24(6): 794-800.
- Ermis, S., Cetin, N., Tamara, M., et al. (2004). Is obesity a risk factor for psychopathology among adolescents? *Pediatric International*, 46(3): 296-301.
- Field, A.E., Austin, S.B., Taylor, C.B. (2003). Relation between dieting and weight change among preadolescents and adolescents. *Pediatrics*, 112(4): 900-906.
- Friedman, S. S. (1997). *When Girls Feel Fat: Helping Girls through Adolescence*. Toronto, Canada: Harper Collins Publishers Ltd.
- Frisch, R. Edit. (1990) *Adipose Tissue and Reproduction* referenced in "Afraid to Eat: Children and Teens in Weight Crisis" by Frances M. Berg 1997 Healthy Weight Publishing Network

Garriguet, D. (2004) *Overview of Canadians' Eating Habits*. Nutrition: Findings from the Canadian Community Health Survey, Statistics Canada, 82-620-MIE-No.2.

Hanning, R, Woodruff, S.J., Lambraki, I, Jessup, L, Driezen, P, Murphy, C.C. (2007) Nutrient Intakes and Food Consumption Patterns Among Ontario Students in Grades Six, Seven, and Eight. *Canadian Journal of Public Health*, 98(1): 12-16.

Hsu, L.K.G. (1997). Can dieting cause an eating disorder? *Psychological Medicine*, 27: 509-513.

Jones, D.C., Vigfusdottir, T.H., & Lee, Y. (2004). Body image and the appearance culture among adolescent girls and boys: An examination of friend conversations, peer criticism, appearance magazines and the internalization of appearance ideals. *Journal of Adolescent Research*, 19(3): 323-339.

Levine, M.P., Smolak, L. (2006). (Eds). *The Prevention of Eating Problems and Eating Disorders: Theory, Research, and Practice*. Mahwah, NJ: Lawrence Erlbaum Associates.

Lock, J., Riesel, B., & Steiner, H. (2001). Associated health risks of adolescents with disordered eating: How different are they from their peers? Results from a high school survey. *Child Psychiatry and Human Development*, 31: 249-265.

McVey, G. L., Pepler, D., Davis, R., Flett, G., & Abdoell, M. (2002). Risk and protective factors associated with disorder eating during early adolescence. *Journal of Early Adolescence*, 22(1): 75-95.

McVey, G. (2003). What We Have Learned about Primary Prevention of Food and Weight Preoccupation. *National Eating Disorder Information Centre Bulletin*, 18(1): 1-4.

McVey, G.L., Tweed, S., & Blackmore, E. (2004). Dieting among preadolescent and young adolescent females. *Canadian Medical Association Journal*, 170: 1559-1562.

McVey, G. L., Tweed, S., & Blackmore, E. (2005). Correlates of dieting and muscle gaining behaviours in 10-14 year-old males and females. *Preventive Medicine*, 40:1-9.

National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion. (2000) 2 to 20 years: Girls Stature-for-age and Weight-for-age percentiles. Available at:

<http://www.cdc.gov/nchs/data/nhanes/growthcharts/set1clinical/cj411022.pdf>

O'Dea, J.A. (2005). School-based health education strategies for the improvement of body image and prevention of eating problems: An overview of safe and successful interventions. *Health Education*, 105: 11-33.

O'Dea, J.A. & Abraham, S. (2000). Improving the body image, eating attitudes and behaviours of young male and female adolescents: A new educational approach that focuses on self-esteem. *International Journal of Eating Disorders*, 28(1): 43-57.

Ohring, R., Graber, J.A., Brooks-Gunn, J. (2002). Girls' recurrent and concurrent body dissatisfaction: Correlates and consequences over 8 years. *International Journal of Eating Disorders*, 31(4): 404-415.

Ontario Public Health Association. (1995) Food Security Work Group, *Food for Now and the Future*.

Ontario Society of Nutrition Professionals in Public Health School Nutrition Workgroup. (2004) *Call to Action: Creating a Healthy School Nutrition Environment*. Available at: <http://www.osnpnh.on.ca>.

Orenstein, P. (1995). *School Girls: Young Women, Self-Esteem and the Confidence Gap*. Anchor Books. New York, New York.

Piran, N. (1998). A participatory approach to the prevention of eating disorders in a school. In W. Vandereycken & G. Noordenbos (Eds.). *The prevention of eating disorders* (pp. 173-186). New York: New York University Press.

Public Health Agency of Canada. (2002). Teacher's Guide to Physical Activity for Children (6 to 9 years of age), *Canada's Physical Activity Guide for children*.

Sjoberg, R.L., Nilsson, K.W., & Leppert, J. (2005) Obesity, shame and depression in school-aged children: A population-based study. *Pediatrics*, 116 (3): e389-e392.

Smolak, L., & Levine, M. P. (1996). Adolescent transitions and the development of eating problems. In: Smolak, L., Levine, M.P., & Striegel-Moore, R.H. (Eds.). *The Developmental Psychopathology of Eating Disorders*. Mahwah, NJ: Lawrence Erlbaum Associates.

Taylor J.P., Evers S., McKenna M (2005) Determinants of Healthy Eating in Children and Youth. *Canadian Journal of Public Health*. Vol 96( Supplement 3): S20-S26.

Then, D. (1992) "Women's magazines: Messages they convey about looks, men and careers". Paper presented at annual convention of American Psychological Association, Washington, D.C.

Prince Edward Island Healthy Eating Alliance. (2005) *The School Healthy Eating Toolkit*.

Veugelers P.J., Fitzgerald A.L., Johnston E. (2005) Dietary intake and risk factors for poor diet quality among children in Nova Scotia. *Can J Public Health*. 96(3): 212-217.

Woodside, B. (2002). Eating Disorders in Men: An Overview. *Healthy Weight Journal*, July/August, 52-55.

## 10. Glossary

### Grades 7-8

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Allergy	An unusual immune reaction to a normally harmless substance, such as some components of food.
Amino acids	The building blocks of proteins. Almost all proteins are made out of 20 standard amino acids.
Body Mass Index (BMI)	Tool used for adults aged 20 to 65 years to help determine whether they are at risk for health problems associated with weight. BMI in itself is not suitable for growing children and teens.
Cardiovascular disease	Disease affecting the heart and/or blood vessels.
Diet	The food and drink usually consumed from day to day. People commonly use this word to refer to weight loss diets.
Dietitian	A trained expert on the role of food and nutrition in health. He or she is a reliable source of nutrition information and advice on eating and health. Only those individuals who are registered with the <i>College of Dietitians of Ontario</i> can use the titles dietitian or Registered Dietitian.
Disordered Eating	A continuum of inappropriate or abnormal eating behaviours, ranging from skipping meals to dieting, bingeing, or purging. At the far end of the continuum would be frequent, severe behaviours that would meet the criteria for the diagnosis of an eating disorder.
Eating Disorders	A group of complex psychological and medical problems characterized by abnormal eating habits and a self-image that is obsessed with weight and body shape. Examples are Anorexia Nervosa and Bulimia Nervosa.
Enriched	The addition of vitamins and minerals (that may have been lost during processing) to a food product.
Fat soluble	Something that will dissolve in fat. In food, fat is needed to absorb these nutrients: vitamins A, D, E, K
Folate	A B vitamin that is necessary for producing and maintaining new cells. This nutrient is especially important during pregnancy. It is also known as folic acid.

Food Guide Serving	The amount of food in a serving as indicated by Canada's Food Guide. The recommended number of servings varies by age group and gender.
Fortified	The addition of specific nutrients (that may be lacking naturally in a food) to a food product.
Hunger cues	The body's way of telling a person they need to eat. Hunger cues regulate appetite and ensure that people eat enough to meet their energy and nutritional needs. Feelings of hunger may include a growling stomach, irritability, low energy, difficulty concentrating, etc.
Metabolism	The process by which one's body burns calories for energy and to support bodily functions.
Methylmercury	A highly toxic organic compound of mercury that accumulates in fish and shellfish.
Nutrient density	A measure of nutrients provided per Calorie of food. The addition of a lot of fat or sugar decreases the nutrient density of the food by decreasing the amount of nutrients compared to the number of Calories in the food.
Nutrition	The study of the nutrients in foods and in the body, and the study of human behaviours related to food.
Nutritionist	Nutritionists are not regulated by law and people do not require any training to call themselves "a nutritionist." <i>Public Health Nutritionists</i> , however, are an exception - they are required to have a Masters Degree and are registered with the <i>College of Dietitians of Ontario</i> .
Omega-3 fatty acids	A type of fat found in several types of fish and plant oils (ie. flaxseed, canola, and soybean). There are three types (ALA, DHE, EPA) which are considered essential to health, meaning the body cannot manufacture them.
Partially hydrogenated	The result of stopping part way through the process of hydrogenating oil so that the product is a semi-solid. This semi-solid consistency is often used by food manufacturers in baked products to increase shelf life. Some of the fatty acids in this process are converted to trans fat.
Potassium	A mineral that is important for transmitting nerve impulses and

maintaining the fluid balance in the body.

**Salt**

A mineral primarily composed of sodium chloride. Salt is involved in transmitting nerve impulses and in regulating the water content of the body. High salt intake can increase the risk of health problems such as high blood pressure.

**Satiety cues**

The body's way of telling a person they've had enough to eat. Feelings of satisfaction arise not just from the amount of food we eat, but also the taste and pleasure of eating appealing food. Feelings of satisfaction include feeling 'full' and no longer interested in eating.

**Saturated fat**

Mostly found in foods from animals and tropical plants (i.e., coconut oil, palm oil, cocoa butter). Large amounts of these fats tend to raise the level of LDL or bad cholesterol in blood increasing the risk of cardiovascular disease.

**Trans fat**

This fat comes from a vegetable oil that was chemically modified to be more solid. They are found in partially hydrogenated margarines, deep-fried foods, packaged cookies, crackers, and commercially baked products. Trans fat raises the bad LDL cholesterol, but unlike saturated fat, it also lowers the good HDL cholesterol level increasing the risk of cardiovascular disease.

**Unsaturated fat**

A category of fats that includes polyunsaturated and monounsaturated fats, which are found in mainly fish, nuts, seeds and plant oils. These fats may help lower bad LDL blood cholesterol levels.