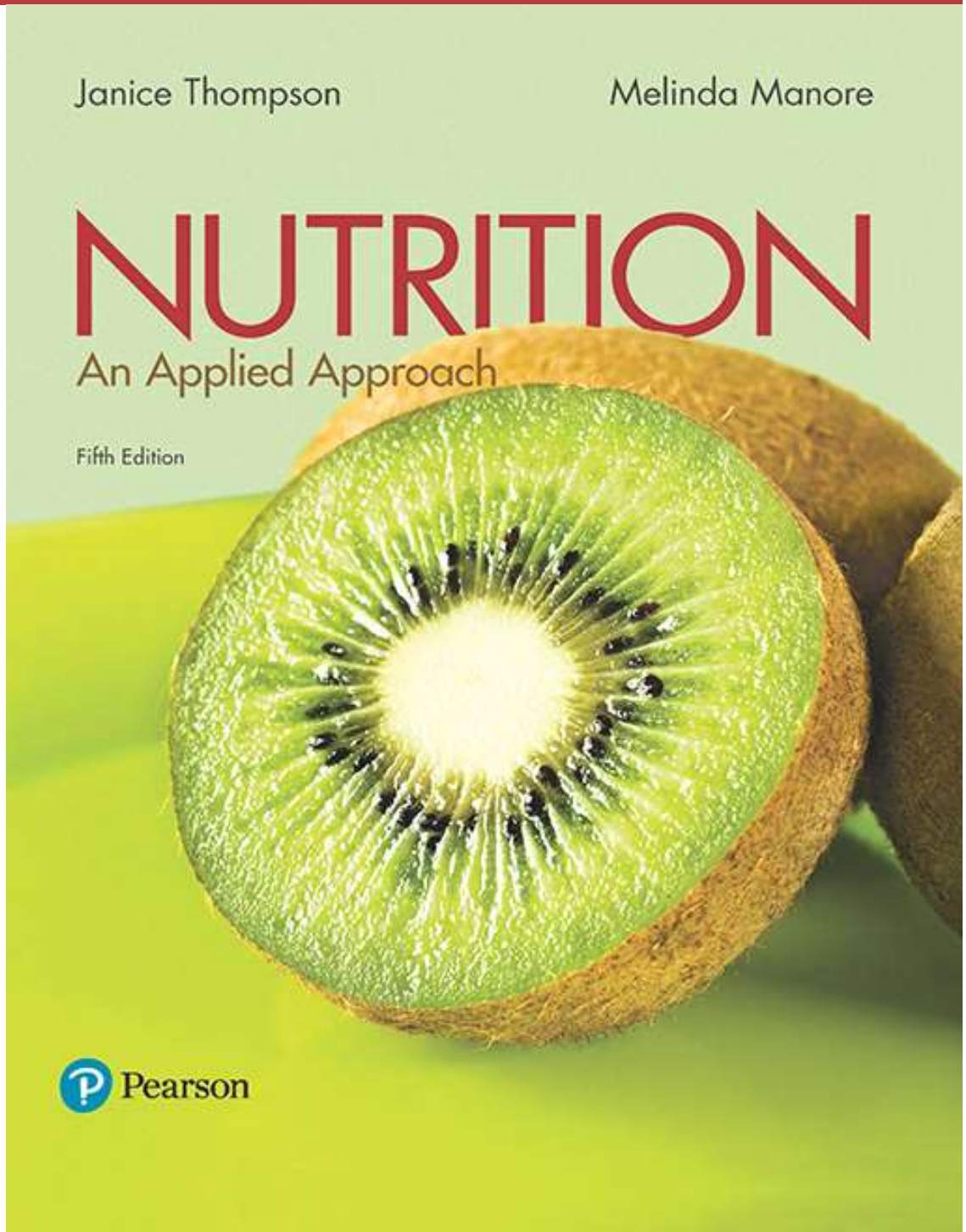
Chapter 2: Designing a Healthful Diet, and In Depth 2.5, Healthful Eating Patterns



What Is a Healthful Diet?

- A healthful diet is
  - Adequate
  - Moderate
  - Balanced
  - Nutrient-dense
  - Varied

A Healthful Diet Is Adequate

- An adequate diet provides enough energy, nutrients, and fiber to support a person's health
- A diet adequate in one area can still be inadequate in another
- A diet adequate for one person may not be adequate for another

A Healthful Diet Is Moderate

- Another key to a healthful diet is moderation
- A healthful diet contains the right amounts of foods for maintaining proper weight and nutrition

A Healthful Diet Is Nutrient-Dense

- A nutrient dense diet is made up of foods and beverages that supply the highest level of nutrients for the lowest number of calories
- Examples of nutrient dense foods are fruits, vegetables and whole grain

A Healthful Diet Is Balanced

- A balanced diet contains the right combinations of foods to provide the proper proportions of nutrients

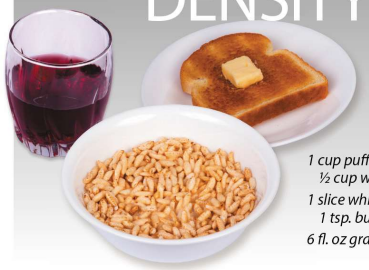
Comparing Nutrient Density

a day of meals

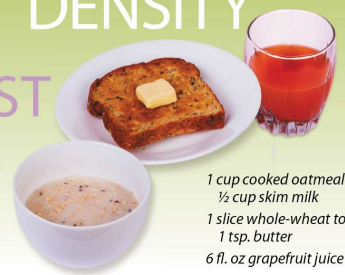
low NUTRIENT DENSITY

high NUTRIENT DENSITY

BREAKFAST



1 cup puffed rice cereal with ½ cup whole milk
1 slice white toast with 1 tsp. butter
6 fl. oz grape drink



1 cup cooked oatmeal with ½ cup skim milk
1 slice whole-wheat toast with 1 tsp. butter
6 fl. oz grapefruit juice

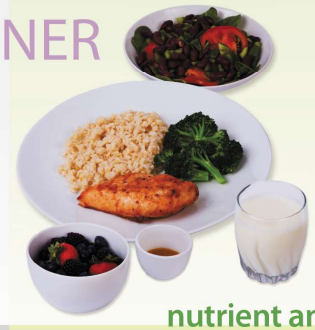
LUNCH

Cheeseburger
3 oz regular ground beef
1.5 oz cheddar cheese
1 white hamburger bun
2 tsp. Dijon mustard
2 leaves iceberg lettuce
1 snack-sized bag potato chips
32 fl. oz cola soft drink

Turkey sandwich
3 oz turkey breast
2 slices whole-grain bread
2 tsp. Dijon mustard
3 slices fresh tomato
2 leaves red leaf lettuce
1 cup baby carrots with broccoli crowns
20 fl. oz (2.5 cups) water
1 peeled orange
1 cup nonfat yogurt

DINNER

Green salad
1 cup iceberg lettuce
¼ cup diced tomatoes
1 tsp. green onions
¼ cup bacon bits
1 tbsp. regular Ranch salad dressing
3 oz beef round steak, breaded and fried
½ cup cooked white rice
½ cup sweet corn
8 fl. oz (1 cup) iced tea
3 chocolate sandwich cookies
1 12-oz can diet soft drink
10 Gummi Bears candy



Spinach salad
1 cup fresh spinach leaves
¼ cup sliced tomatoes
¼ cup diced green pepper
½ cup kidney beans
1 tbsp. fat-free Italian salad dressing
3 oz broiled chicken breast
½ cup cooked brown rice
½ cup steamed broccoli
8 fl. oz (1 cup) skim milk
1-1/2 cup mixed berries

nutrient analysis

3,319 kcal
11.4% of energy from saturated fat
11.6 grams of dietary fiber
3,031 milligrams of sodium
83 milligrams of vitamin C
18.2 milligrams of iron
825 milligrams of calcium

Provides **more** nutrients and fewer calories!

nutrient analysis

1,753 kcal
3% of energy from saturated fat
53.1 grams of dietary fiber
2,231 milligrams of sodium
372 milligrams of vitamin C
15.2 milligrams of iron
1,469 milligrams of calcium

A Healthful Diet Is Varied

- Variety: eating many different foods from the different food groups on a regular basis
- A healthful diet is not based on only one or a few types of foods

What's Behind Our Food Choices

- Hunger is a basic biological urge, while
- Appetite is a psychological desire influenced by
  - Sensory data
  - Social, cultural, and emotional cues
  - Learning

What's Behind Our Food Choices?

- Sensory data influences food choices
  - Social and cultural cues
  - Sight
  - Smell
  - Taste
  - Texture
  - Sound
  - Learned factors (family, community, religion)

Influences on Appetite

Sensory Data

Sight | Smell | Taste | Texture | Sound

Social and Cultural Cues

- Special occasions
- Certain locations and activities
- Being with others
- Time of day
- Environmental sights and sounds associated with eating
- Emotions prompted by external events such as interpersonal conflicts, personal failures or successes, financial and other stressors, and so on

Learned Factors

- Family
- Community
- Religion
- Culture
- New learning from exposure to new cultures, new friends, nutrition education, and so on

What's Behind Our Food Choices

- Sociocultural cues and emotions
  - Craving "comfort foods"
  - Associating foods with a location
    - Popcorn at the movies, or hot dogs at a baseball game
- Learning influences food choices
  - Conditioned taste aversion: avoidance of a food as a result of a negative experience such as an illness

Designing a Healthful Diet

- Tools for designing a healthful diet include:
  - Food labels
  - 2010 Dietary Guidelines for Americans
  - The USDA Food Patterns and MyPlate graphic
  - Other eating plans

Food Labels

- Five components of food labels:
  1. Statement of identity
  2. Net contents of the package
  3. Ingredient list
  4. Name and address of the food manufacturer, packer, or distributor
  5. **Nutrition information / Nutrition Facts Panel**

Food Labels (cont.)

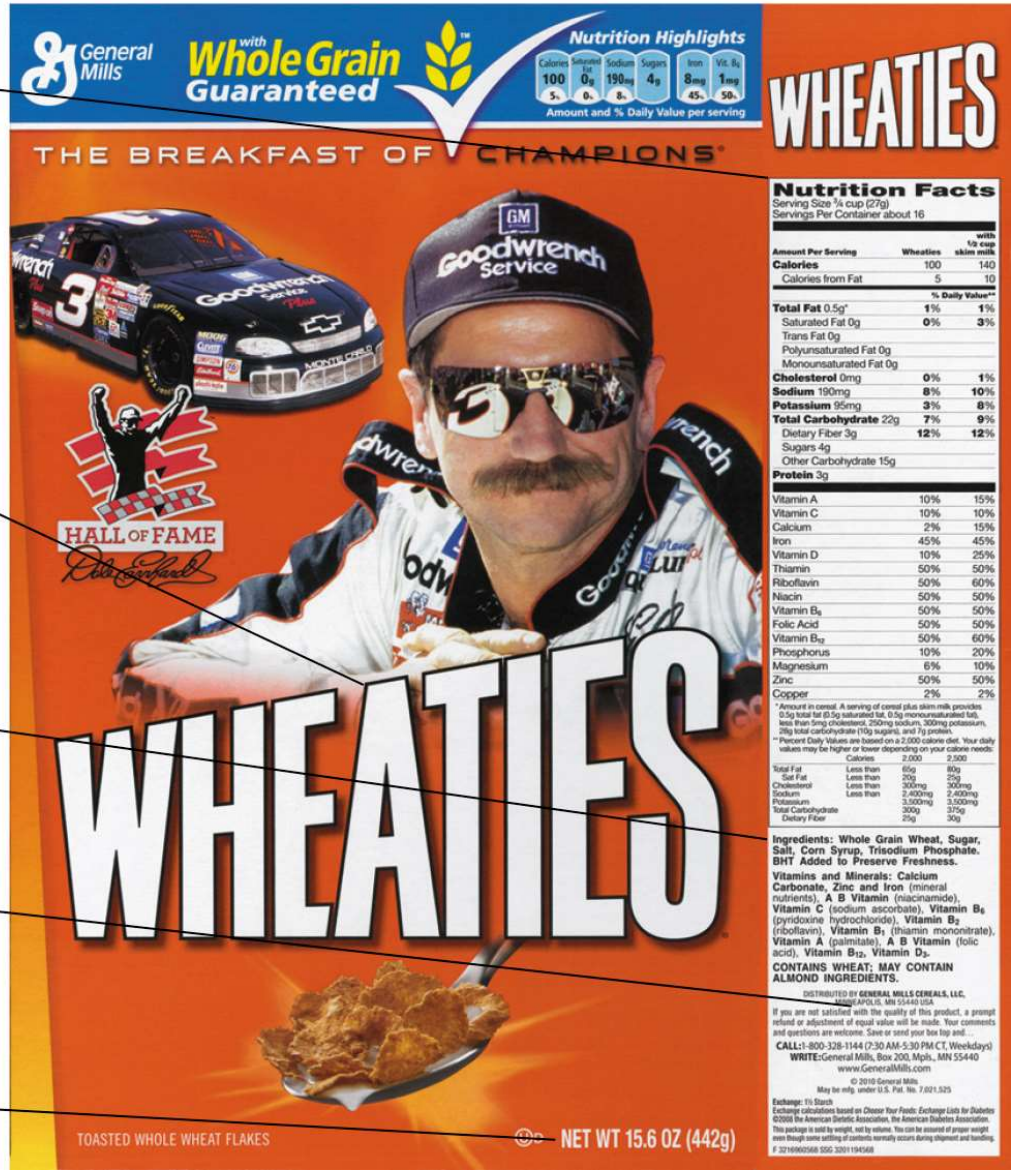
The **Nutrition Facts panel** lists standardized serving sizes and specific nutrients, and shows how a serving of the food fits into a healthy diet by stating its contribution to the percentage of the Daily Value for each nutrient.

The **name** of the product must be displayed on the front label.

The **ingredients** must be listed in descending order by weight. Whole-grain wheat is the predominant ingredient in this cereal.

The **information** of food manufacturer, packer, or distributor is also located at the bottom of the package.

The **net weight** of the food in the box is located at the bottom of the package.



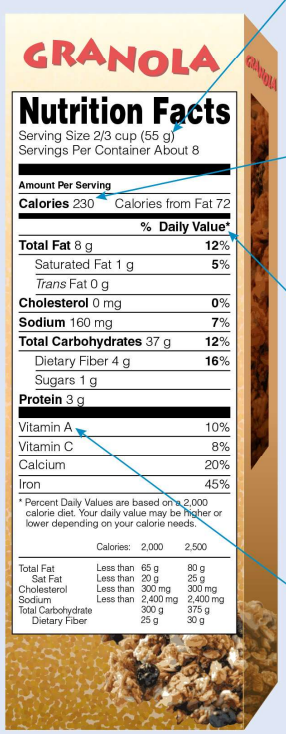
Nutrition Facts Panel

- The Nutrition Facts Panel contains the nutrition information required by the FDA
  - Label regulations began in 1973
- This information can be used in planning a healthful diet
- Listed in the sequence of content

Nutrition Facts Panel (cont.)

The U.S. Food and Drug Administration (FDA) has made changes to the 20-year-old nutrition labels on packaged foods. The changes to the nutrition label provide information to help compare products and make healthy food choices.

OLD LABEL



SERVINGS

- Serving sizes are standardized, making comparison shopping easier.

NEW

- Serving sizes are larger and bolder.
- Serving sizes updated and more realistic.

CALORIES

- Calories per serving and the number of servings in the package are listed.

NEW

- Calories are larger to stand out more.
- "Calories from fat" is removed.

DAILY VALUES

- Daily Values are general reference values based on a 2,000 Calorie diet.
- The %DV can tell you if a food is high or low in a nutrient or dietary substance.

NEW

- Daily Values are updated.
- A shorter footnote that more clearly explains %DV is included.
- The %DV for added sugar is included.

ADDED SUGARS

NEW

- Added sugars are listed.

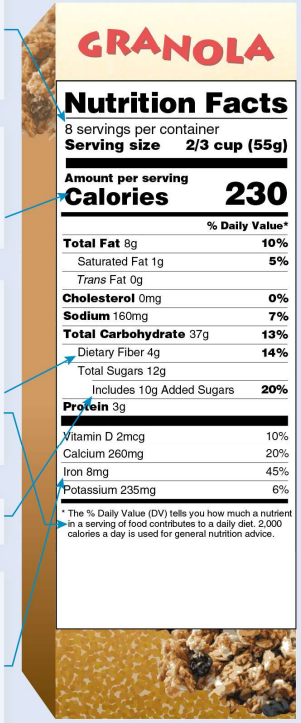
VITAMINS & MINERALS

- Vitamin A, vitamin C, calcium, and iron are required.
- Other vitamins and minerals are voluntary.

NEW

- Vitamin D and potassium are required, in addition to calcium and iron.
- Vitamins A and C are voluntary.
- Actual amounts of each nutrient are listed as well as the %DV.

NEW LABEL



Nutrition Facts Panel (cont.)

- Serving size and servings per container
  - Serving sizes can be used to plan appropriate amounts of food
  - Standardized serving sizes allow for comparisons among similar products

Nutrition Facts Panel (cont.)

- Calories and Calories from fat per serving
  - This information can be used to determine if a product is relatively high in fat

Nutrition Facts Panel (cont.)

- List of nutrients
  - Fat (total, saturated, and *trans*)
  - Cholesterol
  - Sodium
  - Carbohydrates
  - Protein
  - Some vitamins and minerals

Nutrition Facts Panel (cont.)

- Percent Daily Values (%DV)
  - Describe how much a serving of food contributes to your total intake of a nutrient
  - Based on a diet of 2,000 Calories per day
  - Can be used to determine if a product is low or high in a particular nutrient
  - Based on:
    - Reference Daily Intakes (RDIs) for foods with a Recommended Dietary Allowance (RDA) value
    - Daily Reference Values (DRVs) for foods without an RDA value

Nutrition Facts Panel (cont.)

- Footnote
  - Contains general dietary advice for all people
  - Must be present on all food labels
  - Also compares a 2,000-Calorie diet with a 2,500-Calorie diet

Nutrient Claims on Food Labels

- The FDA has approved several claims related to health and disease
- If current scientific evidence about a **health claim** is not convincing, the label may have to include a disclaimer
- **Structure–function claims** such as “Builds stronger bones” can be made with no proof and therefore no actual benefits may be seen

FDA-Approved Terms and Definitions

TABLE 2.1 U.S. Food and Drug Administration (FDA)–Approved Nutrient-Related Terms and Definitions

Nutrient	Claim	Meaning
Energy	Calorie free	Less than 5 kcal per serving
	Low Calorie	40 kcal or less per serving
	Reduced Calorie	At least 25% fewer kcal than reference (or regular) food
Fat and Cholesterol	Fat free	Less than 0.5 g of fat per serving
	Low fat	3 g or less fat per serving
	Reduced fat	At least 25% less fat per serving than reference food
	Saturated fat free	Less than 0.5 g of saturated fat *and* less than 0.5 g of *trans* fat per serving
	Low saturated fat	1 g or less saturated fat and less than 0.5 g *trans* fat per serving *and* 15% or less of total kcal from saturated fat
	Reduced saturated fat	At least 25% less saturated fat *and* reduced by more than 1 g saturated fat per serving as compared to reference food
	Cholesterol free	Less than 2 mg of cholesterol per serving *and* 2 g or less saturated fat and *trans* fat combined per serving
	Low cholesterol	20 mg or less cholesterol *and* 2 g or less saturated fat per serving
	Reduced cholesterol	At least 25% less cholesterol than reference food *and* 2 g or less saturated fat per serving
Fiber and Sugar	High fiber	5 g or more fiber per serving*
	Good source of fiber	2.5 g to 4.9 g fiber per serving
	More or added fiber	At least 2.5 g more fiber per serving than reference food
	Sugar free	Less than 0.5 g sugars per serving
	Low sugar	Not defined; no basis for recommended intake
	Reduced/less sugar	At least 25% less sugars per serving than reference food
	No added sugars or without added sugars	No sugar or sugar-containing ingredient added during processing
Sodium	Sodium free	Less than 5 mg sodium per serving
	Very low sodium	35 mg or less sodium per serving
	Low sodium	140 mg or less sodium per serving
	Reduced sodium	At least 25% less sodium per serving than reference food
Relative Claims	Free, without, no, zero	No or a trivial amount of given nutrient
	Light (lite)	This term can have three different meanings: (1) a serving provides one-third fewer kcal than or half the fat of the reference food; (2) a serving of a low-fat, low-Calorie food provides half the sodium normally present; or (3) lighter in color and texture, with the label making this clear (for example, light molasses)
	Reduced, less, fewer	Contains at least 25% less of a nutrient or kcal than reference food
	More, added, extra, or plus	At least 10% of the Daily Value of nutrient as compared to reference food (may occur naturally or be added); may be used only for vitamins, minerals, protein, dietary fiber, and potassium
	Good source of, contains, or provides	10% to 19% of Daily Value per serving (may not be used for carbohydrate)
	High in, rich in, or excellent source of	20% or more of Daily Value per serving for protein, vitamins, minerals, dietary fiber, or potassium (may not be used for carbohydrate)

*High-fiber claims must also meet the definition of low fat; if not, then the level of total fat must appear next to the high-fiber claim.

Data adapted from: "Food Labeling Guide" (U.S. Food and Drug Administration).

USDA-Approved Health Claims

TABLE 2.2 U.S. Food and Drug Administration–Approved Health Claims on Labels

Disease/Health Concern	Nutrient	Example of Approved Claim Statement
Osteoporosis	Calcium	Regular exercise and a healthful diet with enough calcium help teens and young white and Asian women maintain good bone health and may reduce their high risk for osteoporosis later in life.
Coronary heart disease	Saturated fat and cholesterol Fruits, vegetables, and grain products that contain fiber, particularly soluble fiber Soluble fiber from whole oats, psyllium seed husk, and beta glucan soluble fiber from oat bran, rolled oats (or oatmeal), and whole-oat flour Soy protein Plant sterol/stanol esters Whole-grain foods	Diets low in saturated fat and cholesterol and rich in fruits, vegetables, and grain products that contain some types of dietary fiber, particularly soluble fiber, may reduce the risk for heart disease, a disease associated with many factors.
Cancer	Dietary fats Fiber-containing grain products, fruits, and vegetables Fruits and vegetables Whole-grain foods	Low-fat diets rich in fiber-containing grain products, fruits, and vegetables may reduce the risk for some types of cancer, a disease associated with many factors.
Hypertension and stroke	Sodium Potassium	Diets containing foods that are a good source of potassium and that are low in sodium may reduce the risk of high blood pressure and stroke.*
Neural tube defects	Folate	Healthful diets with adequate folate may reduce a woman's risk of having a child with a brain or spinal cord defect.
Dental caries	Sugar alcohols	Frequent between-meal consumption of foods high in sugars and starches promotes tooth decay. The sugar alcohols in [name of food] do not promote tooth decay.

*Required wording for this claim. Wordings for other claims are recommended model statements but not required verbatim.

Data adapted from: "Food Labeling Guide" (U.S. Food and Drug Administration).

I. Dietary Guidelines for Americans (DGAs)

- A set of principles developed by
  - U.S. Department of Health and Human Services (HHS)
  - U.S. Department of Agriculture (USDA)
- Revised every 5 years (most recently in 2015)
- Designed to
  - Promote health
  - Reduce the risk of chronic diseases
  - Reduce the prevalence of overweight and obesity

Dietary Guidelines for Americans (cont.)

- The Five Key DGA recommendations:
  1. Follow a healthful eating pattern across the lifespan
  2. Limit/Reduce calories from:
     - Saturated fat
     - Added sugars
     - and reduced sodium intake
  3. Increase consumption of nutrient-dense foods
  4. Shift to more healthful food and beverage intake
  5. Support healthful eating patterns for everyone

The USDA Food Patterns: MyPlate

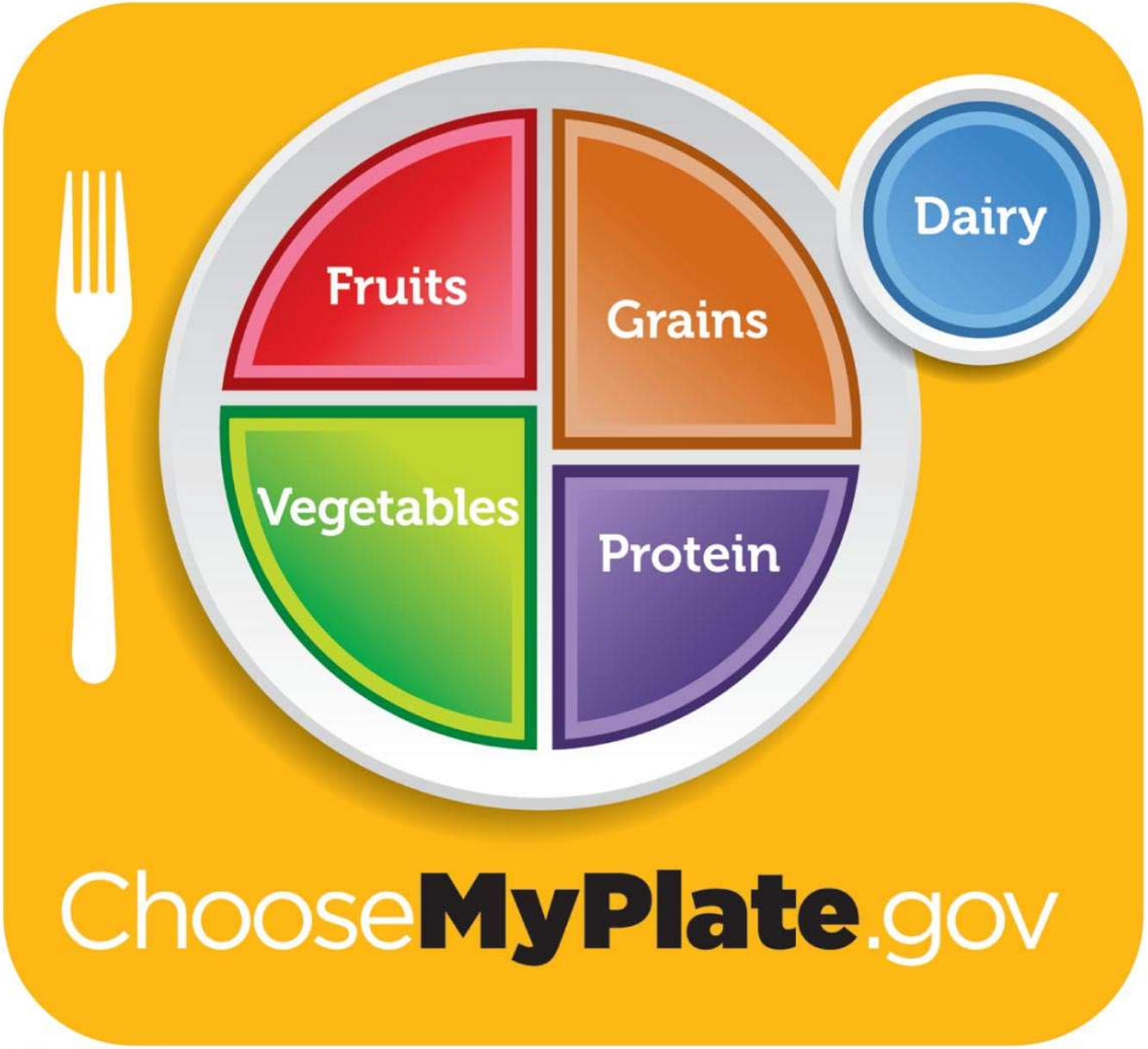
MyPlate

- Visual representation of the USDA Food Patterns
- Released in 2011
- Replaced the previous MyPyramid graphic
- An interactive, personalized guide that can be accessed on the Internet

The USDA Food Patterns: MyPlate (cont.)

- MyPlate is intended to help Americans
  - Eat in moderation to balance Calories
  - Eat a variety of foods
  - Consume correct proportions of the recommended food groups
  - Personalize their eating plan
  - Increase their physical activity
  - Set goals for gradual improvement in their food choices and lifestyle

MyPlate Graphic



USDA Food Patterns

- Food groups emphasized in the USDA Food Patterns and MyPlate are
  - Grains
  - Vegetables
  - Fruits
  - Diary foods
  - Protein foods

Food Groups of the USDA Food Patterns

Grains

Make half your grains whole. At least half of the grains you eat each day should come from whole-grain sources.

Eat at least 3 oz of whole-grain bread, cereal, crackers, rice, or pasta every day.

Whole-grain foods provide fiber-rich carbohydrates, riboflavin, thiamin, niacin, iron, folate, zinc, protein, and magnesium.

Vegetables

Vary your veggies. Eat a variety of vegetables and increase consumption of dark-green and orange vegetables, as well as dry beans and peas.

Eat at least 2½ cups of vegetables each day.

Vegetables provide fiber and phytochemicals, carbohydrates, vitamins A and C, folate, potassium, and magnesium.

Fruits

Focus on fruits. Eat a greater variety of fruits (fresh, frozen, or dried) and go easy on the fruit juices.

Eat at least 1½ cups of fruit every day.

Fruits provide fiber, phytochemicals, vitamins A and C, folate, potassium, and magnesium.

Dairy Foods

Get your calcium-rich foods. Choose low-fat or fat-free dairy products, such as milk, yogurt, and cheese. People who can't consume dairy foods can choose lactose-free dairy products or other sources, such as calcium-fortified juices and soy and rice beverages.

Get 3 cups of low-fat dairy foods, or the equivalent, every day.

Dairy foods provide calcium, phosphorus, riboflavin, protein, and vitamin B_{12} and are often fortified with vitamins D and A.

Protein Foods

Go lean with protein. Choose low-fat or lean meats and poultry. Switch to baking, broiling, or grilling more often, and vary your choices to include more fish, processed soy products, beans, nuts, and seeds. Legumes, including beans, peas, and lentils, are included in both the protein and the vegetable groups.

Eat about 5½ oz of lean protein foods each day.

These foods provide protein, phosphorus, vitamin B_6, vitamin B_{12}, magnesium, iron, zinc, niacin, riboflavin, and thiamin.

The Concept of Empty Calories

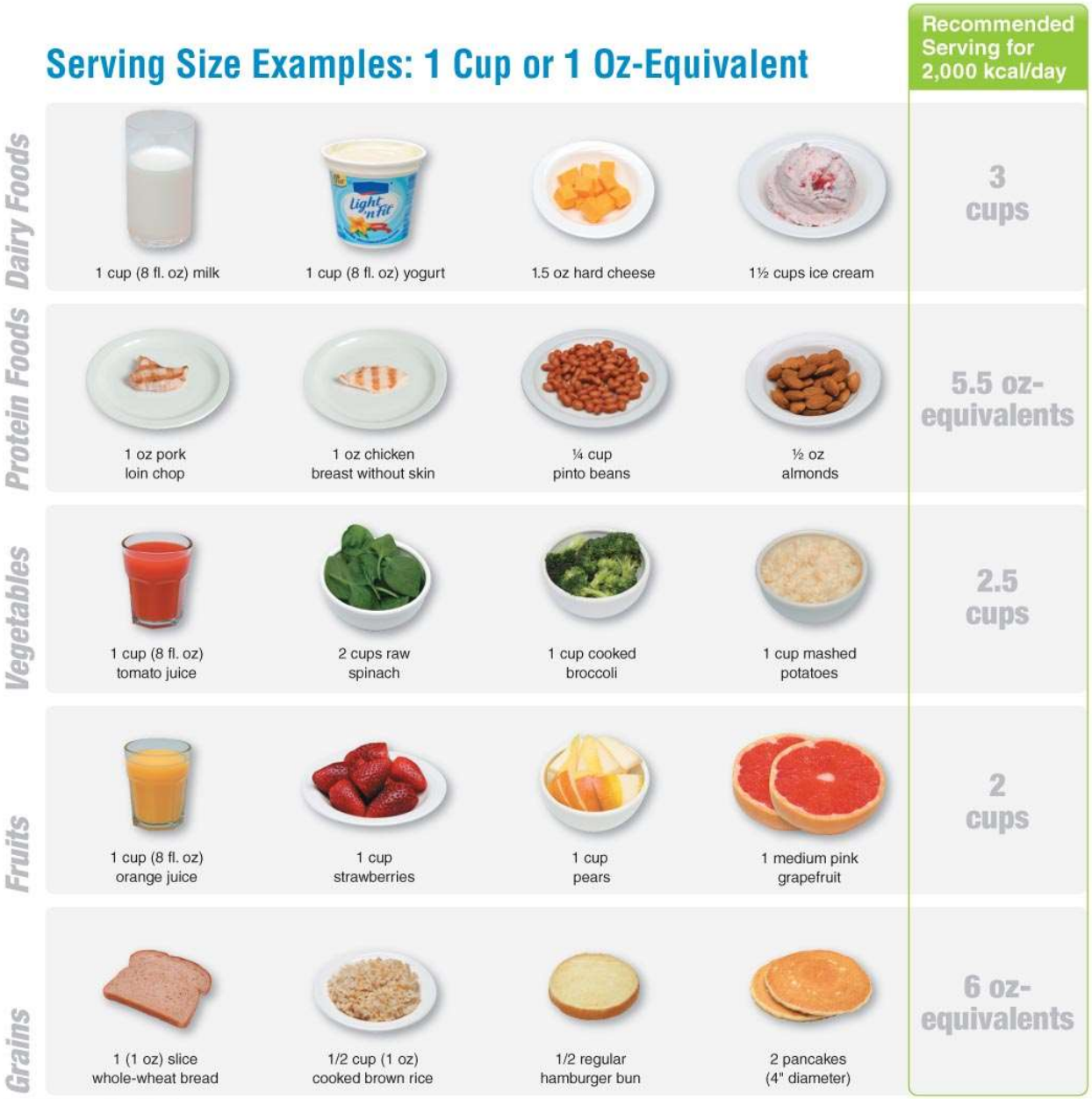
Empty Calories is a concept introduced in the USDA Food Patterns

- Calories from solid fats and/or added sugars (SoFAS) that provide few or no nutrients
- USDA recommends limiting empty Calories to a small number that fit your nutrient needs, depending on your
  - Age
  - Gender
  - Level of physical activity

Number and Size of Servings

- Amounts recommended from each food group in the USDA Food Patterns are based on your
  - Age
  - Gender
  - Level of physical activity
  - MyPlate uses the term ounce-equivalent (oz-equivalent): a serving size that is 1 ounce, or the equivalent

Serving Size Examples



Get Some High-Tech Help

- MyPlate Supertracker
- MyDietAnalysis
- USDA's Nutrient Database for Standard Reference
- Various phone apps

Food Portions Have Increased

Other Eating Plans

- The DASH diet
  - Dietary Approaches to Stop Hypertension
    - Focuses on:
      - Fruit
      - Vegetables
      - Whole grains
      - Lean protein sources
      - Limited sweets and saturated fats

Eating Out as Part of a Healthful Diet

- Eating in restaurants often involves
  - High-fat foods
  - Large portion sizes
- A restaurant meal can be equivalent to the recommended fat or Calorie intake for an entire day!

Nutritional Value of Fast Foods

TABLE 2.3 Nutritional Value of Selected Fast Food

Menu Item	kcal	Fat (g)	Fat (% kcal)	Sodium (mg)
McDonald's				
Hamburger	240	8	30	480
Cheeseburger	290	11	34	680
Quarter Pounder with Cheese	520	26	45	1100
Big Mac	530	27	46	960
French fries, small	230	11	43	130
French fries, medium	340	16	42	190
French fries, large	510	24	42	290
Coke, large	280	0	0	5
McCafé Chocolate Shake (small)	560	16	26	240
McCafé Chocolate Shake (large)	850	23	24	380
Burger King				
Hamburger	230	9	35	460
Cheeseburger	270	12	40	630
Whopper	650	37	51	910
Double Whopper	900	56	56	980
Bacon Double Cheeseburger	390	21	48	790
French fries, small	340	15	40	480
French fries, medium	410	18	40	570
French fries, large	500	22	40	710

Sources: McDonald's Nutrition Choices. http://www.mcdonalds.com/us/en/food/food_quality/nutrition_choices.html; and Burger King Nutrition Information. http://www.bk.com/.

Eating Out as Part of a Healthful Diet

- Use nutrition information
  - The FDA now requires chain restaurants to post Calorie information for standard menus
  - Other nutrients such as Calories from saturated fat, sodium content, and others can be provided upon written request.

Eating Out as Part of a Healthful Diet (cont.)

- Tips for restaurant meals
  - Avoid all-you-can-eat buffets, breaded and fried foods, and cream and cheesy sauces
  - Substitute an appetizer or children's portion for a large meal, or share an entrée with a friend
  - Order broth-based soups; salads with dressing on the side; lean cuts of meat, vegetarian dishes, and chicken or fish burgers; steamed vegetables instead of potatoes or rice; and beverages with few or no Calories
  - Don't feel you must eat everything you're served
  - Skip dessert or have fruit

In Depth: Healthful Eating Patterns

- Increase your awareness by eating mindfully
  - Focus only on eating by turning off or putting away distractions
  - Take your time and savor each bite
  - Focus on the smell, taste, texture, and temperature of food, as well as sensations of satisfaction or fullness
  - Pause between bites
  - Try eating silently

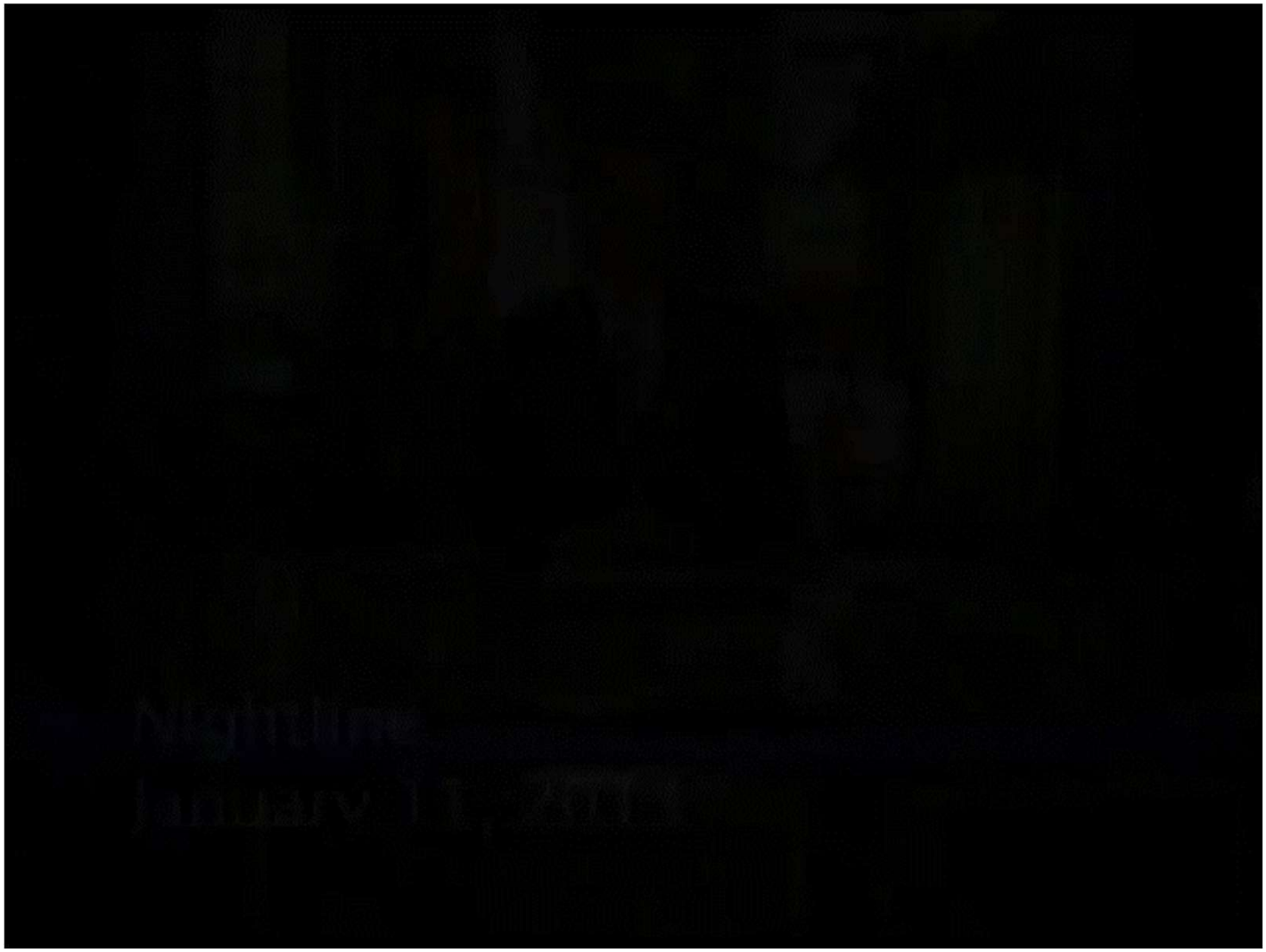
Mediterranean-Style MyPlate

- Vegetables, fruits, nuts, beans and other legumes, whole grains, cheese and yogurt consumed daily.
- Eggs, poultry, and fish consumed weekly.
- Red meat consumed once per month.
- Olive oil is the predominant fat used for cooking and flavor.
- Wine is consumed in moderation.

Mediterranean Diet

- MyPlate incorporates many features of the Mediterranean diet, in which
  - Olive oil is the primary fat
  - Daily foods are grains, legumes, nuts, vegetables, and cheese and yogurt
    - Eggs, poultry, fish, and sweets are eaten weekly, while red meat is eaten only monthly
  - Wine is included in moderation

ABC News Video: Calorie Count: Eat by the Numbers



ABC News Video: Changes Coming to Nutrition Labels

ABC News Video: Coconut: How Healthy Is the Superfood?

ABC News Video: GMA Investigates Baby Food Labels