

Food Choices

What people choose for meals and snacks can make a big difference in the health of their mouths. Sugars and starches boost acid production on the teeth. When acid stays on teeth, cavities start forming. How quickly cavities form depends on many factors, but among the most important and controllable are:

- the kind of food eaten,
- how often the food comes into contact with teeth, and
- how long the food stays on teeth.

Of all food components, sugars and starches (carbohydrates) most readily promote bacterial production of tooth-weakening acids. Dental educators call sugars and starches "fermentable carbohydrates" because these food components are fermented into acids by plaque bacteria, much like grape sugars are changed to alcohol for wine.

When carbohydrates are eaten, acid formation starts within a few minutes. The mouth stays acidic for 20 to 30 minutes after the last bite if no effort is made to clean the mouth.

Saliva normally helps dilute acid and repair enamel. However, frequently eating acid-producing foods overwhelms this natural balance system. The acid "attacks" add up, and eventually a cavity forms.

Sugars

- There are many different kinds of sugar; the suffix "ose" indicates a sugar. For example, fructose is found in honey and fruit; maltose, in grains; lactose, in milk. Sucrose is another name for white table sugar, and dextrose is another name for glucose, the sugar made by the body for energy.
- All sugars are about equal in their ability to promote cavities. Naturally occurring sugars, such as those in milk and molasses, are no better than sugars added during food processing.
- Many processed foods use "fruit juice concentrate," which is simply sugar made from fruit juice.

Starches

- Starches are nutritional "cousins" to sugars and are found in potatoes, corn, rice, beans and items made with flour such as noodles, crackers and tortillas. Starches, like sugars, can also promote tooth decay because substances in saliva change starches into sugars.
- Starch is a long chain of sugar molecules linked together. Saliva has enzymes that break the starch chains into individual sugar molecules. This is a step in digestion. That is why salty-starchy foods such as potato chips or crackers start to taste sweet when they are kept in the mouth.

- The combination of sugars with starches in a food is especially cariogenic or cavity-producing. Avoiding candy but eating pretzels, chips and crackers offers no protection from cavities.

Nutrition Facts		
Serving Size 1 cup (240mL)		
Servings Per Container about 2		
Amount Per Serving		
Calories 110	Calories from Fat 10	
% Daily Value*		
Total Fat 1g		2%
Saturated Fat 0g		0%
Cholesterol 5mg		2%
Sodium 760mg		32%
Total Carbohydrate 19g		6%
Dietary Fiber 2g		8%
Sugars 7g		
Protein 3g		
Vitamin A 90%	•	Vitamin C 2%
Calcium 4%	•	Iron 6%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:		
	Calories:	2,000 2,500
Total Fat	Less than	65g 80g
Sat Fat	Less than	20g 25g
Cholesterol	Less than	300mg 300mg
Sodium	Less than	2,400mg 2,400mg
Total Carbohydrate		300g 375g
Dietary Fiber		25g 30g
Calories per gram:		
Fat 9	•	Carbohydrate 4
	•	Protein 4

Dietary Fiber
Sugars 7g
Protein 3g

Food Labels

The nutrient contents listed in the "Nutrition Facts" panel are the amounts found in one serving of the product. For sugars, the amount is given in "grams."

To determine the number of teaspoons of sugar in a serving of a food item, divide the number of sugar grams by four. For example, 1/2 cup of a cereal with 14 grams of sugar has 3 1/2 teaspoons of sugar (14 divided by 4 = 3 1/2). If you would normally eat one cup of cereal, you would get 7 teaspoons of sugar (14+14 = 28; 28 divided by 4 = 7). ★

Remember: the amounts of nutrients listed on the label come from one serving of the food product. Check the serving size; is this the amount you usually eat?

"Consistency" and "Contact"

The amount of sugar in a food is an important concern in oral health. However, even more important are the food's texture and how often the food is eaten.

- The longer a sugary/starchy food stays in the mouth, the more time the plaque bacteria produce acids that weaken teeth and the greater the chance for cavities.

Food consistency or texture effects acid production. Starches that stay on teeth---such as pretzels, chips, cookies and cereal---prolong acid production. Likewise, sugary foods that are sucked or left to dissolve in the mouth---breath mints, cough drops, suckers---lengthen the time teeth are coated with sugar. Juicy, fibrous foods or liquids generally don't stay on teeth as long.

- Frequent contact or exposure to sugars/starches means frequent acid production on teeth. The more often a sugary/starchy food is eaten, the more easily a cavity can form.
- Sticky-sugary or sticky-starchy foods are a problem if eaten often and by themselves between meals. Without other foods and liquids to clean teeth and clear the mouth, tooth-destroying acid remains on teeth.

Artificially sweetened, sugar-free soda is not completely tooth-friendly; acids in the drink can eventually weaken teeth.

Acidic foods, such as lemons and pickles, can also erode and weaken tooth enamel. Snacks containing citric acid, such as sour candies and tart beverages, can cause similar damage.

Protective Foods

Some foods are cariostatic (do not increase mouth acidity) or anticariogenic (prevent acidifying of the mouth). They help protect teeth and reduce risks for dental disease.

- Meats, poultry and seafood have little carbohydrate; their protein and fat cannot be used by plaque bacteria. Thus, they have little effect on tooth decay. Protein also helps neutralize plaque acids.
- Sugar alcohols, including sorbitol, mannitol, and xylitol, change to acid very slowly so teeth are less effected. Sugar alcohols are used in sugarless gums and candies. Studies suggest these compounds might even help repair early tooth decay. Sugarless chewing gum promotes saliva flow and helps clean food particles from teeth.
- Celery, cucumbers, broccoli and other watery, fiber-containing foods have very little sugar or starch, stimulate saliva flow and help reduce mouth acidity.
- Cheese helps reduce the acid production from other foods; its protective effect might be due to its texture, protein, fat, calcium, phosphorus and other nutrients.
- Milk, although high in sugar, is rich in calcium and phosphorus, which appear to protect tooth enamel. One of milk's proteins, casein, also seems to reduce plaque's ability to stick to teeth.
- Fluoride strengthens tooth enamel, improves enamel's ability to repair itself, smooths tooth enamel so cavities are less likely to form and may slow the growth of plaque bacteria.



Food Tips for a Healthy Mouth

Help control plaque bacteria and their acids by choosing when a food is eaten, what is eaten with it and what actions are taken after eating.

- Limit the number and duration of snacks, to allow the mouth to return to its normal non-acid state.
- Serve sugary or starchy foods during meals, when the presence of other foods can help remove the carbohydrate from the mouth. Mealtime also encourages saliva flow. The worst time to eat a sugary-starchy food? Naptime or bedtime, because saliva flow slows down during sleep.
- Eat the sugary/starchy food in one "dose" or sitting, instead of several portions over time. This limits the number of acid attacks on the teeth.
- At snacktime, serve the sugary/starchy item with raw vegetables, water or cheese to reduce acid on teeth. Drinking milk can provide some protection against acid effects.
- Chew sugarless gum after eating to encourage saliva flow and remove food debris from teeth.
- Swish with water to help remove food particles and reduce acid.



Better foods for snacks are juicy-crunchy so they don't stay on teeth. Worst snacks are rich in sugar or starch and

- collect between teeth (sticky)
- dissolve slowly
- stay on teeth because they're "dry" ("retentive" or "retained") such as bananas, crackers.

Some foods to avoid are: granola bars, taffy or nougat-based candy bars, raisins, fig bars, fruit roll-ups, pretzels, caramel corn, graham crackers, cookies, dry ready- to-eat cereal...

Food Tips for a Healthy Body and Mouth

The mouth holds important body parts. Yet, these special tissues have nutritional needs much like the needs of other body parts such as the muscles and skin. For example, the mouth needs vitamins and minerals such as Vitamin C, calcium and iron to grow, heal and function.

The rest of the body would have a difficult time getting the necessary nutrients for normal growth and development without the work of the mouth during eating. The health of the mouth and body are closely linked.

The keys to a healthful, "balanced" diet are moderation and variety: small amounts of a wide variety of foods. This ensures a broader range of vitamins, minerals and other nutrients since no one food contains all the nutrients in all the amounts that humans need. Including many different foods in the diet also makes eating more interesting and assures moderation, not too much of any one nutrient.

Good Food Choices

For good oral health, choose foods that promote little acid production. However, don't judge a food's healthfulness only by its sugar or starch content. Foods low in sugars and starches can be high in fats. For example, cheese offers protection against cavities, but also contains the kind of fat that promotes heart disease and cancer. Many fat-free foods are high in sugar, such as the "heart-healthy" no-fat cookies.

There are really no "good" nor "bad" foods. In a healthful diet, there's room for some sugar, but for oral health choose items that leave the mouth/teeth quickly. Better choices provide nutrients such as vitamins, minerals and fiber. Vitamins and minerals are needed for basic body functions such as energy production, growth and

muscle movement. Fiber, also known as "roughage" or "bulk," comes from peels, skins, pulp, hulls and seeds of plants and allows the intestine to work properly.

Consider, for example, an orange, orange juice and orange soda. All three have cavity-promoting sugars but they vary in important ways. The orange is rich in fiber, vitamins and minerals in addition to its sugar. A glass of juice would have vitamins, minerals and some fiber but less than the whole orange and relatively more sugar than the whole fruit. The soda would have no fiber, no vitamins and no minerals, only sugar. It's easy to see that the juice would be better than the soda for the body, and the whole fruit, even better than the juice.

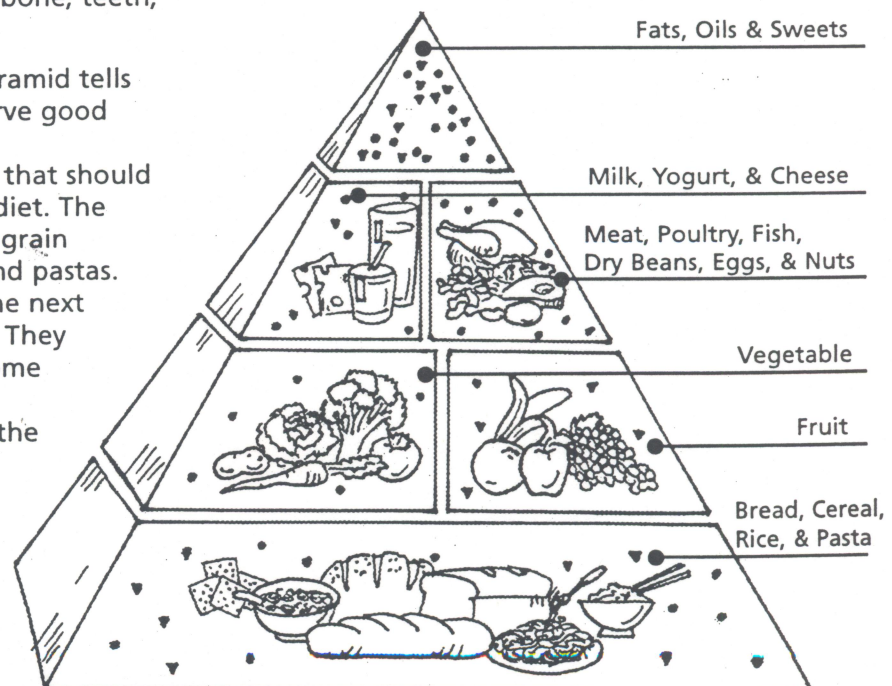
A Picture of Health: the Food Guide Pyramid

The Food Guide Pyramid shows a healthful diet. Foods are divided into groups according to their nutritional content. Items in the Bread, Cereal, Rice and Pasta Group range from rolls and tortillas to corn flakes and noodles which provide important vitamins, minerals, fiber, starch and some protein. Beef, pork, seafood, turkey, chicken, nuts, eggs and cooked dried beans such as lentils are listed together. They're rich in protein, which is vital for building muscles, bone, teeth, blood and other tissues.

Where the foods appear on the Pyramid tells more about the choices that preserve good health:

- The bottom portion shows foods that should make up the largest part of the diet. The foundation of a healthful diet is grain products---breads, cereals, rice and pastas.
- Vegetables and fruits make up the next greatest part of a healthful diet. They provide sugars, starches, fiber, some protein, vitamins and minerals.
- The next Pyramid "layer" shows the protein-rich dairy foods ("Milk, Cheese, Yogurt") and protein items ("Meat, Poultry, Fish, Dried Beans, Eggs, Nuts"). These are needed in smaller amounts than grains, fruits and vegetables.

- The tip of the Pyramid has "Fats, Oil and Sweets," which provide mostly fat or sugar and very few other nutrients. Included are jam, honey, candy, rich pastries, lard, butter, bacon, oil, margarine, sour cream, potato chips, and other similar items. A healthful diet includes some of these foods, but they are the smallest part.



In Summary

"Balance" in a diet comes from including every major food group in the amounts suggested, over a period of several meals and snacks. A single meal or snack doesn't have to include something from every group, but foods eaten over two or three days should, on the average, fit into the Pyramid guidelines.

For a healthy-looking smile and a healthy body, choose foods high in nutrients, low in sugary-sticky starch and with little or no processing---unsugared fruits, fresh vegetables, whole grains, low-fat milk/yogurt, lean poultry/meat/ seafood. Have fewer highly processed foods which are made with a lot of sugar or fat, such as sugar-coated cereals and potato chips.

"Combination foods" such as casseroles, pizza, and sandwiches provide several food groups. Spaghetti with meat sauce has Bread Group (pasta), Vegetable (tomato sauce) and Protein (ground beef). A bean-and-cheese burrito contains servings of grain (tortilla); protein (cooked beans) and dairy (cheese) foods.

Many young people won't be motivated to eat healthfully simply to avoid cancer and heart disease as adults---the rewards are too far in the future. Have them consider short-term benefits of eating wisely. Food is the body's fuel, and their bodies deserve high-quality fuel for healthy-looking skin, teeth and hair; muscle strength and bone growth; high stamina and performance at school, competitive sports and recreational play; and for simply feeling good.



Notes: