Chapter 16

Nutrition
Lesson 16.1

Components of Nutrition for Dental Health

1. Pronounce, define, and spell the Key Terms.
2. Discuss the link between nutrition and dental assisting, including:
   • Explain how diet and nutrition can affect oral conditions.
   • Explain why the study of nutrition is important to the dental assistant.
3. Do the following regarding national recommendations and guidelines for nutrition:
   • Discuss the components of the *Healthy People 2020 Report*.
   • Describe the difference between “recommended dietary allowances (RDAs),” “Dietary Reference Intakes (DRIs),” and “Dietary Guidelines for Americans.”
   • List the five areas of MyPlate.
   • Explain Canada’s food guide rainbow.
Lesson 16.1

Components of Nutrition for Dental Health

4. Do the following regarding nutrient components:
   • Describe the role of carbohydrates in the daily diet, and explain the relationship between frequency and quantity of cariogenic foods in causing tooth decay.
   • List the three types of proteins.
   • Describe the role of fats in the daily diet, including cholesterol and antioxidants.
   • Describe the difference between vitamins and minerals, and explain the need for each in the daily diet.
   • Explain the importance of water in the daily diet.
Nutrition and the Dental Assistant

- "You are what you eat"
  - It is true, because food is used to build and repair the body
  - Food choices must therefore be based on sound information and knowledge

- Malnutrition during crucial periods may result in physical or mental disabilities

- Well-nourished persons are usually better able to heal and ward off infections than poorly nourished individuals
The study of nutrition includes all of the processes involved in the selection, intake, and utilization of nutrients.

Nutrients are the components in food that supply the elements necessary to meet the body’s requirements for energy, growth, maintenance, and well-being.
The Role of the Dental Assistant

As a dental assistant, you will be discussing nutrition and food choices with patients in a variety of circumstances, including:

- Counseling patients about the prevention of tooth decay
- Counseling patients regarding their diet following oral surgery or other dental procedures
- Performing dietary analysis with patients
- Counseling patients who have orthodontic appliances on their teeth with regard to food choices
The Dental Assistant Discussing Dental Health with Patient
Healthy People 2020 Report

- Issued by the U.S. Department of Human and Health Services (USDHHS)
- Healthy People 2020 has a renewed focus on identifying, measuring, tracking, and reducing health disparities through a "determinants of health" approach
Nutrient Recommendations: DRIs and RDAs

- Recommended dietary allowances (RDAs) are the levels of essential nutrients needed by individuals on a daily basis.
- Dietary reference intakes (DRIs) provide information about tolerable upper intake levels and recommended intake by age group.
- Both are determined by the Food and Nutrition Board of the National Academy of Sciences.
MyPlate

- MyPlate replaced MyPyramid as the USDA’s familiar guide to primary food groups
- Visual cue to help consumers adopt healthy eating habits
- Emphasizes the fruit, vegetable, grains, protein, and dairy food groups
Canada’s Food Guide

- Canada has also developed a pictorial food guide to assist Canadians to choose food wisely.
- The food guide rainbow encourages consumers to determine their own healthy lifestyle.
Carbohydrates

- Simple sugars
  - Absorbed first

- Complex carbohydrates
  - Must be processed before they can be absorbed into the intestinal tract

- Dietary fiber
  - Indigestible and passes through the intestinal tract unchanged
Sources of Carbohydrates

- Cereal grains
  - Wheat, corn, oat, rice, barley, and buckwheat
- Sweets
  - Table sugar, honey, and maple and corn syrups
- Vegetables
  - Green leafy vegetables, dried beans, and peas
Foods That Cause Tooth Decay

- Cariogenic: Any food that contains sugars or other carbohydrates that can be metabolized by bacteria into plaque
- Refined carbohydrates, such as candy and other sweets, are cariogenic because their sugars are readily available
- A major factor in the cariogenicity of a carbohydrate is how long the food stays in the mouth
Foods That Cause Tooth Decay (Cont.)

- Sugary liquids, such as soft drinks, leave the mouth quickly and are not as cariogenic as sticky foods such as raisins and caramels.
- Foods such as crackers, although they are not sweet, are cariogenic because they stick to the teeth and remain in the mouth long enough to be broken down into sugars.
- Another important factor in cariogenicity is whether the food stimulates the flow of saliva.
Proteins

- Composed of amino acids
- Only nutrient that can build and repair body tissues
- There are 20 amino acids; eight are essential in the adult for normal growth and maintenance of tissues
  - These eight essential amino acids must come from food
- A complete protein is one that contains a well-balanced mixture of all eight essential amino acids
Sources of Protein

- Complete proteins
  - Meat, fish, poultry, eggs, and dairy products
- Partially complete proteins
  - Grains and vegetables
- Incomplete proteins
  - Corn and gelatin
Fats (Lipids)

- Important source of energy
- Provide essential fatty acids
- Transport vitamins
- Provide heat insulation
- Components of cell membranes and myelin, the covering of nerve fibers
- Form protective cushions around the organs
Cholesterol

- A fat commonly found in saturated fats (from animal sources)
- Fat in the body is divided into two categories:
  - High-density lipoprotein (HDL) is good fat
  - Low-density lipoprotein (LDL) is bad fat
- Cholesterol should be limited to less than 250 mg per day
Antioxidants

- Antioxidant vitamins E and C and beta-carotene can prevent cholesterol from oxidizing and damaging arteries
- Many fruits, vegetables, and certain seasonings contain naturally occurring antioxidants
Vitamins

- Organic substances that occur in plant and animal tissues
- Essential in minute amounts for the human body to maintain growth and good health
- Do not supply energy, but needed to release energy from carbohydrates, fats, and proteins
- To date, 13 vitamins have been discovered
  - Four are fat-soluble
  - Nine are water-soluble
Minerals

- Inorganic substances that make up about 4% of the body’s weight
- 14 essential minerals
- Minerals present in the largest quantities are sodium, potassium, calcium, chlorine, phosphorus, and magnesium
- Trace elements include iron, zinc, copper, selenium, chromium, manganese, iodine, and fluorine
Water

- Approximately two thirds of the body’s weight is water
- Often called the *forgotten nutrient*, water helps in:
  - Building tissue
  - Regulating body temperature
  - Lubricating joints and mucous membranes
Lesson 16.2

Diet Modification, Eating Disorders, and Promoting Healthy Habits

5. Explain the difference between diet modification and dietary analysis.

6. Explain how to interpret food labels, including the criteria that must be met for a food to be considered “organic.”

7. Discuss the health and oral implications of eating disorders.

8. List the five healthy habits for a long life.
Diet Modification

- Diet modification provided by members of the dental team is usually focused on dental health and is not intended to replace the services of a registered dietitian.
- The patient’s lifestyle and background must be considered when one is making recommendations.
- If your dietary recommendations are compatible with the patient’s normal diet, the patient is more likely to comply.
Dietary Analysis

- Can be used to help a patient understand the role of nutrition in his or her dental and general health
- Patient must keep a diet diary for about 3 days
- Patient must record every food eaten, including the amount, how the food was prepared, and when it was eaten
- Dental team then reviews the completed diary with the patient, using a dietary-analysis form
# Food Diary

<table>
<thead>
<tr>
<th>Time</th>
<th>Place</th>
<th>Food Eaten</th>
<th>Amount Eaten</th>
<th>How Prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: 6:00 AM</td>
<td>Kitchen</td>
<td>Orange juice, Whole wheat bread, Diet margarine, Egg</td>
<td>½ c, 2 slices, 1 tsp, 1</td>
<td>Unsweetened, Toasted, Tub, Fried in oil</td>
</tr>
</tbody>
</table>

Instructions:
1. List EVERYTHING you eat or drink on 3 consecutive, typical days.
2. Use 2 weekdays and 1 weekend day.
3. Include extras such as chewing gum, sugar and cream in coffee, or mustard on a sandwich.

From Stegeman CA, Ratcliff Davis J: The dental hygienist’s guide to nutritional care, ed 4, St Louis, 2014, Saunders.
Reading Food Labels

- Every food label must contain the following information:
  - Individual serving size
  - Number of servings per container
  - Total calories
  - Calories derived from fat content
  - Percentage of daily value (RDA)
### Nutrition Facts Label

#### Serving Size
This section is the basis for determining number of calories, amount of each nutrient, and %DVs of a food. Use it to compare a serving size to how much you actually eat. Serving sizes are given in familiar units, such as cups or pieces, followed by the metric amount, e.g., number of grams.

#### Amount of Calories
If you want to manage your weight (lose, gain, or maintain), this section is especially helpful. The amount of calories is listed on the left side. The right side shows how many calories in one serving come from fat. In this example, there are 250 calories, 110 of which come from fat. The key is to balance how many calories you eat with how many calories your body uses. Tip: Remember that a product that's fat-free isn't necessarily calorie-free.

#### Limit these Nutrients
Eating too much total fat (including saturated fat and trans fat), cholesterol, or sodium may increase your risk of certain chronic diseases, such as heart disease, some cancers, or high blood pressure. The goal is to stay below 100%DV for each of these nutrients per day.

#### Get Enough of these Nutrients
Americans often don't get enough dietary fiber, vitamin A, vitamin C, calcium, and iron in their diets. Eating enough of these nutrients may improve your health and help reduce the risk of some diseases and conditions.

#### Percent (%) Daily Value
This section tells you whether the nutrients (total fat, sodium, dietary fiber, etc.) in one serving of food contribute a little or a lot to your total daily diet.

The %DVs are based on a 2,000-calorie diet. Each listed nutrient is based on 100% of the recommended amounts for that nutrient. For example, 18% for total fat means that one serving furnishes 18% of the total amount of fat that you could eat in a day and stay within public health recommendations. Use the Quick Guide to Percent DV (%DV): 5% DV or less is low and 20% DV or more is high.

#### Footnote with Daily Values (DV)
The footnote provides information about the DVs for important nutrients, including fats, sodium and fiber. The DVs are listed for people who eat 2,000 or 2,500 calories each day.

- The amounts for total fat, saturated fat, cholesterol, and sodium are maximum amounts. That means you should try to stay below the amounts listed.

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Product Label Information

- Begin with the serving size
  - It is uniform across product lines so that you can easily compare similar foods
- The amount of each nutrient in the food is expressed in two ways:
  - As a percentage of the RDA
  - By weight of the serving size
- By using the percentage of daily values, you can easily determine whether a food contributes a large or small amount of a particular nutrient
Labeling Ingredients

- Almost all foods are required to have the ingredients listed on the package.
- Ingredients are listed in descending order of weight to indicate the proportion of any ingredient.
- Artificial coloring must also be named in the list of ingredients.
Label Claims

Examples of nutrient claims include:

- “Low fat”
- “High fiber”
- “Reduced calories”
- “Cholesterol free”
Organic Foods

- Foods with the “organic” label must have been grown without the use of any chemical pesticides, herbicides, or fertilizers.
- The use of hormones in seed preparation is prohibited.
- Organic milk must have no added vitamins or chemicals, and preparation is closely monitored.
Eating Disorders

- Influences of the media, food industry, and society have led to a preoccupation with being thin.
- Such influences have contributed to a society of weight-conscious adolescents and adults and an increase in eating disorders.
- Eating disorders have serious medical, oral, and psychological implications and can be life-threatening.
Eating Disorders (Cont.)

- Eating disorders commonly occur during adolescence and adulthood and include:
  - Anorexia nervosa, bulimia, binge eating, compulsive overeating, female athlete triad, and chronic-dieting syndrome
- Most of those who suffer from eating disorders are 14 to 25 years old, white, and affluent
- Occurrence of eating disorders is more common in females; the ratio of females to males is 10:1
Bulimia and Anorexia Nervosa

- **Bulimia**
  - Often referred to as a "binging and purging" disorder

- **Anorexia nervosa**
  - Characterized by self-starvation
Female Athlete Triad

- This term refers to young female athletes with an eating disorder that includes restrictive dieting, overexercise, weight loss, and a lack of body fat
- Can result in:
  - Osteoporosis (bone thinning)
  - Amenorrhea
  - Enamel decalcification of teeth
  - Increased caries, periodontal and soft tissue inflammation
Management of Eating Disorders

- Anorexia nervosa and bulimia are considered psychiatric diseases with serious medical, dental, and nutritional complications
- Dental professionals are often the first healthcare providers to diagnose an eating disorder
- In addition to providing dental care and education, the dentist is obligated to assist the patient in obtaining psychotherapy and medical care
Management of Eating Disorders (Cont.)

- Successful management of these disorders requires a team approach including psychiatrists, psychologists, physicians, nurses, dietitians, social workers, and dentists.
- The road to recovery is often long and expensive.
Healthy Habits

- Eat right
  - Consume five servings of fruits and vegetables daily, plus generous portions of grain, beans, and dairy products

- Keep bones strong
  - Include sufficient calcium in your diet
  - Take a daily supplement for vitamin D, which helps your body absorb more calcium effectively

- Protect the immune system
  - Eat whole grains, green leafy vegetables, seafood, lean meats, and moderate amounts of vegetable oils to get vitamins E and B₆ and the trace mineral zinc
Healthy Habits (Cont.)

- Maintain body weight
  - Excess fat can hasten the onset of diabetes, heart disease, arthritis, and other problems

- Exercise
  - Combine aerobic exercises such as walking and running with simple stretch training to strengthen your muscles
Questions?