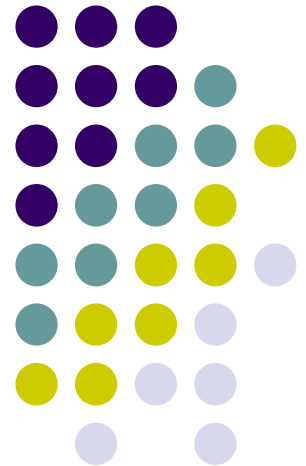
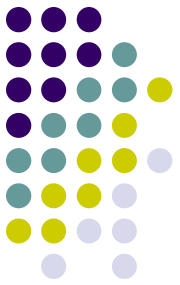


Nutrition and Diet Therapy

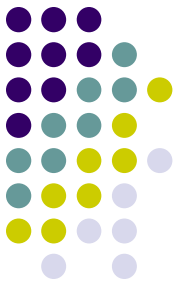
Chapter 1: Overview of Nutrition & Health





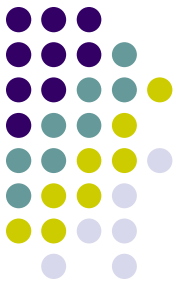
Learning Objectives

- Describe the factors that influence personal food choices.
- Identify which of the major classes of nutrients are organic and which yield energy.
- Describe the four categories of the Dietary Reference Intakes (DRI), the Estimated Energy Requirement (EER), and the Acceptable Macronutrient Distribution Ranges (AMDR).
- Describe the ways in which the kinds of information collected by researchers from nutrition surveys are used.



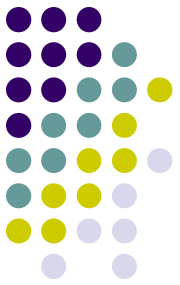
Learning Objectives

- Explain how each of the dietary ideals can be used to plan a healthy diet and how the Dietary Guidelines and USDA Food Patterns help make diet planning easier.
- Compare the information on food labels to make selections that meet specific dietary and health goals.
- Discuss how misinformation and reliable nutrition information can be identified.



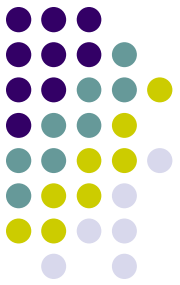
Overview of Chapter

- Food Choices
- The Nutrients
- Nutrition Standards and Guidelines
 - Dietary Reference Intakes
 - Dietary Guidelines
 - Diet-Planning Principles
 - Food Group Plans
 - Nutrition Surveys
- Food Labels
- **Nutrition in Practice:** *Finding the Truth about Nutrition*



Health and Wellness

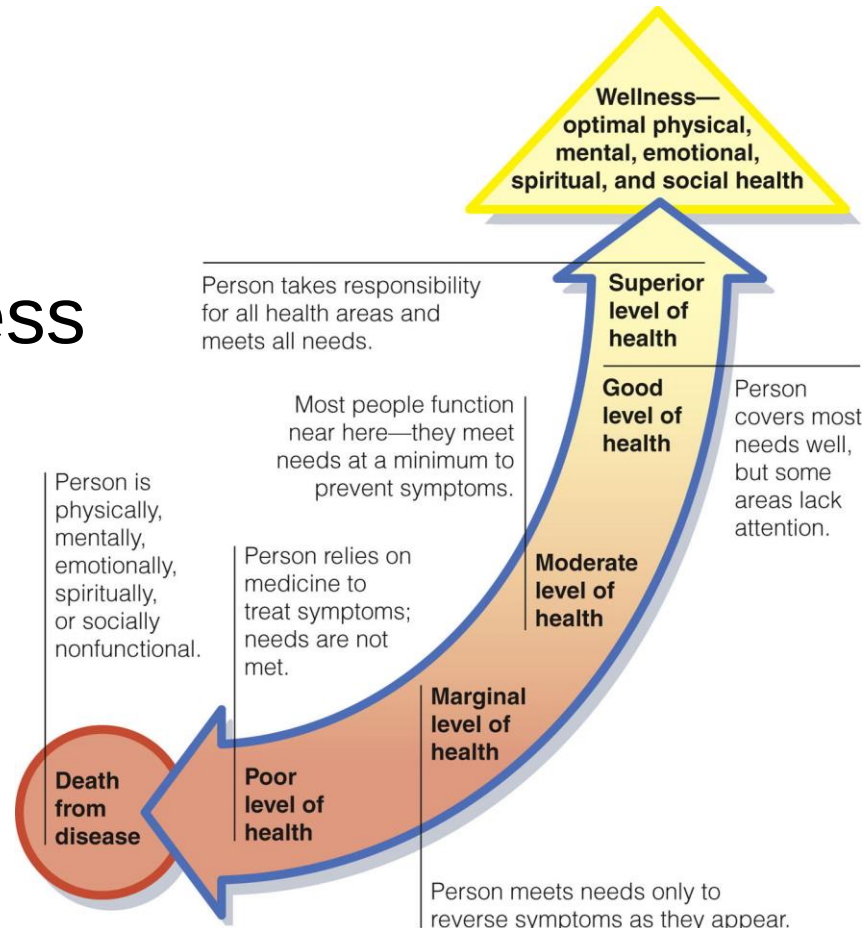
- **Health** – a range of states with physical, mental, emotional, spiritual, and social components.
 - At a minimum, health means freedom from physical disease, spiritual discontent, social maladjustment, and other negative states.
 - At a maximum, health means “wellness”.
- **Wellness** – maximum well-being; the top range of health states: the goal of the person who strives toward realizing his or her full potential physically, mentally, emotionally, spiritually, and socially.

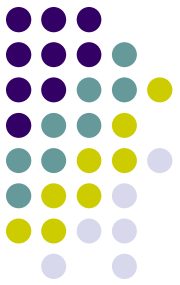


The Health Line

Personal health falls along a continuum from maximum wellness to total failure to function (death)

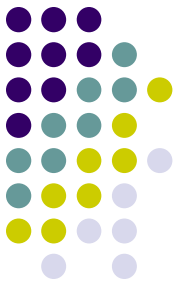
Wellness
All of the characteristics that make a person strong, confident, and able to function well with family, friends and others





Food Choices

- Preference
- Habit
- Associations
- Ethnic Heritage and Tradition
- Values
- Social Pressure
- Emotional State
- Availability, Convenience, Economy
- Age
- Occupation
- Body Image
- Medical Conditions
- Health and Nutrition

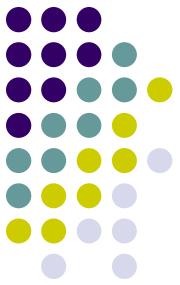


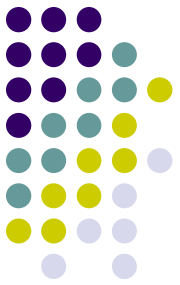
Preference

- Why do you like or dislike certain foods?
- Taste
 - Genetics may influence
- Texture
- Smell
- Appearance

Habit

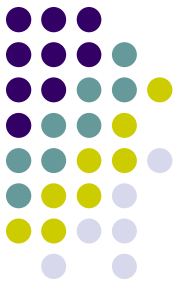
- Coffee or juice at breakfast
- Cereal at breakfast
- Sandwich at lunch





Associations

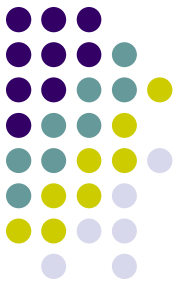
- Foods you eat when you're sick
 - Ex- chicken noodle soup, jello, popsicles
- Foods at holidays
- Foods that have made you sick before



Ethnic Heritage & Traditions

- Different countries eat different types of foods
- Different regions have different foods
 - Tex-Mex
- *See Table 1-1 for more examples.*

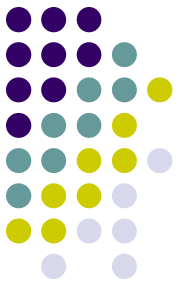




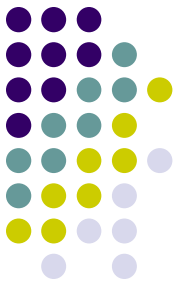
Values

- Selecting foods that come in containers that can be reused or recycled
- Only canned tuna that is “dolphin safe”
- Religion

Social Pressure



- Sometimes you may only eat certain things around certain people.

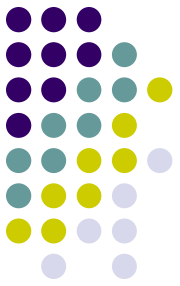


Emotional State

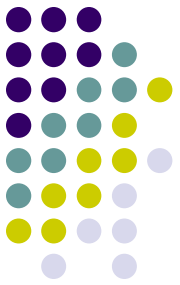
- What/How do you eat when you are depressed, upset, happy?



Availability, Convenience, & Economy



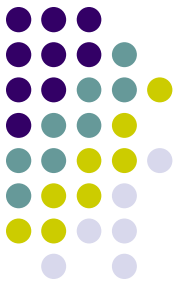
- Do you have a way to go grocery shopping?
- What foods are convenient for your lifestyle?
- Microwavable
- Fast foods
- What types of foods can you afford?



Age

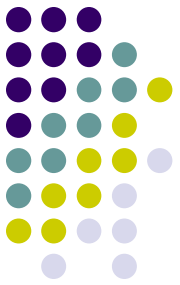
- Infants depend on others to choose foods for them.
- Children will choose foods that taste good to them
 - Will avoid tastes and textures that they dislike
- Adults often choose foods based on health concerns and body image

Occupation



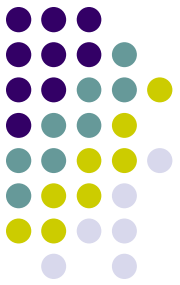
- What type of job do you have?
 - office, on the road, etc.
- Do you have refrigerators and microwaves at work?
- Do you and your co-workers constantly dine out at lunch?





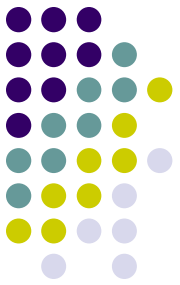
Body Image

- The fashion and movie industries seem to define what people accept as the “ideal body”, not the medical community.
 - People will select foods that they associate with their ideal body image.
 - Are these choices based on sound nutrition or faddism?
- Hollywood often portrays unrealistic ideal body images.



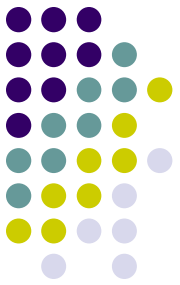
Medical Conditions

- **High blood pressure** (hypertension)-monitor sodium intake
- **Heart disease** – amount/types of fat
- **Chemotherapy:**
 - May decrease appetite
 - Cause sores in mouth
- **Dental issues**
 - Soft or pureed



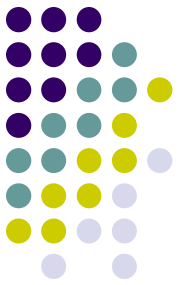
Health & Nutrition

- Some look at nutrition when making food choices.
- New and familiar foods can make up a healthy diet
 - Healthier options at restaurants now.
 - Should not mean totally giving up favorite foods.
- Three principal types of “foods”
 - **“Whole Foods”** e.g. seafood, fruit, poultry
 - **“Processed Foods”** e.g. fruit juices, cheeses
 - **“Ultra-Processed Foods”** e.g. chicken nuggets



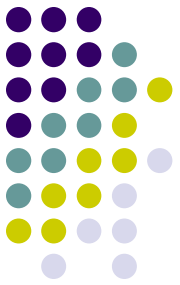
The Nutrients

- What are nutrients?
 - Substances obtained from food and used in the body to provide energy and structural materials and to serve as regulating agents to promote growth, maintenance, and repair.



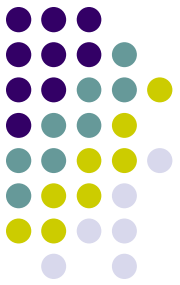
The Nutrients

- **Essential nutrients:** nutrients a person must obtain from food because the body cannot make them for itself in sufficient quantities to meet physiological needs.
- **Six Classes of Nutrients:**
 - Water
 - Carbohydrates
 - Fats
 - Proteins
 - Vitamins
 - Minerals



The Nutrients

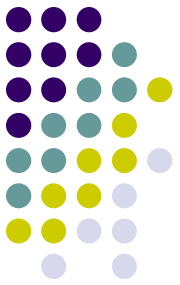
- **Organic Nutrients:** carbon containing
 - Carbohydrates
 - Fat
 - Protein
 - Vitamins
- **Energy-yielding nutrients:** yield energy that the body can use.
 - Carbohydrates, protein, and fat
- **Alcohol:** NOT a nutrient
 - DOES provide kcalories



The Nutrients

kCalories: A Measure of Energy

- **Kilocalories (kcalories)**
 - Measure how much energy food provides
 - Protein—4 kcal/gram
 - Carbohydrate—4 kcal/gram
 - Fat—9 kcal/gram
- Most foods contain a mixture of all three energy-yielding nutrients
 - Sometimes classified by the predominant nutrient

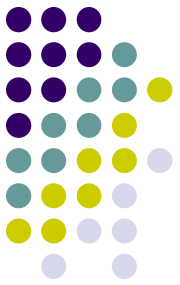


The Nutrients

kCalories: A Measure of Energy

- Body first uses nutrients to build new compounds and fuel metabolic and physical activity
- Unused (excess) energy rearranged into storage compounds (primarily body fat) and saved for later use
 - Consuming more energy than you expend results in weight gain

The Nutrients



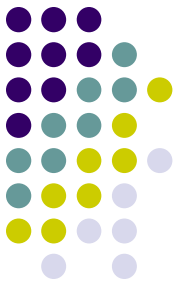
kCalories: A Measure of Energy

- Alcohol
 - Provides energy, but no nutrients
 - Contains 7kcal/g

Energy Density

Measure of the amount of energy a food provides relative to the amount of food (kcal/g)

The Nutrients



kCalories: A Measure of Energy

How To Calculate the Energy a Food Provides

To calculate the energy available from a food, multiply the number of grams of carbohydrate, protein, and fat by 4, 4, and 9, respectively. Then add the results together. For example, one slice of bread with 1 tablespoon of peanut butter on it contains 16 grams of carbohydrate, 7 grams of protein, and 9 grams of fat:

$$16 \text{ g carbohydrate} \times 4 \text{ kcal/g} = 64 \text{ kcal}$$

$$7 \text{ g protein} \times 4 \text{ kcal/g} = 28 \text{ kcal}$$

$$9 \text{ g fat} \times 9 \text{ kcal/g} = 81 \text{ kcal}$$

$$\text{Total} = 173 \text{ kcal}$$

From this information, you can calculate the percentage of kcalories each of the energy nutrients contributes to the total. To determine the percentage of kcalories from fat, for example, divide the 81 fat kcalories by the total 173 kcalories:

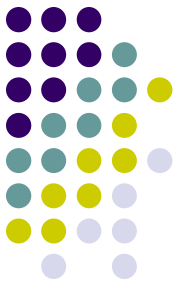
$$81 \text{ fat kcal} \div 173 \text{ total kcal} = 0.468 \text{ (rounded to 0.47)}$$

Then multiply by 100 to get the percentage:

$$0.47 \times 100 = 47\%$$

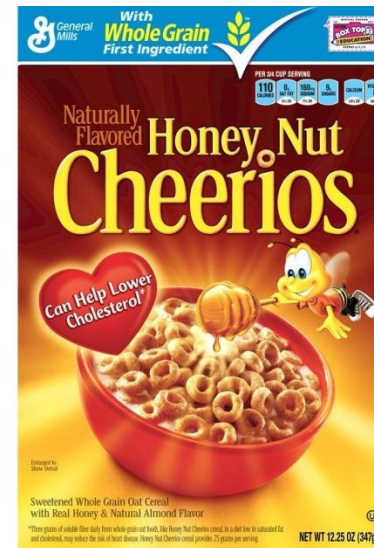
Dietary recommendations that urge people to limit fat intake to 20 to 35 percent of kcalories refer to the day's total energy intake, not to individual foods. Still, if the proportion of fat in each food choice throughout a day exceeds 35 percent of kcalories, then the day's total surely will, too. Knowing that this snack provides 47 percent of its kcalories from fat alerts a person to the need to make lower-fat selections at other times that day.

Practice Calculations

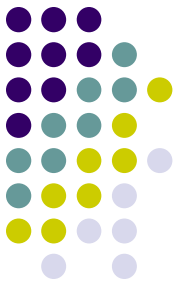


- **Honey Nut Cheerios:**

- Serving size: 1 cup
- Calories: 120 kcals
- Fat: 1.5 gm
- Carbohydrate: 23 gm
- Protein: 3 gm



1. Calculate the amount of kcals provided by fat, CHO, and protein.
2. Calculate the percentage of kcals that come from fat, CHO, and protein.



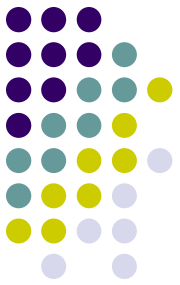
Answer to Cheerios Example

- 1.5 gm of fat x 9 kcal/gm=13.5 kcal
- 23 gm of total CHO x 4 kcal/gm=92 kcal
- 3 gm of protein x 4 kcal/gm=12 kcal

13.5 kcal/120 kcal total=11.2% from fat

92 kcal/120 kcal total=77% from CHO

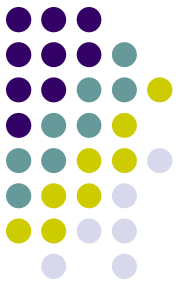
12 kcal/120 kcal total=10% from protein



Practice Calculations

- ***Campbell's* Chicken Noodle Soup:**
 - Serving size: $\frac{1}{2}$ cup
 - Servings eaten: 2 servings (1 cup)
 - Calories (per serving): 60 kcal (x2)=120 kcal
 - Fat (per serving): 1.5 gm (x2)=3 gm
 - CHO (per serving): 8 gm (x2)=16 gm
 - Protein (per serving): 3 gm (x2)=6 gm





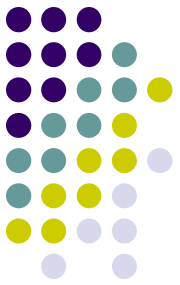
Answers to Soup Example

- 3 gm of fat x 9 kcal/gm = 27 kcal
- 16 gm of CHO x 4 kcal/gm = 64 kcal
- 6 gm of protein x 4 kcal/gm = 24 kcal

27 kcal/120 total kcal = 22.5% from fat

64 kcal/120 total kcal = 53.3% from CHO

24 kcal/120 total kcal = 20 % from protein



Practice Calculations

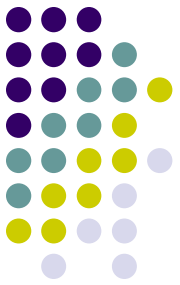
- **Lay's Potato Chips:**

- Serving Size: 1 package
- Calories: 230
- Fat: 15g
- CHO: 23g
- Protein: 3g



- Calculate the calories from fat, CHO, and protein in:
1 serving
2 servings

Answer to Potato Chips Example



1 ser.

2 serv.

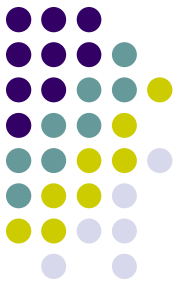
15g fat x 9kcal/gram= 135kcal x 2 = 270kcal

23g CHO x 4kcal/gram= 92kcal x 2 = 184kcal

3g pro x 4kcal/gram= 12kcal x 2 = 24kcal

2 Servings= 460 kcal total (from cal. Info on label):

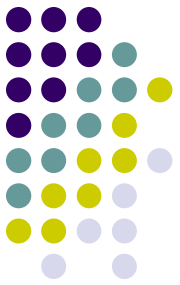
- ~58.6 % from fat
- ~40% from CHO
- ~5.2 % from Protein



Practice Calculations

- Canned Carrots:
 - Serving Size: $\frac{1}{2}$ cup
 - Calories: 30
 - Fat: 0g
 - CHO: 6g
 - Protein: 1g
- Calculate the calories from fat, protein, and CHO in:
 - 1 serving
 - 1 $\frac{1}{2}$ servings

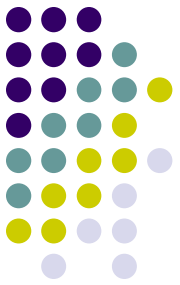
Answer to Canned Carrots Example



	1 ser	1 ½ ser
0g fat X 9kcal/gram =	0kcal	0kcal
6g cho X 4kcal/gram =	24kcal	36kcal
1g pro X 4kcal/gram =	4kcal	6kcal

- 1 1/2 servings=45 kcal (from cal info from label):
 - 0% Fat
 - ~80% CHO
 - ~13.3% Protein

Nutrition Standards and Guidelines



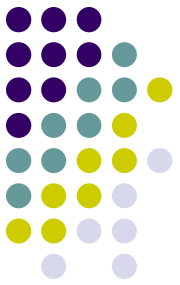
- **Dietary Reference Intakes (DRI):** a set of values for the dietary nutrient intakes of healthy people in the US and Canada. These values are used for planning and assessing diets.



Table 1–2 The DRI and Their Uses

Reference Value	Description
Recommended Dietary Allowances (RDA)	Nutrient intake goals for individuals. RDA values are derived from the Estimated Average Requirements (see below).
Adequate Intakes (AI)	Nutrient intake goals for individuals. AI values are set whenever scientific data are insufficient to allow establishment of an RDA value.
Tolerable Upper Intake Levels (UL)	Suggested upper limits of intakes of potentially toxic nutrients. Intakes above the UL are likely to cause illness from toxicity.
Estimated Average Requirements (EAR)	Population-wide average nutrient requirements for nutrition research and policy making. The basis upon which RDA values are set.

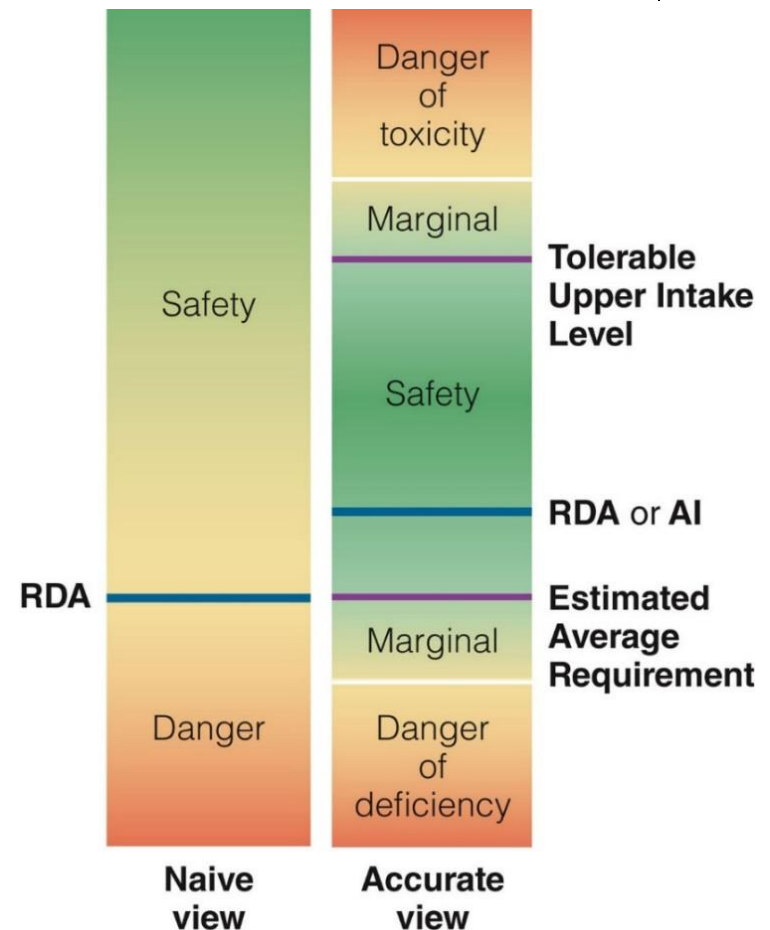
SOURCE: Adapted from Food and Nutrition Board, Institute of Medicine, National Academy of Sciences, Dietary Reference Intake (DRIs) for calcium, phosphorus, magnesium, vitamin D and fluoride, *Nutrition Today* 32 (1997): 182–190.

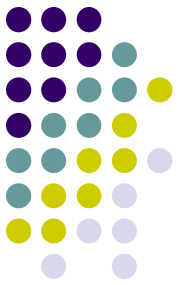


Nutrient Recommendations

FIGURE 1-3 Inaccurate versus Accurate View of Nutrient Intakes

The RDA (or AI) for a given nutrient represents a point that lies within a range of appropriate and reasonable intakes between toxicity and deficiency. Both of these recommendations are high enough to provide reserves in times of short-term dietary inadequacies, but not so high as to approach toxicity. Nutrient intakes above or below this range may be equally harmful

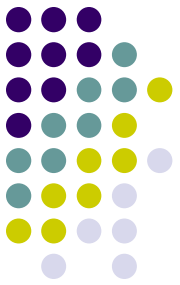




Nutrient Recommendations

Dietary Reference Intakes (DRI) Specific Guidelines and Their Uses

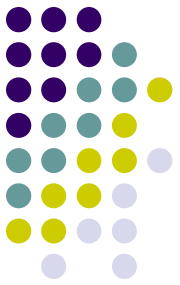
- **Estimated Energy Requirement (EER)**
 - Level of balanced energy intake for a healthy adult of a defined age, gender, height, weight and physical activity level
 - Guide individuals in achieving energy balance
- **Acceptable Macronutrient Distribution Ranges (AMDR)**
 - Levels that provide adequate energy and reduce chronic disease risk



Nutrient Recommendations

Acceptable Macronutrient Distribution Ranges Recommendations

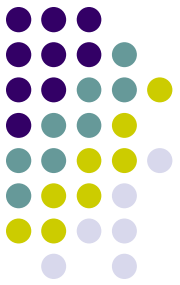
- 45 to 65 percent of calories from carbohydrate
- 20 to 35 percent of calories from fat
- 10 to 35 percent of calories from protein



Nutrient Recommendations

Perspectives to Consider

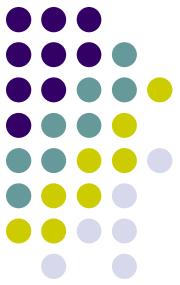
- DRI recommends safe intakes
 - Margin of safety included
- Reflect daily intakes to be achieved on average over time
- Chosen in reference to specific indicators of nutrient adequacy
- Medical problems alter nutrient needs
- Values depend on gender and life stage



Dietary Guidelines

- Set up to protect people from consuming excess energy, sodium, fat, sugar, and alcohol.
 - Contribute to development of chronic diseases
- Overnutrition is now a big concern much like undernutrition once was
 - Both over-and undernutrition are forms of malnutrition.

Leading Causes of Death in the U.S.

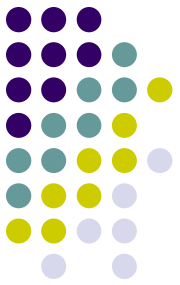


- 1.) ***Heart disease***
- 2.) ***Cancers***
- 3.) Chronic lung disease
- 4.) Accidents
- 5.) ***Strokes***
- 6.) Alzheimer's disease
- 7.) ***Diabetes mellitus***
- 8.) Pneumonia & influenza
- 9.) Kidney disease
- 10.) Suicide

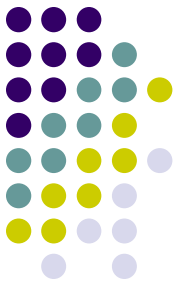
*The diseases in bold italics are nutrition related.

**Source: J. Xu and coauthors, Mortality in the United States, 2015, *NCHS Data Brief* 267, December 2016

Dietary Guidelines for Americans

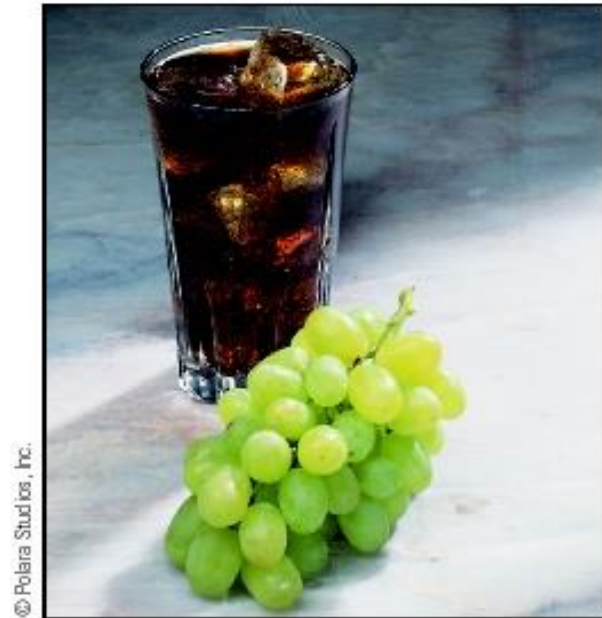


- Follow a healthy eating pattern across the lifespan.
- Focus on variety, nutrient density, and amount.
- Limit kcalories from added sugars and saturated fats and reduce sodium intake.
- Shift to healthier food and beverage choices.
- Support healthy eating patterns for all.
- **See Table 1-4 in textbook.*



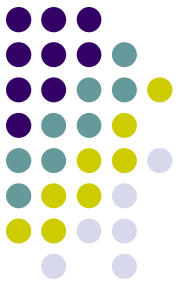
Diet-Planning Principles

- Six basic principles:
 - Adequacy
 - Balance
 - kCalorie control
 - Nutrient density
 - Moderation
 - Variety



Which is more nutrient dense?

Dietary Guidelines and Food Guides



The USDA Food Patterns

- Food group plan that builds a diet from categories of food similar in vitamin and mineral content
 - Five major food groups, with recommended daily amounts from each group
 - Includes recommendations for use of oils

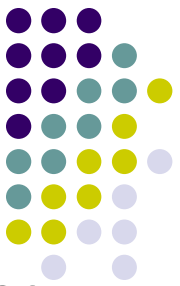


Table 1-6 USDA Food Patterns: Healthy U.S.-Style Eating Pattern

Food Group	1600 kcal	1800 kcal	2000 kcal	2200 kcal	2400 kcal	2600 kcal	2800 kcal	3000 kcal
Fruits	1½ c	1½ c	2 c	2 c	2 c	2 c	2½ c	2½ c
Vegetables	2c	2½ c	2½ c	3 c	3 c	3½ c	3½ c	4 c
Grains	5 oz	6 oz	6 oz	7 oz	8 oz	9 oz	10 oz	10 oz
Protein foods	5 oz	5 oz	5½ oz	6 oz	6½ oz	6½ oz	7 oz	7 oz
Milk	3 c	3 c	3 c	3 c	3 c	3 c	3 c	3c
Oils	5 tsp	5 tsp	6 tsp	6 tsp	7 tsp	8 tsp	8 tsp	10 tsp
Limit on kcalories available for other uses*	130 kcal	170 kcal	270 kcal	280 kcal	350 kcal	380 kcal	400 kcal	470 kcal

Source: U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015–2020 Dietary Guidelines for Americans, 8th ed.

(2015): <http://health.gov/dietaryguidelines/2015/guidelines/>.

*The limit on kcalories for other uses describes how many kcalories are available for foods that are not in nutrient-dense forms.

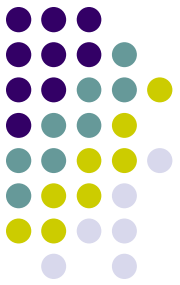


Table 1-7 Estimated Daily kCalorie Needs for Adults

	Sedentary ^a	Active ^b
Women: 19-25 yr	2000	2400
Women: 26-30 yr	1800	2400
Women: 31-50 yr	1800	2200
Women: 51-60 yr	1600	2200
Women: 61+ yr	1600	2000
Men: 19-20 yr	2600	3000
Men: 21-35 yr	2400	3000
Men: 36-40 yr	2400	2800
Men: 41-55 yr	2200	2800
Men: 56-60 yr	2200	2600
Men: 61-75 yr	2000	2600
Men: 76+ yr	2000	2400

^a Sedentary describes a lifestyle that includes only the activities typical of day-to-day life.

^b Active describes a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at a rate of 3 to 4 miles per hour, in addition to the activities typical of day-to-day life. kCalorie values for active people reflect the midpoint of the range appropriate for age and gender, but within each group older adults may need fewer kcalories and younger adults may need more. In addition to gender, age, and activity level, energy needs vary with height and weight (see Chapter 6).



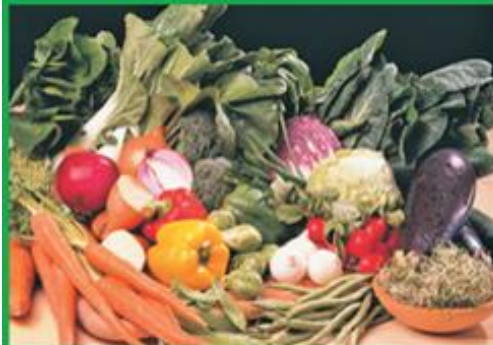
Polara Studios, Inc.

1 c fruit =

1 c fresh, frozen, or canned fruit

½ c dried fruit

1 c 100% fruit juice



Polara Studios, Inc.

1 c vegetables =

1 c cut-up raw or cooked vegetables

1 c cooked legumes

1 c vegetable juice

2 c raw, leafy greens

Fruits contribute folate, vitamin A, vitamin C, potassium, and fiber.

Consume a variety of fruits, and choose whole or cut-up fruits more often than fruit juice.

Apples, apricots, avocados, bananas, blueberries, cantaloupe, cherries, grapefruit, grapes, guava, honeydew, kiwi, mango, nectarines, oranges, papaya, peaches, pears, pineapples, plums, raspberries, strawberries, tangerines, watermelon; dried fruit (dates, figs, prunes, raisins); 100% fruit juices

Limit these fruits that contain solid fats and/or added sugars:

Canned or frozen fruit in syrup; juices, punches, ades, and fruit drinks with added sugars; fried plantains

Vegetables contribute folate, vitamin A, vitamin C, vitamin K, vitamin E, magnesium, potassium, and fiber.

Consume a variety of vegetables each day, and choose from all five subgroups several times a week.

Dark-green vegetables: Broccoli and leafy greens such as arugula, beet greens, bok choy, collard greens, kale, mustard greens, romaine lettuce, spinach, turnip greens, watercress

Red and orange vegetables: Carrots, carrot juice, pumpkin, red bell peppers, sweet potatoes, tomatoes, tomato juice, vegetable juice, winter squash (acorn, butternut)

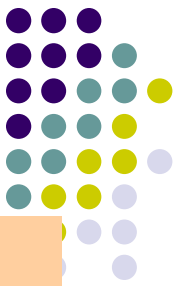
Legumes: Black beans, black-eyed peas, garbanzo beans (chickpeas), kidney beans, lentils, navy beans, pinto beans, soybeans and soy products such as tofu, split peas, white beans

Starchy vegetables: Cassava, corn, green peas, hominy, lima beans, potatoes

Other vegetables: Artichokes, asparagus, bamboo shoots, bean sprouts, beets, brussels sprouts, cabbages, cactus, cauliflower, celery, cucumbers, eggplant, green beans, green bell peppers, iceberg lettuce, mushrooms, okra, onions, seaweed, snow peas, zucchini

Limit these vegetables that contain solid fats and/or added sugars:

Baked beans, candied sweet potatoes, coleslaw, French fries, potato salad, retried beans, scalloped potatoes, tempura vegetables



Polara Studios, Inc.

1 oz grains =
1 slice bread
½ c cooked rice, pasta, or cereal
1 oz dry pasta or rice
1 c ready-to-eat cereal
3 c popped popcorn

Grains contribute folate, niacin, riboflavin, thiamin, iron, magnesium, selenium, and fiber.

Make most (at least half) of the grain selections whole grains.

Whole grains: amaranth, barley, brown rice, buckwheat, bulgur, cornmeal, millet, oats, quinoa, rye, wheat, wild rice, and whole-grain products such as breads, cereals, crackers, and pastas; popcorn

Enriched refined products: bagels, breads, cereals, pastas (couscous, macaroni, spaghetti), pretzels, white rice, rolls, tortillas

Limit these grains that contain solid fats and/or added sugars:

Biscuits, cakes, cookies, cornbread, crackers, croissants, doughnuts, fried rice, granola, muffins, pastries, pies, presweetened cereals, taco shells

Protein foods contribute protein, essential fatty acids, niacin, thiamin, vitamin B12, iron, magnesium, potassium, and zinc.

Choose a variety of protein foods from the three subgroups, including seafood in place of meat or poultry twice a week.

Seafood: Fish (catfish, cod, flounder, haddock, halibut, herring, mackerel, pollock, salmon, sardines, sea bass, snapper, trout, tuna), shellfish (clams, crab, lobster, mussels, oysters, scallops, shrimp)

Meats, poultry, eggs: Lean or low-fat meats (fat-trimmed beef, game, ham, lamb, pork, veal), poultry (no skin), eggs

Nuts, seeds, soy products: Unsalted nuts (almonds, cashews, filberts, pecans, pistachios, walnuts), seeds (flaxseeds, pumpkin seeds, sesame seeds, sunflower seeds), legumes, soy products (textured vegetable protein, tofu, tempeh), peanut butter, peanuts

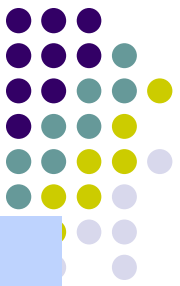
Limit these protein foods that contain solid fats and/or added sugars:

Bacon; baked beans; fried meat, seafood, poultry, eggs, or tofu; retried beans; ground beef; hot dogs; luncheon meats; marbled steaks; poultry with skin; sausages; spare ribs



Polara Studios, Inc.

1 oz protein foods =
1 oz cooked lean meat, poultry, or seafood
1 egg
½ c cooked legumes or tofu
1 tbs peanut butter
½ oz nuts or seeds



Polara Studios, Inc.

1 c milk or milk product =
 1 c milk, yogurt, or fortified soy milk
 1 ½ oz natural cheese
 2 oz processed cheese

Milk and milk products contribute protein, riboflavin, vitamin B₁₂, calcium, potassium, and, when fortified, vitamin A, and vitamin D.

Make fat-free or low-fat choices. Choose other calcium-rich foods if you don't consume milk.

Fat-free or 1% low-fat milk and fat-free or 1% low-fat milk products such as buttermilk, cheeses, cottage cheese, yogurt; fat-free fortified soy milk

Limit these milk products that contain solid fats and/or added sugars:

2% reduced-fat milk and whole milk; 2% reduced-fat and whole-milk products such as cheeses, cottage cheese, and yogurt; flavored milk with added sugars such as

Oils are not a food group, but are featured here because they contribute vitamin E and essential fatty acids.

Use oils Instead of solid fats, when possible.

Liquid vegetable oils such as canola, corn, flaxseed, nut, olive, peanut, safflower, sesame, soybean, and sunflower oils; mayonnaise, oil-based salad dressing, soft trans-free margarine; unsaturated oils that occur naturally in foods such as avocados, fatty fish, nuts, olives, seeds (flaxseeds, sesame seeds), shellfish

Limit these solid fats:

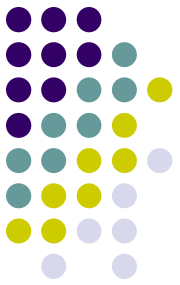
Butter, animal fats, stick margarine, shortening



Matthew Ferruggio

1 tap oil =
 1 tsp vegetable oil
 1 tsp soft margarine
 1 tbs low-fat mayonnaise
 2 tbs light salad dressing

Dietary Guidelines and Food Guides



The USDA Food Patterns Notable Nutrients

- **Legumes**

- Contribute the same key nutrients as meats, poultry, and seafood
- Can be considered in the vegetable group or protein group

- **Nutrient-dense choices**

- Select foods without added fat or sugar
- Small amounts of oils necessary

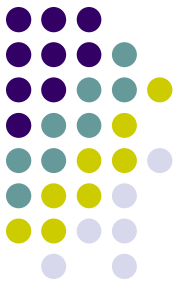


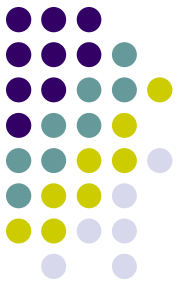
Table 1-8 Recommended Weekly Amounts from the Vegetable and Protein Foods Subgroups

Subgroups	1600 kcal	1800 kcal	2000 kcal	2200 kcal	2400 kcal	2600 kcal	2800 kcal	3000 kcal
Vegetable Subgroup: Dark green	1½ c	1½ c	1½ c	2 c	2 c	2½ c	2½ c	2½ c
Vegetable Subgroup: Red and orange	4c	5½ c	5½ c	6 c	6 c	7 c	7 c	7½ c
Vegetable Subgroup: Legumes	1 c	1½ c	1½ c	2 c	2 c	2½ c	2½ c	3 c
Vegetable Subgroup: Starchy	4 c	5 c	5 c	6 c	6 c	7 c	7 c	8 c
Vegetable Subgroup: Other	3½ c	4 c	4 c	5 c	5 c	5½ c	5½ c	7 c
Protein Foods Subgroup: Seafood	8 oz	8 oz	8 oz	9 oz	10 oz	10 oz	10 oz	10 oz
Protein Foods Subgroup: Meats, poultry, eggs	24 oz	23 oz	26 oz	28 oz	31 oz	31 oz	33 oz	33 oz
Protein Foods Subgroup: Nuts, seeds, soy products	4 oz	4 oz	4 oz	5 oz	5 oz	5 oz	6 oz	6 oz

Note: Table 1-6 specifies the recommended amounts of total vegetables and protein foods per day. This table shows those amounts dispersed among five vegetable and three protein foods subgroups per week.

Source: U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015–2020 Dietary Guidelines for Americans, 8th ed. (2015): <http://health.gov/dietaryguidelines/2015/guidelines/>.

Dietary Guidelines and Food Guides



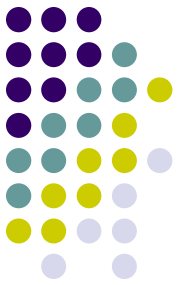
The USDA Food Patterns

- Recommendations made in cup and ounce equivalents
- Mixtures of food groups
 - Divide foods into contribution from each group
 - Example: tacos

Easy way to estimate portion size

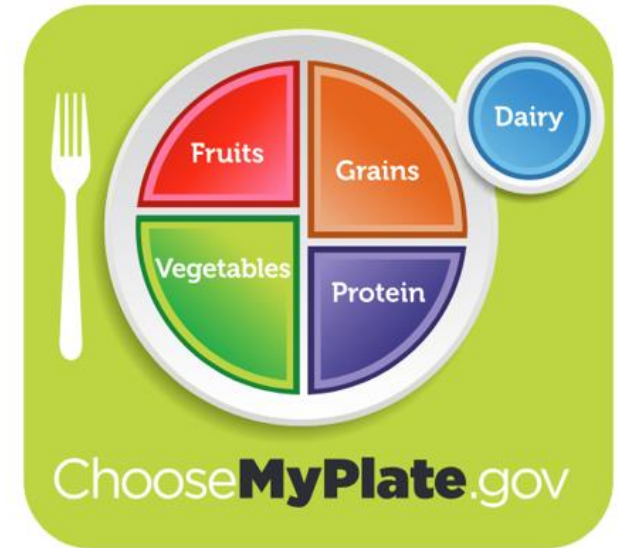
- $\frac{1}{4}$ cup of dried fruit or nuts = golf ball
- 1 cup of fruit or vegetables = baseball
- 3 oz of meat = deck of cards
- 2 tbs peanut butter = ping pong ball

Dietary Guidelines and Food Guides

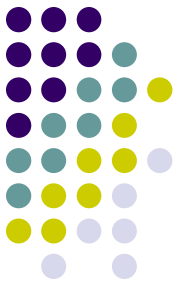


My Plate

- Educational tool
 - Reminds people to make healthy food choices
 - Plate divided into groups of varying size corresponding to the recommended relative amounts

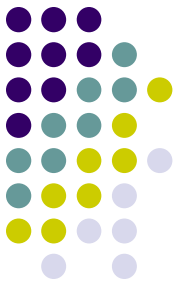


Source: USDA, www.choosemyplate.gov.



Nutrition Surveys

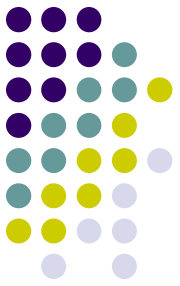
- **Purpose:**
 - to find out what people are eating,
 - to assess a population's nutritional status,
 - to measure the knowledge, attitudes, and behaviors people have about nutrition.
- **Information then used to:**
 - Establish public policy on nutrition education
 - Assess food assistance programs
 - Regulate food supply
 - Establish research priorities



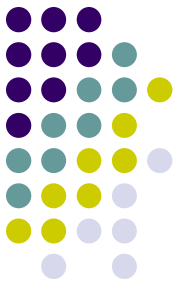
National Nutrition Surveys

- National Nutrition Monitoring program
 - Coordinates federal nutrition-related activities
 - Survey: “What We Eat in America”
- National health goals
 - Healthy People program identifies nation’s health priorities to promote health and prevent disease
 - Goals set once each decade

Healthy People Reports

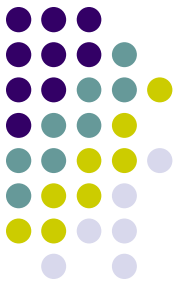


- Information gathered from surveys help provide the basis of developing & monitoring national health goals such as *Healthy People 2020*.
 - Goals set at the start of each decade.
 - Program used to set goals for improving the nation's health during the following 10 years.
 - *See Table 1-2 in textbook.*
 - <https://www.healthypeople.gov/2020/topics-objectives/topic/nutrition-and-weight-status/objectives>



Food Labels

- Ingredient list
 - Required for all packaged foods
 - Ingredients in descending order of predominance by weight
- Nutrition facts panel
 - Serving size
 - Daily values
 - Nutrient quantities



Nutrition Facts Panel

Figure 1-6 Original and Proposed Nutrition Facts Panel

	Original Label	Updated Label																																											
	Nutrition Facts	Nutrition Facts																																											
Serving size and number of servings per container	Serving Size 2/3 cup (55g) Servings Per Container About 8	8 servings per container Serving size 2/3 cup (55g)	Serving sizes in large, bold type; serving sizes revised to reflect actual portion sizes																																										
kCalories per serving and calories from fat	Amount Per Serving Calories 230 Calories from Fat 72	Amount per serving Calories 230	kCalories per serving in large, bold type; kcalories from fat not listed																																										
Nutrient quantities per serving listed in actual amounts and in % Daily Values based on 2000-kcalorie diet	<table><tr><th></th><th>% Daily Value*</th></tr><tr><td>Total Fat 8g</td><td>12%</td></tr><tr><td>Saturated Fat 1g</td><td>5%</td></tr><tr><td>Trans Fat 0g</td><td></td></tr><tr><td>Cholesterol 0mg</td><td>0%</td></tr><tr><td>Sodium 160mg</td><td>7%</td></tr><tr><td>Total Carbohydrate 37g</td><td>12%</td></tr><tr><td>Dietary Fiber 4g</td><td>16%</td></tr><tr><td>Sugars 1g</td><td></td></tr><tr><td>Protein 3g</td><td></td></tr></table>		% Daily Value*	Total Fat 8g	12%	Saturated Fat 1g	5%	Trans Fat 0g		Cholesterol 0mg	0%	Sodium 160mg	7%	Total Carbohydrate 37g	12%	Dietary Fiber 4g	16%	Sugars 1g		Protein 3g		<table><tr><th></th><th>% Daily Value*</th></tr><tr><td>Total Fat 8g</td><td>10%</td></tr><tr><td>Saturated Fat 1g</td><td>5%</td></tr><tr><td>Trans Fat 0g</td><td></td></tr><tr><td>Cholesterol 0mg</td><td>0%</td></tr><tr><td>Sodium 160mg</td><td>7%</td></tr><tr><td>Total Carbohydrate 37g</td><td>13%</td></tr><tr><td>Dietary Fiber 4g</td><td>14%</td></tr><tr><td>Total Sugars 12g</td><td></td></tr><tr><td>Includes 10g Added Sugars</td><td>20%</td></tr><tr><td>Protein 3g</td><td></td></tr></table>		% Daily Value*	Total Fat 8g	10%	Saturated Fat 1g	5%	Trans Fat 0g		Cholesterol 0mg	0%	Sodium 160mg	7%	Total Carbohydrate 37g	13%	Dietary Fiber 4g	14%	Total Sugars 12g		Includes 10g Added Sugars	20%	Protein 3g		Daily Values revised for some nutrients, notably total fat and total carbohydrate
	% Daily Value*																																												
Total Fat 8g	12%																																												
Saturated Fat 1g	5%																																												
Trans Fat 0g																																													
Cholesterol 0mg	0%																																												
Sodium 160mg	7%																																												
Total Carbohydrate 37g	12%																																												
Dietary Fiber 4g	16%																																												
Sugars 1g																																													
Protein 3g																																													
	% Daily Value*																																												
Total Fat 8g	10%																																												
Saturated Fat 1g	5%																																												
Trans Fat 0g																																													
Cholesterol 0mg	0%																																												
Sodium 160mg	7%																																												
Total Carbohydrate 37g	13%																																												
Dietary Fiber 4g	14%																																												
Total Sugars 12g																																													
Includes 10g Added Sugars	20%																																												
Protein 3g																																													
Nutrients required for Daily Values	Vitamin A 10% Vitamin C 8% Calcium 20% Iron 45%	Vitamin D 2mcg 10% Calcium 260mg 20% Iron 8mg 45% Potassium 235mg 5%	Separate listing for added sugars in grams and as % Daily Value Nutrients required for Daily Values revised to reflect nutrients of concern; actual amounts listed as well																																										
Daily Values reminder for selected nutrients for a 2000- and a 2500-kcalorie diet	* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs. <table><tr><th></th><th>Calories:</th><th>2,000</th><th>2,500</th></tr><tr><td>Total Fat</td><td>Less than</td><td>65g</td><td>80g</td></tr><tr><td>Sat Fat</td><td>Less than</td><td>20g</td><td>25g</td></tr><tr><td>Cholesterol</td><td>Less than</td><td>300mg</td><td>300mg</td></tr><tr><td>Sodium</td><td>Less than</td><td>2,400mg</td><td>2,400mg</td></tr><tr><td>Total Carbohydrate</td><td></td><td>300mg</td><td>375mg</td></tr><tr><td>Dietary Fiber</td><td></td><td>25g</td><td>30g</td></tr></table>		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		300mg	375mg	Dietary Fiber		25g	30g	* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2000 calories a day is used for general nutrition advice.	Footnote explains Daily Values														
	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		300mg	375mg																																										
Dietary Fiber		25g	30g																																										

Nutrition Facts Panel

TABLE 1-10 Daily Values for Food Labels: Food labels must present the "% Daily Value" for these nutrients.

Food Component	Daily Value
Fat (total)	65 g
Saturated fat	20 g
Cholesterol	300 mg
Sodium	2300 mg
Carbohydrate (total)	275 g
Sugars	50 g
Fiber	28 g
Vitamin D	20 µg
Potassium	4700 mg
Calcium	1300 mg
Iron	18 mg

Note: Daily Values were established for adults and children over 4 years old. The values for energy-yielding nutrients are based on 2000 kcalories a day.

Claims on Labels

Figure 1-7 Facts Up Front

This example of front-of-package labeling (created by the Grocery Manufacturers Association and the Food Marketing Institute) presents key nutrient facts.



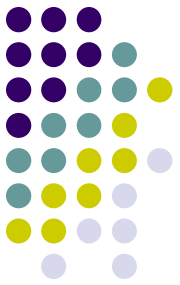
Food Labels

Claims on Labels

- **Nutrient claims** must meet FDA definitions
 - Example “low fat”
- **Health claims**
 - Describe relationship of a food to a disease or health condition
 - Must be based on extensive review of scientific literature
- **Structure-function claims**
 - May be made without FDA approval
 - Example “improves memory”

Nutrition in Practice:

Finding the Truth about Nutrition



- Nutrition information can often be conflicting...why is this?
- Media often “pressed for time” and important facts often omitted.
- Often research findings that the public hears about needs much more research.
- Media often hurriedly reports on only preliminary findings in order to be the first on the story...more research needed again.
- Often commercial promoters turn preliminary findings into advertisements in their favor to promote a product before findings have actually been validated
- Promoters know that consumers will try different products despite any scientific scrutiny the product may face.

Nutrition in Practice:

Finding the Truth about Nutrition

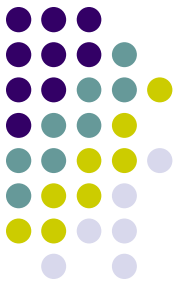
- Nutrition reports and claims may contradict each other
- Academy of Nutrition and Dietetics
 - Works with health care professionals to make accurate information available
- Reliable Web sites
 - National Council Against Health Fraud (ncaf.org)
 - National Library of Medicine's PubMed

So What Claims Should You Believe?

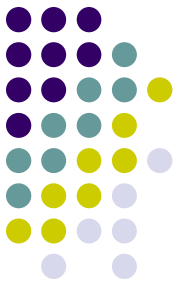


- See:
 - *Table NP1-1*
 - *Table NP1-2*

So Who Should you Listen to?



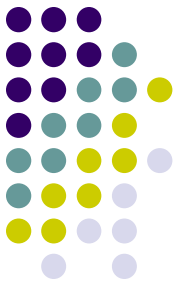
- Registered Dietitian (RD/RDN) and nutrition professionals with advanced degrees (M.S., Ph.D) (see *Box NP1-1*)
 - Graduate of a college/university and has completed a program of dietetics accredited by the Academy of Nutrition & Dietetics.
 - Completes internship to develop necessary skills
 - Pass the association registration exam
 - L.D. : licensed. Not required by all states, but meet all state requirements to offer nut. advice



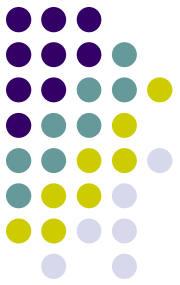
What About the Others?

- Nutritionists: no guarantee
 - Not a protected title; therefore, the individual may or may not have a 4-year degree in the area of nutrition.
- DTR's: Dietetic Technicians registered
 - Associates degree or higher
 - Dietetic Tech. program approved by Academy of Nutrition & Dietetics
 - National registration exam
 - Assist in planning, implementing, and evaluating nutritional care

Other Members of Health Care Team



- Nutrition-related tasks may be performed by different health care team members to better identify nutrition problems which can then be referred to dietitian (ex.- nursing staff)
 - Obtain diet histories
 - Height and weight (weight changes)
 - Feeding patients who need to be fed
 - Recording percentage of meal and fluid intake
 - Observing patients responses and reactions to foods
 - Helping patients mark menus/honoring food preferences
 - Monitoring food and drug interactions
 - Encouraging clients to eat
 - Alerting the physician and/or RD when nutrition problems are identified.



References

- Nutrition & Diet Therapy, DeBruyne, Pinna, and Whitney, 10th edition/2020
- Nutrition & Diet Therapy, DeBruyne, Pinna, and Whitney, Wadsworth, 8th Edition/2012
- Nutrition & Diet Therapy, Cataldo, DeBruyne, and Whitney, Thomson Wadsworth, 6th Edition/2003