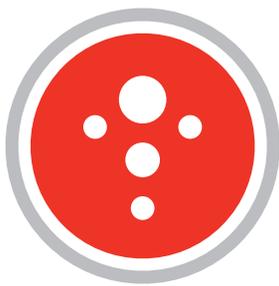


# Eating Well for a Healthy Mouth

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**360 training**<sup>tm</sup>

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# NUTRITION & ORAL HEALTH: EATING WELL FOR A HEALTHY MOUTH

## Key Terms

### **Anticariogenic**

Reducing the risk of caries by preventing plaque from recognizing a cariogenic food.

### **Antioxidant**

A substance that prevents cell damage from free radicals.

### **Beriberi**

A vitamin B1 (thiamin) deficiency which causes loss of appetite, muscle weakness, enlarged heart, and burning tongue.

### **Cariogenic**

A fermentable carbohydrate that will cause a reduction of salivary pH to less than 5.5.

### **Cariostatic**

Caries-inhibiting; not metabolized by microorganisms in plaque.

### **Cheilosis**

Unilateral or bilateral presence of cracks in the corners of the mouth.

### **Cholesterol**

Waxy lipid found in all body cells; found only in animal products.

### **Collagen**

Connective tissue that helps support body structures such as skin, bones, teeth, and tendons.

### **Complex Carbohydrate**

Whole foods which are nutrient dense.

### **Demineralization**

The removal or loss of calcium phosphate and other minerals from tooth enamel.

### **Diet History**

A detailed dietary record that may include a 24-hour or 3,5, and 7 day recall.

**Dysphagia**

Difficulty swallowing associated with an iron deficiency.

**Fermentable Carbohydrate**

Carbohydrates that can be metabolized by bacteria in plaque to decrease the pH to a level where demineralization occurs.

**Glossitis**

Inflammation of the tongue.

**HDL**

High-density lipoproteins; also referred to as Healthy cholesterol.

**Heme Iron**

Iron provided from animal sources.

**Hyperlipidemia**

Elevated concentrations of triglycerides and/or cholesterol.

**Insulin**

A hormone that lowers blood sugar levels.

**LDL**

Low-density lipoproteins; also referred to as Lousy cholesterol.

**Legumes**

A plant that grows from a pea or a pod.

**Nonheme Iron**

Iron provided from a plant source.

**Nutrient-Dense**

Containing a high percentage of nutrients in relation to the number of calories.

**Osteopenia**

A decrease calcification of bone that may put an individual at risk for osteoporosis.

**Refined carbohydrate**

Processed foods that are calorie dense.

**Vegan**

A person who eats only a plant-based diet and consumes no foods of animal origin.

This course focuses on the following topics:

- Introduction
- Nutrition 101
- Major Nutrients
- Diagnosis of Oral Manifestation
- The Lifecycle: Dietary Considerations for the Dental Patient
- Nutritional Counseling in the Dental Practice

## **Introduction**

Dental patients face the challenge of interpreting nutritional information and making wise dietary choices. Early childhood caries, oral lesions, and periodontal disease leave many patients with missing teeth and further complications chewing healthy foods.

### **Facts**

- The percentage of seniors over 65 who are edentulous is 50.
- The number of 12 oz. sodas consumed by an average teenager every year is 730.
- Percentage of minority children diagnosed with Early Childhood Caries is 80.
- 4 Times more likely to be diagnosed with esophagus cancer if you are obese.

## **Nutrition 101**

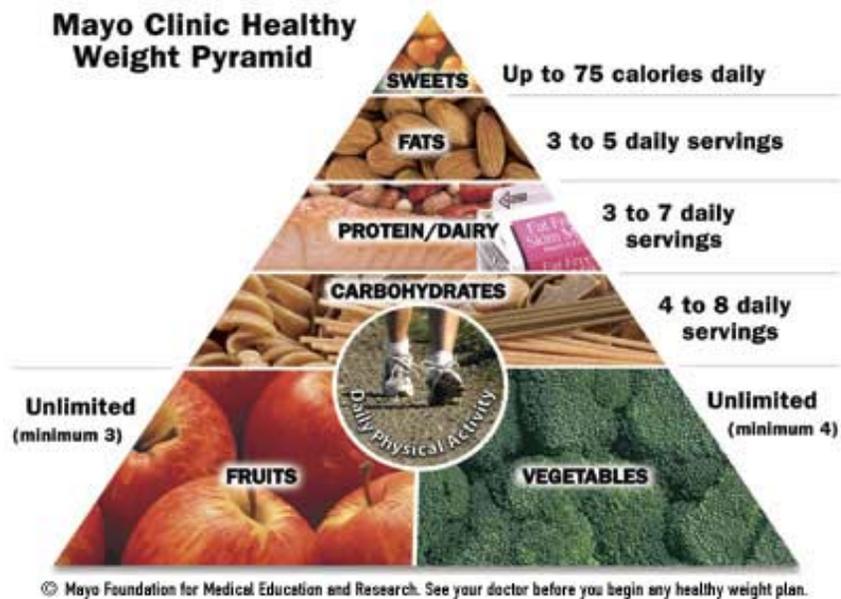
Nutritional status is the condition of health as it relates to food and nutrient intake, absorption, and utilization. It is an important factor in immunity and resistance to oral infections.

Diet is essential to support nutritional status. A healthy diet contains all the necessary nutrients in amounts needed to meet individual needs

## >>Food Guide Pyramids Differentials

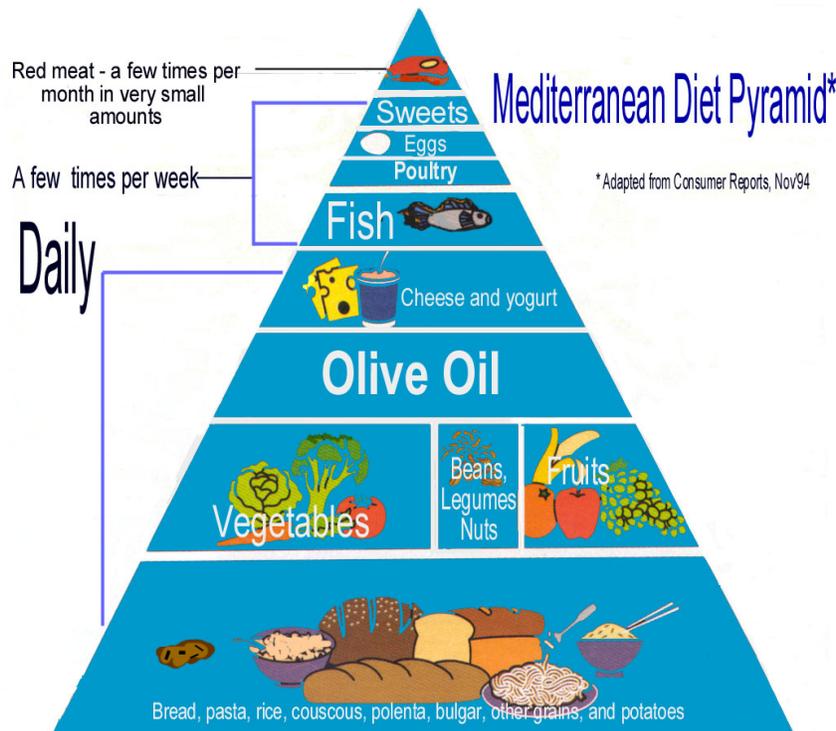


The six colored bands symbolize the various food groups, while the widths of the bands suggest the serving size depending on age, gender, and activity level. Go to [mypyramid.gov](http://mypyramid.gov) for your own personalized food guide pyramid.



The Mayo Clinic Healthy Weight Pyramid is a tool for weight loss and maintenance. The triangular shape shows where to focus your attention when

selecting healthy foods. Eat more foods from the base of the pyramid and less from the top.



The Mediterranean Diet Pyramid has recently gained recognition. Dietary considerations include making olive oil your primary source of fat. Incorporate an abundance of food from plant sources, including fruits, vegetables, breads, grains, beans, nuts, and seeds. Eat low to moderate amounts of fish and poultry weekly. Eat low to moderate amounts of cheese and yogurt daily

## >>Major Nutrients

### Carbohydrates

The role of carbohydrates has often been misunderstood. Our bodies need complex carbohydrates to supply energy, maintain blood glucose, spare protein, burn fat for fuel, and provide bulk in the form of fiber in the diet. On the other hand, refined carbohydrates contain white flour and sugar, and lack nutrient density. Incorporating complex carbohydrates such as fruits, vegetables, whole grain cereal, crackers, wheat bread, brown rice, and whole grain pasta will supply the necessary fiber requirement (25-35 g/day) and provide a low glycemic carbohydrate needed to maintain a healthy blood glucose level. How do you know if a food is made from whole grain? Read the label; the first ingredient listed should be "whole" or "wheat."



**Complex Carbohydrates**



**Refined Carbohydrates**

## Protein

The word protein means “of the first rank,” because it mediates most of the actions of life. Protein is essential for growth of skin, tendons, bone matrix, cartilage, and connective tissue. Protein also forms hormones, enzymes, antibodies, and acts as a chemical messenger within the body. Requirements for protein vary between 40-65 g/day depending on physical activity, stress, and growth cycles. Excess is stored in the body as fat.

There are many ways to get protein in your diet. But if you get protein from legumes, you’ll also get folate and fiber. Legumes are inexpensive, easy to incorporate into soups and salads, and a healthier alternative compared to red meat.

Legumes	Protein	Fiber	Folate
Soybeans	14	5	46
Lentils	9	8	179
White beans	9	6	72
Split peas	8	8	64
Black beans	8	7	128
Kidney beans	8	6	114
Pinto beans	7	7	147
Chickpeas	7	6	141
Lima beans	7	7	78

## Lipids

Fats insulate against the cold, cushion organs, slow digestion, carry fat-soluble vitamins A, D, E, and K, and make foods taste good. However, not all fats are created equal. Saturated fats come mainly from animal foods, such as meat, poultry, butter, and whole milk. They increase the risk of cardiovascular disease, cancer, and obesity. Monounsaturated and omega 3 fats are two types of fat to emphasize in the diet. Good sources include salmon, flaxseed, walnuts, canola and olive oil, olives, and avocado. No more than 30% of calories/day should come from fat.

What is cholesterol? It is a fat-like waxy substance but has a different structure than fat. Cholesterol comes from two sources: your liver makes most of it and, with help from the sun, converts it to Vitamin D; cholesterol also comes from

foods of animal origin. The ratio of HDL/LDL and triglycerides circulating in the blood stream is an important predictor of heart disease. Low-density lipoprotein (LDL) carries cholesterol to the heart walls and narrows or clogs the artery. High-density lipoprotein (HDL) removes cholesterol from the vessel walls and takes it back to the liver, where it is excreted. LDL cholesterol should be less than 130, and HDL cholesterol should be between 50-75 or higher.

### **Saturated Fats**

- Coconut oil
- Palm oil
- Beef fat
- Hydrogenated oil

### **Polyunsaturated Fats**

- Safflower oil
- Sunflower oil
- Vegetable oil

### **Monounsaturated Fats**

- Peanut oil
- Olive oil
- Avocado oil
- Canola oil

Vitamins are calorie free, organic, and essential molecules necessary by the body in minute amounts. Vitamins belong in two groups: water-soluble and fat-soluble. As their name implies, water-soluble vitamins dissolve in water while the body excretes excesses. They include vitamin C and B vitamins. Fat-soluble vitamins dissolve in fat and excesses are stored in our fat cells. The table below lists the type of vitamins, their function, food sources, and deficiency symptoms.

## Water Soluble Vitamins: C, Bs

Vitamin	Source	Deficiency
<p>C-Ascorbic acid</p> <p>Necessary for clotting and collagen formation</p> <p>Important antioxidant</p> <p>RDA doubles if you are a smoker</p> <p>Aids in iron absorption</p>	<p>Citrus fruits</p> <p>Strawberries</p> <p>Broccoli</p> <p>Tomatoes</p>	<p>Scurvy</p> <p>Capillary fragility</p> <p>Easy bruising, slow healing</p> <p>Bleeding tissue</p>
<p>B1-Thiamin or thiamine</p> <p>Helps produce energy from carbohydrates</p>	<p>Meats, organs products, grains, yeast</p>	<p>Beriberi (loss of appetite, muscle weakness, burning tongue)</p>
<p>B2-Riboflavin</p> <p>Helps produce energy within your cells</p>	<p>Liver, grains, animal products</p>	<p>Glossitis</p> <p>Angular cheilosis</p>
<p>B3-Niacin</p> <p>Can be synthesized in the body from tryptophan. Helps your body use sugars and fatty acids</p>	<p>Animal products, grains, green leafy vegetables</p>	<p>Pellagra (dermatitis, diarrhea, dementia)</p>
<p>B6-Pyridoxine</p> <p>Metabolism of carbohydrates, fats, and proteins</p> <p>Neurotransmitter synthesis</p>	<p>Animal products, fish, fruits and vegetables</p>	<p>Depressed immunity, irritability, glossitis</p>
<p>B12-Cobalamine</p> <p>Needs intrinsic factor from stomach for absorption. Works with folate to make RBCs</p>	<p>Animal products exclusively.</p> <p>Need supplementation if you follow a vegan diet</p>	<p>Pernicious anemia</p>
<p>Folate/folic acid</p> <p>Manufactures RBCs, may protect against heart disease</p>	<p>Liver, green leafy vegetables, fruits</p>	<p>Megaloblastic anemia</p> <p>Spina bifida</p> <p>Commonly seen in alcoholics</p>

## Fat Soluble Vitamins: A, D, E, K

Vitamin	Source	Deficiency
Vitamin A Protects from infections. Keeps skin, oral tissues, stomach, and intestine healthy Important antioxidant	Yellow/orange vegetables, fruits Dairy products	Atrophy of oral mucosa Xerostomia, oral leukoplakia. Night blindness
Vitamin D Aids in the absorption of calcium, phosphorus, and deposits these minerals in bones and teeth Made by the body from cholesterol and sunshine	Sunlight Cod liver oil Fortified dairy	Adults-osteomalacia Kids-rickets Delayed dentition, enamel hypocalcification
Vitamin E-Tocopherol Important antioxidant Protects RBCs	Vegetable oils Leafy greens Nuts and seeds	Anemia (breakdown of RBC)
Vitamin K Used in prothrombin formation for clotting Absorption inhibited by excessive Vitamin E	Intestinal microflora Leafy greens Liver	Hemolytic anemia Failure of wounds to stop bleeding.

## Minerals

They are similar to vitamins in that they are calorie free, essential molecules, but are inorganic, small, electrically charged spark plugs that initiate many biological functions. Mineral content in our diet varies greatly depending on soil conditions in which plants have grown, and the oceans, lakes, and rivers from which our seafood and water is taken. The table below describes how these minerals keep you healthy, including their function, sources, and effects of getting too little.

## Minerals: For Bones and Teeth

Mineral	Source	Deficiency
<p>Calcium: (Ca)</p> <p>Most abundant mineral in the body. 99% stored in teeth and bones</p> <p>Responsible for muscle contraction, nerve transmission, requires vitamin D for absorption</p>	<p>Dairy products, broccoli, dark leafy green vegetables, fortified orange juice and soy milk</p>	<p>Osteopenia/Osteoporosis</p> <p>Incomplete calcification of teeth</p> <p>Susceptibility to dental caries</p> <p>Increased tooth mobility</p> <p>Convulsions</p>
<p>Phosphorus: (P)</p> <p>80-90% in bones and teeth</p> <p>Favors vitamin D absorption</p> <p>Formation of bone and teeth</p> <p>Acid-base balance</p>	<p>Dairy products, poultry, whole grains, nuts, legumes</p>	<p>Demineralization of bone, calcium loss</p> <p>Incomplete calcification of teeth</p> <p>Susceptibility to dental caries</p> <p>Periodontal disease</p>
<p>Fluorine: (F)</p> <p>Stored in bones and teeth</p>	<p>Fluoridated water, tea, seafood</p>	<p>Decreased resistance to dental caries</p>
<p>Magnesium: (Mg)</p> <p>60% in bones and teeth.</p> <p>Responsible for homeostasis</p>	<p>Green leafy vegetables, nuts, whole grains</p>	<p>Muscle tremors, convulsions</p> <p>Gingival hypertrophy</p>

## Micro minerals: Needed in Smaller Amounts

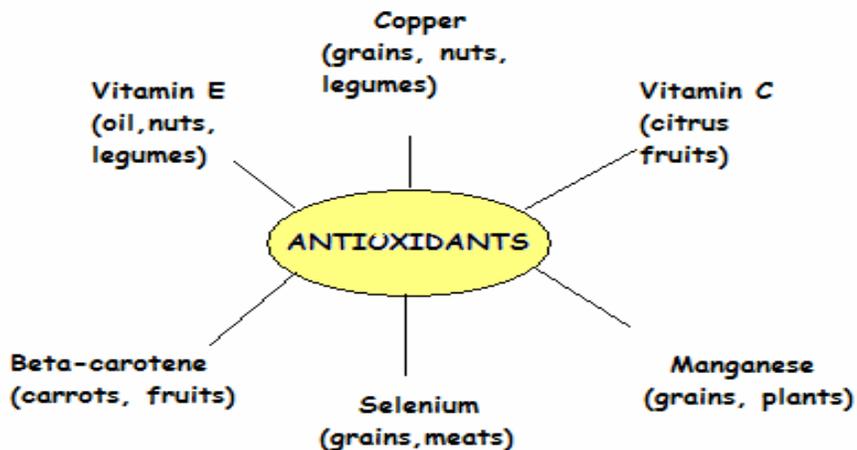
Micromineral	Source	Deficiency
<p>Iron:(Fe)</p> <p>20% stored in bone marrow</p> <p>Carries oxygen to cells</p> <p>Aided by Vitamin C</p>	<p>Heme iron: meat, fish, poultry</p> <p>Nonheme iron: plants</p>	<p>Anemia, decreased immunity</p> <p>Angular cheilosis, pallor of lips and mucosa, glossitis, candidiasis, dysphagia</p>
<p>Zinc: (Zn)</p> <p>Normal growth and development, taste and smell receptors</p>	<p>Protein rich foods</p>	<p>Loss of taste and smell</p> <p>Delayed wound healing</p> <p>Xerostomia, increased candidiasis, periodontal disease, and caries</p>

## Electrolytes: Responsible For Homeostasis

Electrolyte	Source	Deficiency
Sodium: (Na) Works with chloride and potassium, water balance, acid-base balance, nerve function	Table salt, soups, cured meats, processed foods	Muscle cramping, mental apathy
Chloride: (Cl) Works with sodium Regulates acid-base, water balance, and digestion (hydrochloric acid)	Table salt, eggs, fish, meat	Muscle cramping, digestive problems, mental apathy
Potassium: (K) Second most abundant mineral, acid-base balance, sodium potassium pump, water balance	Bananas, potatoes, yams, dried fruits, legumes, meat, dairy	Nausea, vomiting, muscle cramps Heart arrhythmia Cardiac arrest

## Antioxidants

Serve as protectors from damaging free radicals. Free radicals cause cell damage, which may lead to the onset of other health problems. The vitamins and minerals listed below help protect the body against oxidation and cell death.



## Diagnosis of Oral Manifestation

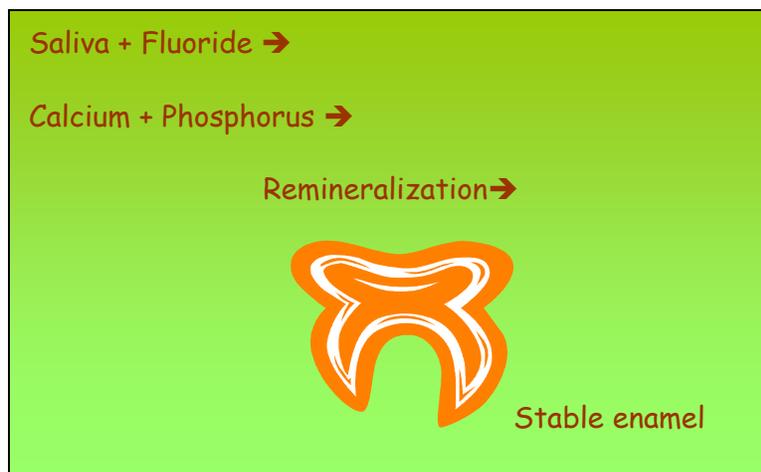
The role of diet on dental caries is a dynamic process that involves a susceptible tooth, cariogenic bacteria in dental plaque, and a fermentable carbohydrate. The frequency of sugar eaten is the primary factor involved in the caries process. Sugary foods or liquids consumed 20 minutes apart allows for separate opportunities for bacteria to feed and produce acid. When the pH of the mouth falls below 5.5, the caries process begins. Form and composition of a fermentable carbohydrate plays a secondary role depending on how long it takes for a food or drink to clear the oral cavity. Liquids clear faster than soft, sticky foods. Quantity of sugar is the least important factor to consider while counseling patients. A food that is 80% sucrose may not be any more harmful than one that is 40% sucrose.



Destructive effects of soda and juice are a major cause of early childhood caries and decay among both children and teenage populations in the United States. One 12 oz. soda contains 10 teaspoons of sugar while diet soda includes both citric and phosphoric acid, both of which may cause demineralization of the tooth enamel. Rinsing the mouth with water, bypassing the teeth by using a straw, and drinking soda or juice with a meal can help reduce the negative effects of liquid fermentable carbohydrates.



Protective factors from specific foods and diet sequencing may also be utilized in order to reduce the destructive influence of fermentable carbohydrates. Fats and proteins consumed in a meal put a coating on the tooth surface to protect it from sugars eaten later. Consuming dairy products keeps the saliva rich in calcium and phosphorus, offering benefits of remineralization by preventing the pH of the mouth from falling below 5.5. Fluoride in both food and water will also increase saliva's content, making it available to remineralize the enamel.



### >>Diet and Periodontal Disease

Diet and periodontal disease are not as clearly connected as diet and dental caries. It is proven that overall nutritional status can secondarily affect the host's susceptibility and influence disease progression. A well-nourished patient can be a primary factor in balancing the extent of periodontal disease and reducing its severity.

The physical consistency of food has a direct effect on periodontal health. Crunchy, fibrous foods increase salivary flow, which offers antibacterial properties. Foods such as raw vegetables also produce local exercise for the periodontal ligament space and increase bone density.

Nutrients work together to build soft and hard periodontal tissues, enhance the immune system to fight infection, and aid in wound healing. The boxes below indicate the specific nutrients and the role they play in the oral cavity:

### **Vitamin D**

- Calcium and phosphorus absorption
- Builds skeletal bones and teeth
- Alveolar process support

### **Vitamin A**

- Forms oral epithelium
- Enhances immune system
- Wound healing

### **Iron, Zinc, Copper**

- Aids in collagen formation
- Wound healing
- Regulates inflammation

### **Protein**

- Supports growth of cells
- Resist infection
- Makes antibodies

### **B-Complex Vitamins**

- Formation of new cells
- Cofactor for nutrients

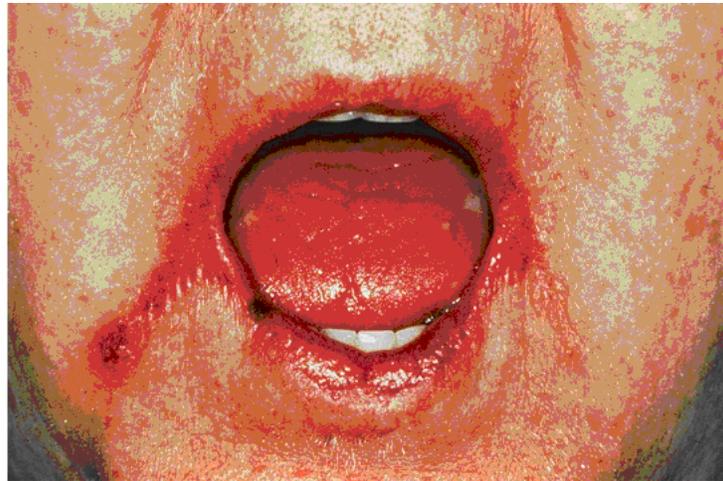
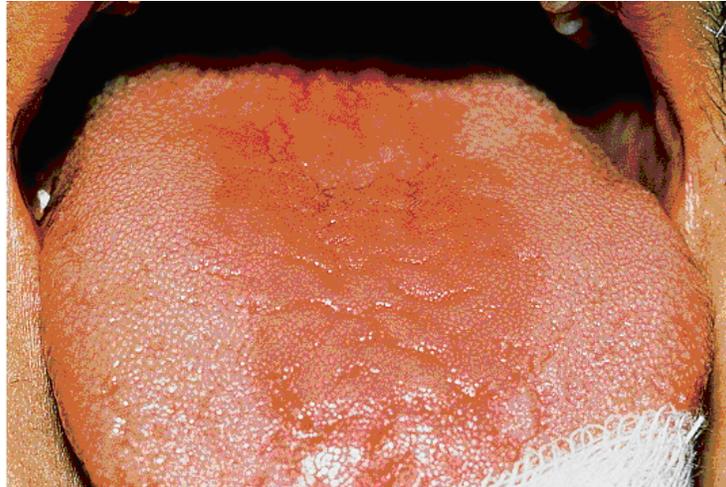
## Vitamin C

- Aids in collagen formation
- Promotes capillary integrity
- Enhances immune response

Oral lesions located on the tongue, lips, and gingiva are common sites in which nutritional deficiencies present themselves. The oral cavity has an abundance of information regarding past and present nutritional habits.



Acute Necrotizing Ulcerative Gingivitis (ANUG) is prevalent in young adults and diabetic patients. It is characterized by red, shiny, marginal gingiva that bleed upon probing, cratered interdental papillae, foul breath, metallic taste, and occasional fever and pain. Nutritional deficiencies commonly associated with ANUG include protein and vitamins C and B-complex. A number of local factors, such as smoking and poor oral hygiene, are usually contributory. Dietary recommendations include nutrient dense, well-balanced, soft foods, such as cottage cheese, yogurt, avocado, and creamed soups. In addition, adding a liquid nutritional supplement or a multivitamin can be therapeutic. Foods and drinks to avoid include acidic juices, citrus fruits, spicy seasonings, chocolate, alcohol, and caffeine.



Glossitis (left) is an inflammation of the tongue with slight to total atrophy of the filiform and fungiform papillae. It is commonly associated with a B-complex vitamin deficiency, which includes thiamin, niacin, riboflavin, and cobalamin. Other factors include allergic reactions to foods, stress, medications, and infections. Angular cheilitis (right) is a chronic, bilateral lesion that produces soft, red ulcerated tissues at the corners of the mouth. The lesions often crust over, split, and reulcerate during normal oral function. Cheilitis is associated with a B-complex vitamin deficiency, but can also occur in patients who wear dentures, have decreased vertical dimension, are anemic, or use long term antibiotics.

Foods rich in B-complex vitamins include most enriched breads, cereals and grains, foods of animal origin, meat, poultry, fish, pork, eggs, nuts, and legumes. Vitamin supplementation is also indicated. Other treatment options should include preventive measures.



Iron deficiency anemia is often seen in the oral cavity as glossitis. In the photo above, the tongue's papilla atrophy and give a shiny, smooth, red appearance. Other tissues involved include pallor of the lips and oral mucosa, angular cheilitis, and candidiasis. Iron deficiency can also be associated with dysphagia in the elderly population.

The cause of anemia is often multifaceted. Inadequate dietary intake (primary deficiency), accelerated demand, increased iron loss, or inadequate uptake (secondary deficiency) may be involved. Supplements are generally not recommended without laboratory testing.

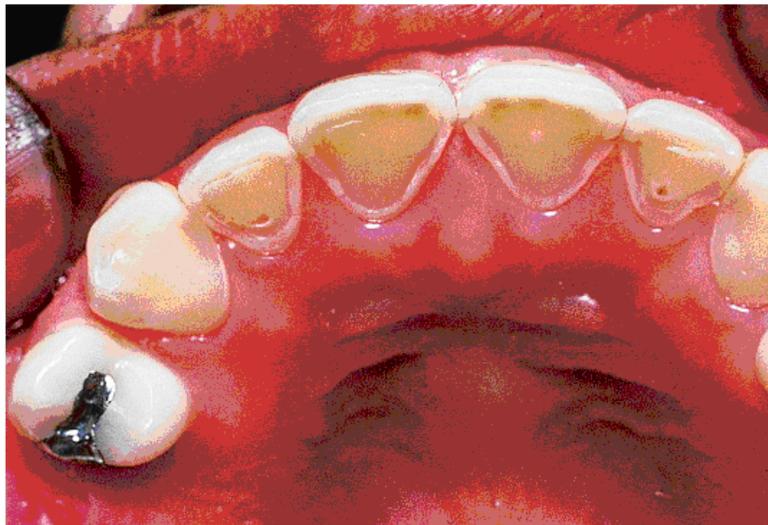
Dietary recommendations include consuming both heme (animal) and nonheme (plant) iron. Good sources of heme iron include meat, fish, and poultry. Sources of nonheme iron include egg yolks, leafy greens, and legumes. The absorption rate of iron is relatively low at 10 to 30%. Incorporating a food rich in vitamin C such as kiwi, citrus fruits, and cruciferous vegetables will increase the absorption rate of iron. Coffee, tea, vitamin A, and calcium all interfere with iron absorption so they should be consumed at separate meals.



Cleft lip and palate-the fourth most common birth defect in the United States-may be caused by a severe folic acid deficiency beginning at eight weeks of fetal development.

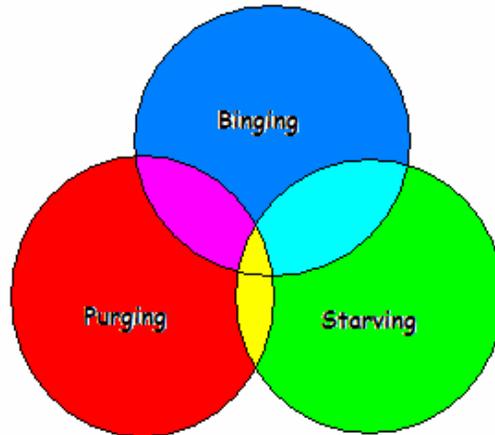
Dietary recommendations before conception include taking a prenatal vitamin with 400 mcg of folic acid and incorporating foods rich in folate such as dark greens, citrus fruits, and fortified grains and cereals.

Feeding an infant with cleft lip/palate can be challenging. The main priority is to ensure adequate nutrient intake. The absence of negative pressure needed for sucking can make this taxing for a new mother. Enlarging the hole in the bottle and using special feeding devices will enable the infant to feed more efficiently. Refer patients to the American Cleft Palate Association for more information.



Anorexia nervosa, bulimia nervosa, and binge eating are bio-physio-social illnesses that affect five to ten million females and one millions males annually. Orally, erosion is normally limited to the lingual surfaces of the maxillary anterior teeth. Chronic regurgitation caused by purging may also cause sensitivity due to the exposure of dentin.

Treatment options include medical intervention, psychological and nutritional counseling, behavior modification, fluoride treatments, and sodium bicarbonate rinses.

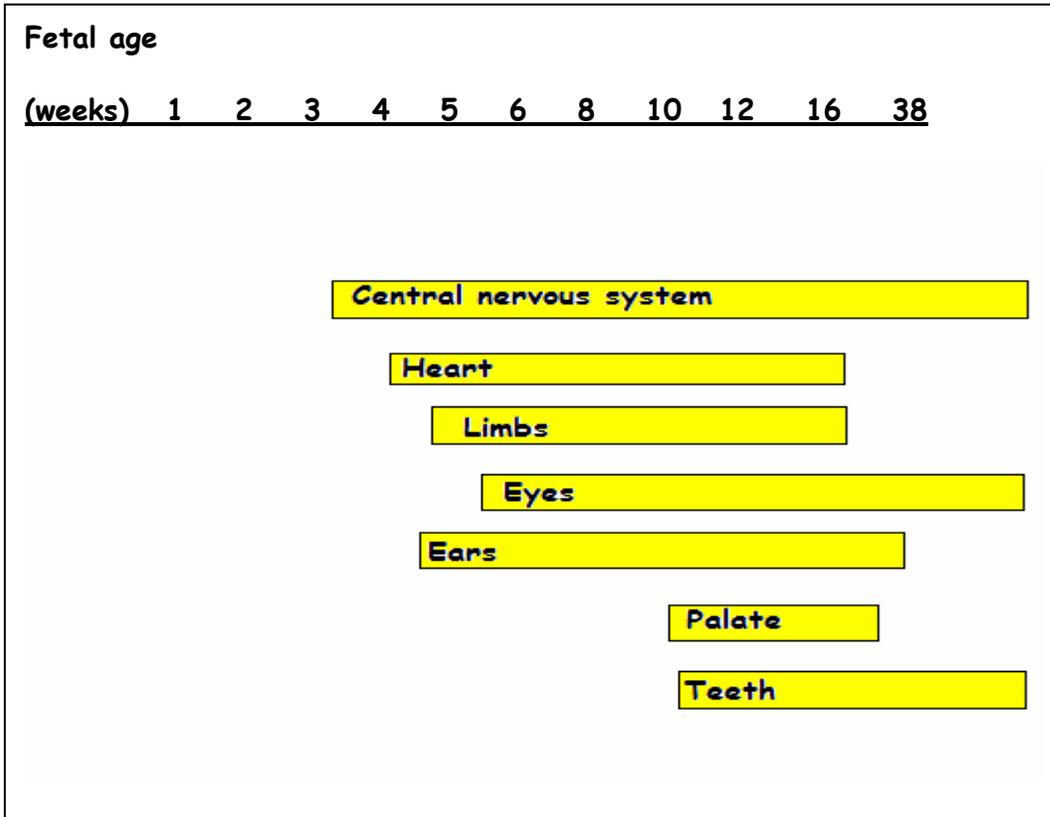


Overlap of eating disorders.

## The Lifecycle: Dietary Considerations for the Dental Patient

### >>Pregnancy

It is a time in a woman's life that has unique dietary needs. Ideally, optimal nutrition should be practiced before conception, since many birth defects occur before a woman is aware she is pregnant. Vulnerable periods of fetal development are indicated in the box below. The most serious damage to oral structures from exposure to toxins and nutritional deficiencies are most likely to occur at eight weeks gestation.



Dietary recommendations before and during pregnancy include an additional 300 calories/daily from the fourth month of pregnancy until delivery. However, too many calories increase a mother's chance of developing hypertension, diabetes, preeclampsia, prolonged delivery, and congenital malformations. Most importantly, 400 mcg of folic acid before pregnancy is needed to prevent neural tube defects. Other dietary considerations include additional protein for fetal tissue development, calcium, phosphorus, and vitamin D for bone remineralization and calcification of deciduous teeth, and an additional 25% increase in fluids is necessary to support maternal blood volume.

Foods such as raw eggs, meat, soft cheese, and unpasteurized juice should be avoided as they may cause food-borne illness and harm to the developing fetus. Stimulants such as caffeine, alcohol, tobacco, and both prescription and non-prescription drugs pass through the placental barrier and can affect growth and development.

### >>Infants and Toddlers

They have distinctive nutritional requirements. An infant's weight triples by his/her first birthday, but with intestinal absorption commonly inefficient and renal function immature, digestion is challenged. Breast milk or fluoridated formula will provide the necessary nourishment during the first six months of development. A

gradual introduction of solid foods is necessary to determine if food allergies exists. As a toddler begins self-feeding, an erratic appetite and food jags may become more common. Offering healthy snack options and limiting fast foods is important modeling during this impressionable time.

Orally, primary teeth are beginning to erupt. Parents can prevent early childhood caries by cleaning teeth with gauze or a toothbrush after meals. Sipping water instead of juice or milk before nap and bedtime can limit the exposure of fermentable carbohydrates. Calcium, phosphorus, and vitamin D are essential for the calcification of permanent crowns.

School-age children need frequent meals to maintain healthy blood glucose levels necessary for optimal academic performance. This is also a time when eating takes on social, psychological, and emotional implications, and children develop a lifelong relationship with food. The appetite at this age is usually very good and healthy snacks are an excellent way to incorporate nutrient dense foods into the diet. Involving children in meal preparation and never using food as a reward or a punishment can teach children healthy eating strategies.

Calcium, phosphorus, and vitamin D requirements increase at this age due to growth spurts in the long bones. Orally, primary teeth are exfoliated and the eruption of permanent teeth begins. Sealant placement on the first permanent molars is standard protocol for caries prevention at this stage of oral development.

### **Healthy Snacks During & After School**

- Fruit kabobs; melons, grapes, and berries.
- Slivers of carrots or celery with hummus.
- Whole grain bagel with peanut butter.
- Soft, whole wheat taco shell with melted low-fat cheese.
- Mozzarella string cheese with whole grain crackers.
- Smoothies made with low-fat yogurt and frozen berries.
- Trail mix made with popcorn, dried fruit, and nuts .
- Salsa and chips.
- Mini pizzas made on a whole wheat english muffin.
- Turkey roll ups.
- Whole grain cereal with fresh fruit.
- Sliced banana with peanut butter and cereal sprinkles.

## **>>Teenagers**

They usually have the worst diets and are the most difficult age to counsel. Peer pressure, weight control, rapid growth, hormones, and stress challenge the body and mind. Pizza, burgers, and soda hardly begin to provide the basic nutritional needs. Females, by this time, have reached their maximum linear growth and begin to increase their percentage of body fat. Males, on the other hand, are still building muscle and bone mass, so their calorie needs will be much higher. When counseling this age, appeal to body image and encourage healthy snacks-nuts, popcorn, cereal, cheese, and fruit. Educate teenagers, with the use of visual aids, about the negative effects of soda consumption on tooth and bone health. Better options include flavored sparkling and fitness waters, 100% fruit juice, and of course low-fat milk.

## **>>Adults**

Between the ages of 30 and 40 may begin to feel the effects of a reduced basal metabolic rate (BMR). Weight gain, especially around the waistline, and bone resorption due to calcium loss place adults at risk for more serious health problems later in life.

The goal of nutrition during adulthood is health promotion-maintain oral tissue and supporting structures and immune support. Encouraging patients to stay physically active and following the Dietary Guidelines for Americans may prevent future chronic disease.

### **Dietary Guidelines for Americans**

#### **Aim for Fitness**

- Aim for a healthy weight.
- Be physically active each day.

#### **Build a Healthy Base**

- Let the Pyramid guide your food choices.
- Choose a variety of grains daily, especially whole grains.
- Choose a variety of fruits and vegetables daily.
- Keep food safe to eat.

#### **Choose Sensibly**

- Choose a diet that is low in saturated fat and cholesterol and moderate in total fat.
- Choose beverages and foods to moderate your intake of sugars.

- Choose and prepare foods with less salt.
- If you drink alcoholic beverages, do so in moderation.

### **>>Elderly**

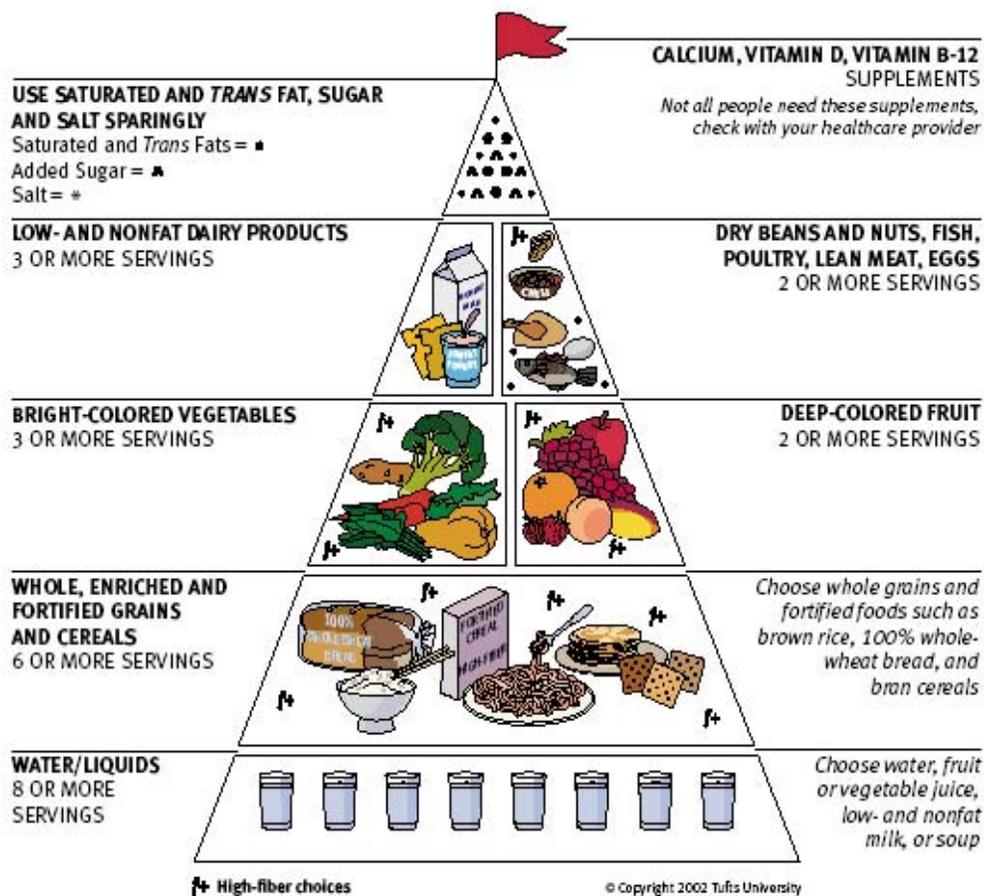
These Individuals have unique nutritional concerns, especially as life expectancy continues to increase. Depending on genetics and the ability to resist disease, our bodies age at different rates. Good nutrition can make a significant difference in keeping the body free from disease and the dentition intact.

Dry mouth, dysphasia, tooth loss, and economics may pose some dietary restrictions. Incorporating fiber rich foods for a healthy G.I. tract, decreasing fat intake for weight control, supplementing with a senior multivitamin for osteoporosis prevention, and maintaining hydration are important dietary recommendations. The Tufts Food Guide Pyramid below offers some additional advice for the older adult.

Orally, seniors with a possible combination of reduced dexterity, xerostomia, and gingival recession are at risk for periodontal disease and root caries. Besides meticulous oral hygiene, nutrient intake can affect oral disease progression.

# TUFTS

## Food Guide Pyramid for Older Adults



For additional copies visit us on the web at <http://nutrition.tufts.edu>

## **Nutritional Counseling in the Dental Practice**

When do you counsel a dental patient? How can you initiate a conversation regarding nutrition into a regular prophylaxis appointment? It can be as formal as having a patient record a three, five, or seven-day food diary and return for dietary counseling. Or, an informal approach may involve talking chair side, providing visual aids or brochures, or having a patient record a 24-hour recall. Unfortunately, there is limited insurance compensation for nutritional counseling in a dental office, but it is just as important as reinforcing good home care.

The boxes below will help determine when to counsel in the dental practice and when to refer a patient to a registered dietitian.

### **When to Refer**

- Cancer
- Diabetes
- Eating disorder
- Food allergies
- Heart attack
- Hypertension
- Osteoporosis
- Stroke

### **When to Counsel**

- Chronic dieter
- Denture patient
- Early childhood caries
- High cholesterol
- Oral lesions
- Periodontal disease
- Recurrent decay
- Zerostomia

When diet changes are indicated, keep it simple. Make small changes, and let the patient choose one or two goals to practice between dental appointments. As

a clinician, be aware of patient's cultural influence, education, current health status, and any financial restrictions that may inhibit food selection.

### **>>Counseling Tips**

1. To reduce cariogenicity of the diet, suggest limiting eating events to three times a day and eliminate highly retentive foods such as crackers, chips, and soft candies, and include fats and proteins to raise salivary pH.
2. When oral hygiene does not follow a meal, suggest ending a meal with cheese or milk, chewing gum with xylitol, or rinsing with water.
3. To stimulate salivary flow, include cool, sour, or tart nutrient-dense foods, increase water intake, and suck on sugar-free mints.
4. Incorporate low-fat, calcium rich foods in the diet, spaced throughout the day for the best absorption rate.
5. When reading a food label, don't forget to look at the serving size and multiply accordingly.
6. Resources for patient education.

This concludes the course.

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