

# NUTD 439

## Chapter 1 Dietary Planning

# Dietary Guidelines 2015-2020

## Key Recommendations

- ❖ Consume a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level.

A healthy eating pattern includes:

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other vegetables.
- Fruits, especially whole fruits.
- Grains, at least half  $\geq \frac{1}{2}$  of which are whole grains.
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages.
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products.

# Dietary Guidelines 2015-2020

## Key Recommendations Cont'd.

A healthy eating pattern limits:

- Saturated fats and *trans* fats, added sugars, and sodium,
  - ✓ Consume < 10 percent of calories per day from added sugars,
  - ✓ Consume < 10 percent of calories per day from saturated fats,
  - ✓ Consume < 2,300 milligrams (mg) per day of sodium,
- If alcohol is consumed, it should be consumed in moderation— up to 1 drink/day for women and up to 2 drinks/day for men—and only by adults of legal drinking age.
  - ✓ Nutrition Committee, American Heart Association (AHA) - 1996 : Children, adolescents, and pregnant women should abstain.
  - ✓ CDC (2014): no known safe level for pregnant women; NHS (2015) no safe level.
- Consume plenty of liquids: water + other liquids.

# Key Elements of Healthy Eating Patterns

## Healthy Eating Patterns: Dietary Principles

- An eating pattern represents the totality of all foods and beverages consumed.
- Nutritional needs should be met primarily from foods.
- Healthy eating patterns are adaptable.

# Physical Activity Recommendations

- Be physically active every day
- Balance food intake with physical activity and maintain or reduce weight.

Age	Recommendations
6 to 17 years	<ul style="list-style-type: none"><li>• Children and adolescents should do <math>\geq 60</math> minutes (1 hour) of physical activity daily.</li></ul>
18 to 64 years	<ul style="list-style-type: none"><li>• All adults should avoid inactivity.</li><li>• Some physical activity is better than none, and</li><li>• Adults who participate in any amount of physical activity gain some health benefits.</li><li>• The more active they are, the more health benefits they gain.</li></ul>
65 years and older	<ul style="list-style-type: none"><li>• Older adults should follow the adult guidelines.</li><li>• When older adults cannot meet the adult guidelines, they should be as physically active as their abilities and conditions will allow.</li></ul>

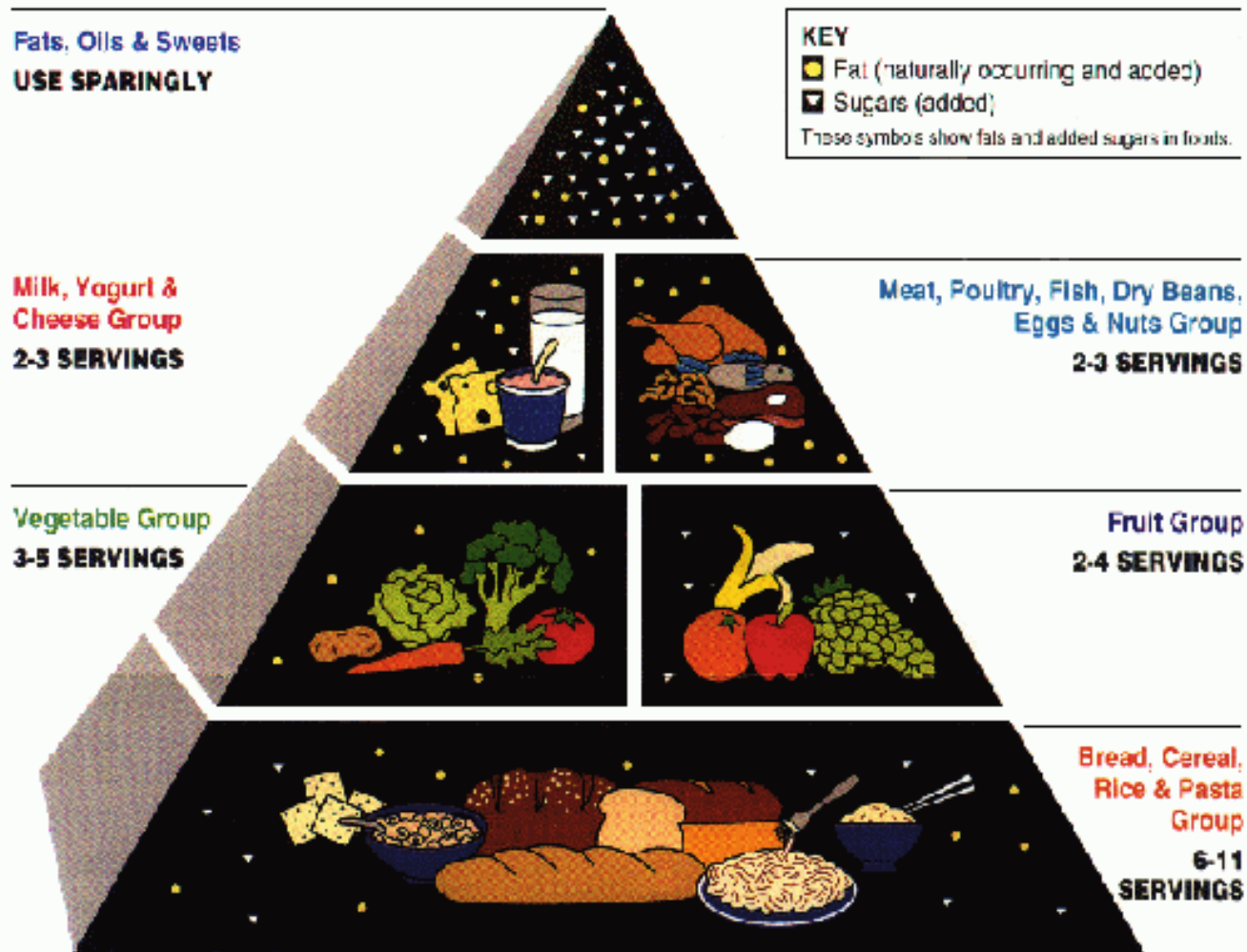
# Basis of Dietary Reference Intakes

- Food and Nutrition Board of the Institute of Medicine:
  - Created recommendations for energy intake based on:
    - Gender
    - Age and
    - Other considerations.

# Dietary Reference Intakes

- Dietary Guidelines for healthy individuals indicate energy needs based on two recommendations:
  - Maintain a healthy weight,
  - Choose a diet low in
    - Fat,
    - Saturated fat, and
    - Cholesterol,
    - Use sugar in moderation,
    - Eat plenty of fruits, vegetables, and grain products.

# Food Guide Pyramid (1992)

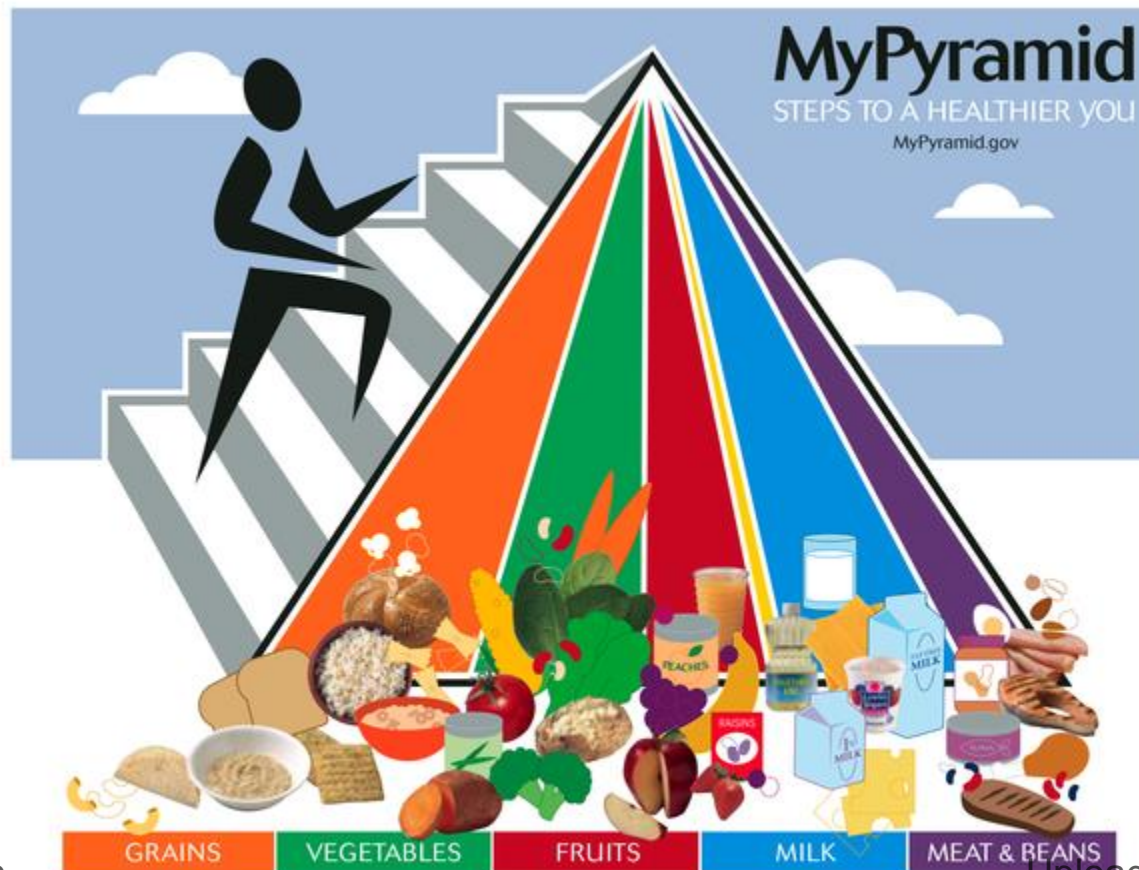




# My Pyramid Guide: 2005

Was released by the United States Department of Agriculture  
(USDA) on April 19, 2005

Is an update on the American food guide pyramid



# Characteristics of My Pyramid Guide

- Personalization: insert certain personal information like weight, height, age, physical activity level etc. and get your own diet plan.
- Gradual improvement: Slogan is “steps to a healthier you”.
  - Shown by person on steps. Benefits from small steps to improve diet and life style.
- Physical activity: reminder of the importance of daily activity besides healthy eating.
- Variety: symbolized by the 5 color bands for the different food groups. The oil and fats group is considered part of the extras (discretionary calories).
- Moderation: represented by the narrowing of each food group from bottom to top; wider base stands for foods with little or no added solid fats and sugars; select more from wider base and less from narrow top foods.
- Proportionality: represented by the different width of strands; eat more from foods in the wider strands.

# Food Groups for 2000 kcal Diet

GRAINS Make half your grains whole	VEGETABLES Vary your veggies	FRUITS Focus on fruits	MILK Get your calcium-rich foods	MEAT & BEANS Go lean with protein
<p>Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day</p> <p>1 oz. is about 1 slice of bread, about 1 cup of breakfast cereal, or 1/2 cup of cooked rice, cereal, or pasta</p>	<p>Eat more dark-green veggies like broccoli, spinach, and other dark leafy greens</p> <p>Eat more orange vegetables like carrots and sweetpotatoes</p> <p>Eat more dry beans and peas like pinto beans, kidney beans, and lentils</p>	<p>Eat a variety of fruit</p> <p>Choose fresh, frozen, canned, or dried fruit</p> <p>Go easy on fruit juices</p>	<p>Go low-fat or fat-free when you choose milk, yogurt, and other milk products</p> <p>If you don't or can't consume milk, choose lactose-free products or other calcium sources such as fortified foods and beverages</p>	<p>Choose low-fat or lean meats and poultry</p> <p>Bake it, broil it, or grill it</p> <p>Vary your protein routine — choose more fish, beans, peas, nuts, and seeds</p>

For a 2,000-calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to [MyPyramid.gov](http://MyPyramid.gov).

Eat 6 oz. every day	Eat 2 1/2 cups every day	Eat 2 cups every day	Get 3 cups every day; for kids aged 2 to 8, it's 2	Eat 5 1/2 oz. every day
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## Find your balance between food and physical activity

- Be sure to stay within your daily calorie needs.
- Be physically active for at least 30 minutes most days of the week.
- About 60 minutes a day of physical activity may be needed to prevent weight gain.
- For sustaining weight loss, at least 60 to 90 minutes a day of physical activity may be required.
- Children and teenagers should be physically active for 60 minutes every day, or most days.



## Know the limits on fats, sugars, and salt (sodium)

- Make most of your fat sources from fish, nuts, and vegetable oils.
- Limit solid fats like butter, stick margarine, shortening, and lard, as well as foods that contain these.
- Check the Nutrition Facts label to keep saturated fats, *trans* fats, and sodium low.
- Choose food and beverages low in added sugars. Added sugars contribute calories with few, if any, nutrients.

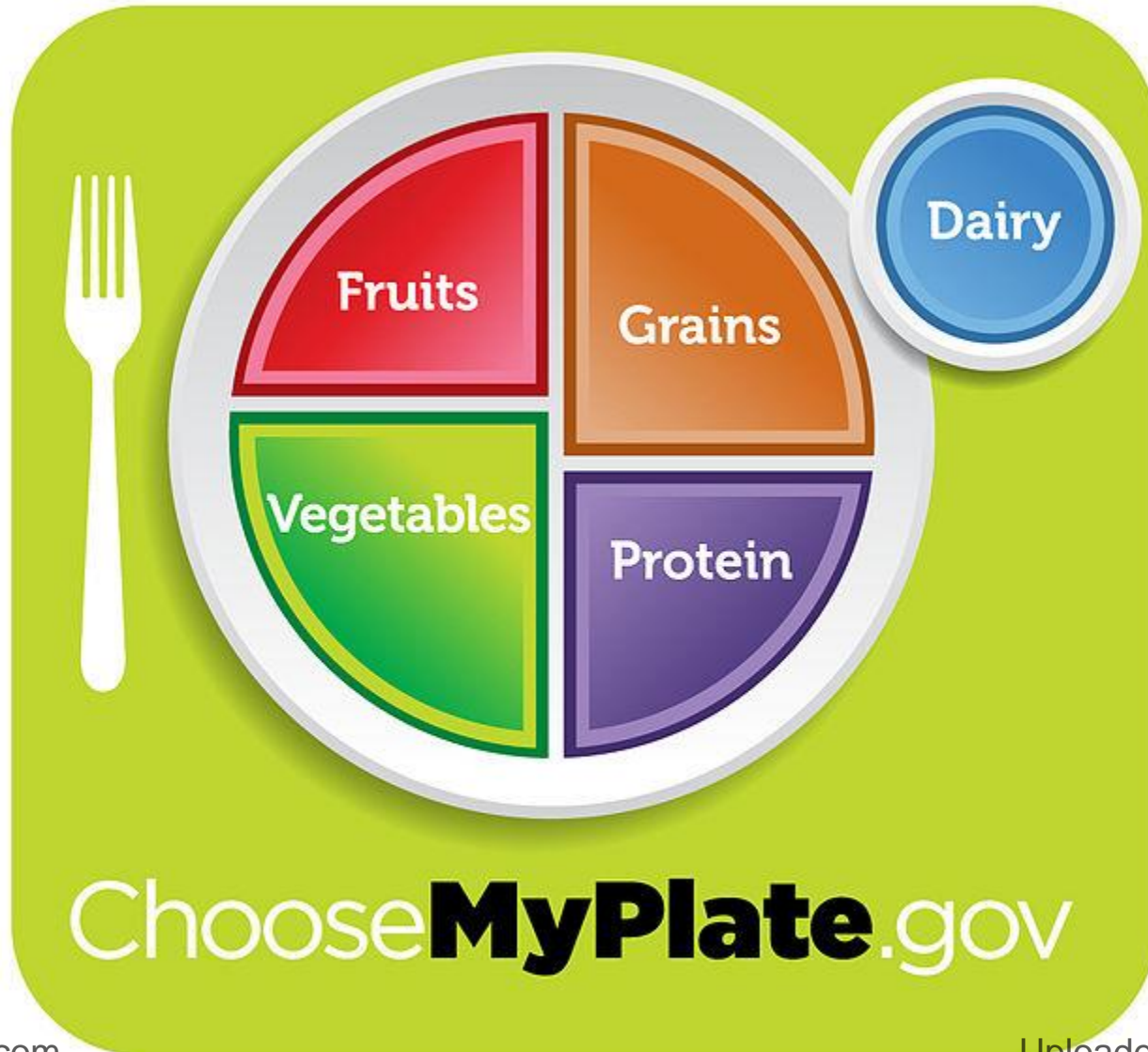


U.S. Department of Agriculture  
Center for Nutrition Policy and Promotion  
April 2005  
CNPP-15



USDA is an equal opportunity provider and employer.

# My Plate: 2011



# My Plate: 2011

- Is the current nutrition guide published by the USDA
- Depicts a plate and glass divided into five food groups
- It replaced the USDA's My Pyramid guide on June 2, 2011, ending 19 years of USDA food pyramid diagrams.
- Will be:
  - Displayed on food packaging, and
  - Used in nutrition education in the United States.

# My Plate Messages

## Build a Healthy Eating Style

- Find your healthy eating style and maintain it for a lifetime.
- Make  $\frac{1}{2}$  your plate vegetables & fruits:
  - ✓ Vary your vegetables.
  - ✓ Focus on whole fruits.
- Make  $\frac{1}{2}$  your grains whole grains.
- Move to low-fat or fat-free dairy products (milk, yogurt, etc.)
- Vary your protein routine.
- Drink and eat less sodium, saturated fat, and added sugars.
- Make small changes.

# My Plate Messages Cont'd.

- All food and beverage choices matter – focus on variety, amount, and nutrition.
- Choose an eating style low in saturated fat, sodium, and added sugars.
- Make small changes to create a healthier eating style.
- Support healthy eating for everyone.
  - Create settings where healthy choices are available and affordable.
  - Professionals, policymakers, partners, industry, families, and individuals can help.

# Recommended Daily Amounts

## Food Group

- Grains (starches): 3-10 oz/day
  - Make  $\frac{1}{2}$  your choices from the whole grains and their products.
    - Refined grain products like white flour are enriched with the nutrients that were removed during milling except for fiber.
    - Milling: they remove (bran [fiber] and germ [B vitamins like thiamin, riboflavin, niacin, folate; minerals like iron]).
  - Fiber rich diets      1) reduce the risk of CVDs;      2) help manage constipation;      3) help manage weight.
  - Starchy vegetables are classified in this group.



## Food Group

- Vegetable: 1 - 4 c/day
  - Includes all non-starchy vegetables (fresh, frozen, canned and dried); raw or cooked; and their juices.
  - Are naturally high in water
  - Low in fat and calories
  - Do not contain cholesterol
  - Important sources of  $K^+$ , folate, Vitamin A precursors (carotenoids), Vitamin E, Vitamin C, and fiber.

# Subgroups of Vegetables

- Dark green: leafy, non-leafy like broccoli
  - Deep yellow/orange like carrots and pumpkins
  - Starchy vegetables like potatoes and corn (grouped with the grains)
  - Dry beans like lentils and hummus (grouped with the meat group)
  - Others like cabbage, cauliflower, eggplants etc.
- ❖ Choose dark green and or deep yellow vegetable at least  $\geq$  once every other day, and other vegetables every day.

## Food Group

■ Fruits: 1 - 2.5 c/day

- Includes fresh fruits, frozen and canned, or dried, + 100% fruit juice.
  - Most fruits are naturally low in fat,  $\text{Na}^+$ , and calories.
  - Non have cholesterol.
  - Important sources of  $\text{K}^+$ , vitamin C, folate and fiber.
  - Fruits and vegetable contribute nearly half of the vitamin A and most of the vitamin C in the diet.
- Some are excellent sources of these vitamins, other foods are fair sources.

- Excellent sources of Vitamin C:
    - Guava; peppers (green, red) and chili peppers; kiwi fruit; oranges and their juice; grapefruit juice; cantaloupe; papaya; strawberries; Brussels sprouts.
  - Fair sources of vitamin C:
    - Grapefruit, raw pineapple; broccoli; tangerine/mandarin; mango; tomato; yams; sweet potatoes, cauliflower, frozen collard greens.
- ❖ Include 1 serving of an excellent source or 2 servings of a fair source every day.

## Food Group

- Milk: 2 - 3 cups/day
  - This food group includes milk and milk products such as: yogurt and cheese
    - ✓ Cheese is usually grouped with the meat group.
  - But not cream cheese, cream or butter; (grouped with fats)
  - Foods in this group provide the body with high quality protein,  $\text{Ca}^{++}$ ,  $\text{K}^+$  and  $\text{Na}^+$ , as well as riboflavin & B12.
  - Low fat milk on the market is usually fortified with vitamins A and D.

## Milk Group

- Choose low fat varieties of milk and yogurt
- Choose plain yogurt over fruit or flavored yogurt because they contain more sugar, this sugar should be part of your discretionary (extra) calories.
- Lactose intolerant people can tolerate hard cheeses and yogurt because they contain less lactose.
- Also enzymes can be added to milk and make it more tolerable by lactose intolerant people (lactose free or lactose reduced milk)

## Food Group

■ Meats and Beans: 2 - 7 oz/day

- Foods classified in this group include meat, poultry, fish, beans\*, eggs.
  - Foods in this group provide the body with high quality protein; B vitamins including vitamin B12; fat soluble vitamins; minerals especially Fe+, Zn and Mg++.
  - Choose lean meat, poultry without skin, fatty fish like salmon, trout and herring for its omega 3 fatty acid content (EPA and DHA).
  - Fish, nuts and seeds (grouped with fats), contain healthy oils, so choose them over meat and poultry.
- ❖ ½ c beans contain on average 6 gm fiber.
- ❖ Beans are not a source of vitamin B12

## Food Group

- Oils and fats: 3 - 11 tsp/day
  - This group includes all added fats and oils in food preparation + nuts and seeds as well as salad dressings.
  - Oils contain the MUFAs; PUFAs; Essential FAs; and they are a major source of vitamin E.
  - They are considered healthy oils because they do not raise the LDL and the MUFAs might raise the HDL.
  - Solid fats: contain SFAs, more TFAs; they raise the LDL.



- All foods listed in the fats group are rich in energy, so one should limit their consumption.
- When you eat foods in this list, consider those foods as extras (discretionary).
- Foods that contain the extra calories because of their fat and/or sugar content include:
  - Whole milk, cheeses, flavored and sweetened yogurt, sausages (sausage type cold cuts); sweetened cereals; biscuits; snack foods (potato chips etc.); sodas (soft drinks); alcoholic drinks; candies.
- ❖ Always read the nutrition facts label on packaged foods.

Sample label for  
Macaroni & Cheese

# Nutrition Facts

Serving Size 1 cup (228g)

Servings Per Container 2

Start here

## Amount Per Serving

Check calories

**Calories** 250      **Calories from Fat** 110

## % Daily Value\*

Quick guide to % DV

**Total Fat** 12g      18%

5% or less is low  
20% or more is high

**Saturated Fat** 3g      15%

**Trans Fat** 3g

**Cholesterol** 30mg      10%

**Sodium** 470mg      20%

Limit these

**Potassium** 700mg      20%

**Total Carbohydrate** 31g      10%

Get enough of these

**Dietary Fiber** 0g      0%

**Sugars** 5g

**Protein** 5g

**Vitamin A**      4%

**Vitamin C**      2%

**Calcium**      20%

**Iron**      4%

Footnote

\* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

\* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

# Dietary Guidelines

## Other Consideration

Fluids	6 - 8 c/day <input type="checkbox"/> Water and other fluids such as tea, coffee, soups, lemonade, etc.
Sweets and Desserts	Use sparingly <input type="checkbox"/> They are considered extras (discretionary calories)

# Following are examples of RDAs (RDIs) for Some Nutrients

## Daily Protein Requirement for Healthy People

Stage of life	Grams of protein /kg / day
Adulthood, (for maintenance), (anabolism = catabolism)	0.8 g/kg/day e.g. $0.8 \times 60 \text{ kg} = 48 \text{ g}$

The RDA for vitamin A was revised by the Food and Nutrition Board (FNB) of the Institute of Medicine in 2001. The latest RDA is based on the amount needed to ensure adequate stores (four months) of vitamin A in the body to support normal reproductive function, immune function, gene expression, and vision.

Recommended Dietary Allowance (RDA) for Vitamin A as Preformed Vitamin A (Retinol Activity Equivalents)			
Life Stage	Age	Males: mcg/day (IU/day)	Females: mcg/day (IU/day)
Infants ( <a href="#">AI</a> )	0-6 months	400 (1,333 IU)	400 (1,333 IU)
Infants ( <a href="#">AI</a> )	7-12 months	500 (1,667 IU)	500 (1,667 IU)
Children	1-3 years	300 (1,000 IU)	300 (1,000 IU)
Children	4-8 years	400 (1,333 IU)	400 (1,333 IU)
Children	9-13 years	600 (2,000 IU)	600 (2,000 IU)
Adolescents	14-18 years	900 (3,000 IU)	700 (2,333 IU)
Adults	19 years and older	900 (3,000 IU)	700 (2,333 IU)
Pregnancy	18 years and younger	-	750 (2,500 IU)
Pregnancy	19 years and older	-	770 (2,567 IU)
Breast-feeding	18 years and younger	-	1,200 (4,000 IU)
Breast-feeding	19 years and older	-	1,300 (4,333 IU) <sup>30</sup>

In the U.S., the recommended dietary allowance (RDA) for vitamin C was revised in 2000 upward from the previous recommendation of 60 mg daily for men and women. The RDA continues to be based primarily on the prevention of deficiency disease, rather than the prevention of chronic disease and the promotion of optimum health. The recommended intake for smokers is 35 mg/day higher than for nonsmokers, because smokers are under increased oxidative stress from the toxins in cigarette smoke and generally have lower blood levels of vitamin C .

Recommended Dietary Allowance (RDA) for Vitamin C			
Life Stage	Age	Males (mg/day)	Females (mg/day)
Infants	0-6 months	40 ( <a href="#">AI</a> )	40 (AI)
Infants	7-12 months	50 (AI)	50 (AI)
Children	1-3 years	15	15
Children	4-8 years	25	25
Children	9-13 years	45	45
Adolescents	14-18 years	75	65
Adults	19 years and older	90	<u>75</u>
Smokers	19 years and older	125	110
Pregnancy	18 years and younger	-	80
Pregnancy	19 years and older	-	85
Breast-feeding	18 years and younger	-	115
Breast-feeding	19 years and older	-	120

Updated recommendations for calcium intake based on the optimization of bone health were released by the Food and Nutrition Board (FNB) of the Institute of Medicine in 2010.

Recommended Dietary Allowance (RDA) for Calcium			
Life Stage	Age	Males (mg/day)	Females (mg/day)
Infants	0-6 months	200 (AI)	200 (AI)
Infants	6-12 months	260 (AI)	260 (AI)
Children	1-3 years	700	700
Children	4-8 years	1,000	1,000
Children	9-13 years	1,300	1,300
Adolescents	14-18 years	1,300	1,300
Adults	19-50 years	1,000	1,000
Adults	51-70 years	1,000	1,200
Adults	71 years and older	1,200	1,200
Pregnancy	14-18 years	-	1,300
Pregnancy	19-50 years	-	1,000
Breast-feeding	14-18 years	-	1,300
Breast-feeding	19-50 years	-	1,000



## The Recommended Dietary Allowance (RDA)

In 2010, the Food and Nutrition Board (FNB) of the Institute of Medicine set a Recommended Dietary Allowance ([RDA](#)) based on the amount of vitamin D needed for bone health.

Recommended Dietary Allowance (RDA) for Vitamin D Set by the Institute of Medicine			
Life Stage	Age	Males mcg/day (IU/day)	Females mcg/day (IU/day)
Infants	0-6 months	10 mcg (400 IU) ( <a href="#">AI</a> )	10 mcg (400 IU) (AI)
Infants	6-12 months	10 mcg (400 IU) (AI)	10 mcg (400 IU) (AI)
Children	1-3 years	15 mcg (600 IU)	15 mcg (600 IU)
Children	4-8 years	15 mcg (600 IU)	15 mcg (600 IU)
Children	9-13 years	15 mcg (600 IU)	15 mcg (600 IU)
Adolescents	14-18 years	15 mcg (600 IU)	15 mcg (600 IU)
Adults	19-50 years	15 mcg (600 IU)	15 mcg (600 IU)
Adults	51-70 years	15 mcg (600 IU)	15 mcg (600 IU)
Adults	71 years and older	20 mcg (800 IU)	20 mcg (800 IU)
Pregnancy	all ages	-	15 mcg (600 IU)
Breast-feeding	all ages	-	15 mcg (600 IU)

The RDA for iron was revised in 2001 and is based on the prevention of iron deficiency and maintenance of adequate iron stores in individuals eating a mixed diet .

Recommended Dietary Allowance (RDA) for Iron			
Life Stage	Age	Males (mg/day)	Females (mg/day)
Infants	0-6 months	0.27 (AI)	0.27 (AI)
Infants	7-12 months	11	11
Children	1-3 years	7	7
Children	4-8 years	10	10
Children	9-13 years	8	8
Adolescents	14-18 years	11	15
Adults	19-50 years	8	18
Adults	51 years and older	8	8
Pregnancy	all ages	-	27
Breast-feeding	18 years and younger	-	10
Breast-feeding	19 years and older	-	9