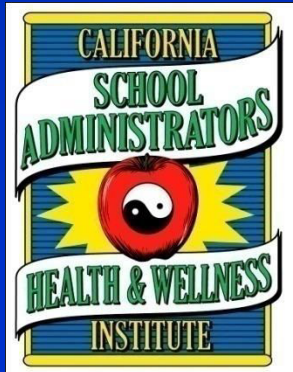


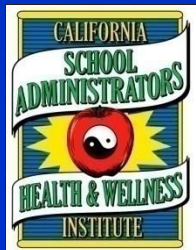
# Healthy Hearts, Healthy Lungs: Living Longer and Living Better

Samer Kanaan, M.D.

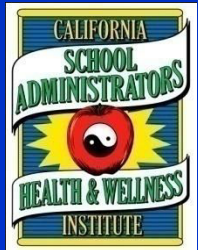


# Goals

- Understand the Societal impact of **Smoking**
- Understand the Societal impact of **Heart Disease**
- Review “America’s Obesity Problem” and focus on **Nutrition**
- How to have a Healthy Heart with focus on **Exercise**



# Smoking



# Smoking

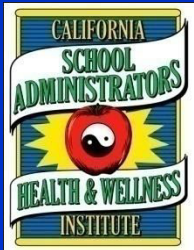
## Smoking Facts

- **Smoking is the most important preventable cause of morbidity and premature mortality Worldwide**
- **438,000** Americans die each year from smoking related diseases
- Smoking is responsible for **more than one in five US deaths**
- About **1/2 of all regular smokers will die** from the addiction
- Smoking costs the United States **\$193 billion** in 2004
- Cigarette smoke contains over 4800 chemicals, of which **69** are known to cause cancer
- Smoking is directly responsible for **90% of the 161,000 Lung Cancer deaths**
- Smoking is directly responsible for **80-90% of the 127,000 COPD deaths**
- Smoking is major risk factor for Coronary artery disease, stroke, and lower respiratory infections

# Smoking

## Smoking Facts

- **Smoking reduces the normal life expectancy by an average of 13-15 years**
- **8.6 million Americans have a smoking related illness**
- **This means that for every 1 American who dies from smoking related disease, there are 20 more people who suffer from a smoking related disease**



# List of diseases caused by smoking

COPD

Coronary Artery Disease

- **60 % Higher Risk of dying from heart attack in smokers over 65** than non smokers

Stroke

- **Men over 65 who smoke are twice as likely to die from stroke** than non smokers
- **Women over 65 who smoke are 1 ½ times as likely to die from stroke** than non smokers

AAA

Acute Myeloid Leukemia

Cataracts → **2-3 times the risk higher in smokers**

Pneumonia

Periodontitis

Bladder cancer

Esophageal cancer

Laryngeal cancer

Lung cancer

Oral cancer

Throat cancer

Cervical cancer

Kidney cancer

Stomach cancer

Pancreatic cancer

Infertility

Peptic Ulcer Disease

Slow wound healing

Dementia / Alzheimer's

- **Smokers have far greater chance of developing dementia than nonsmokers**

# Smoking

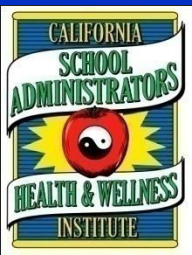
## ➤ Worldwide

- Tobacco is leading cause of preventable death worldwide
- Tobacco kills more than HIV/AIDS, Tuberculosis, and Malaria  
**COMBINED**
- Tobacco responsible for **5 million deaths each year** and will increase to **8 million / year in 2030**
- Tobacco was responsible for **100 million deaths in the 20<sup>th</sup> Century**
- With current usage, tobacco could **kill 1 billion people in the 21<sup>st</sup> Century**
- **48% Men versus 10% Women smoke**
- China: **63% Men versus 3.8% Women → 300 million people smoke in China which is more than the entire US population**

# Smoking

## Smoking Facts

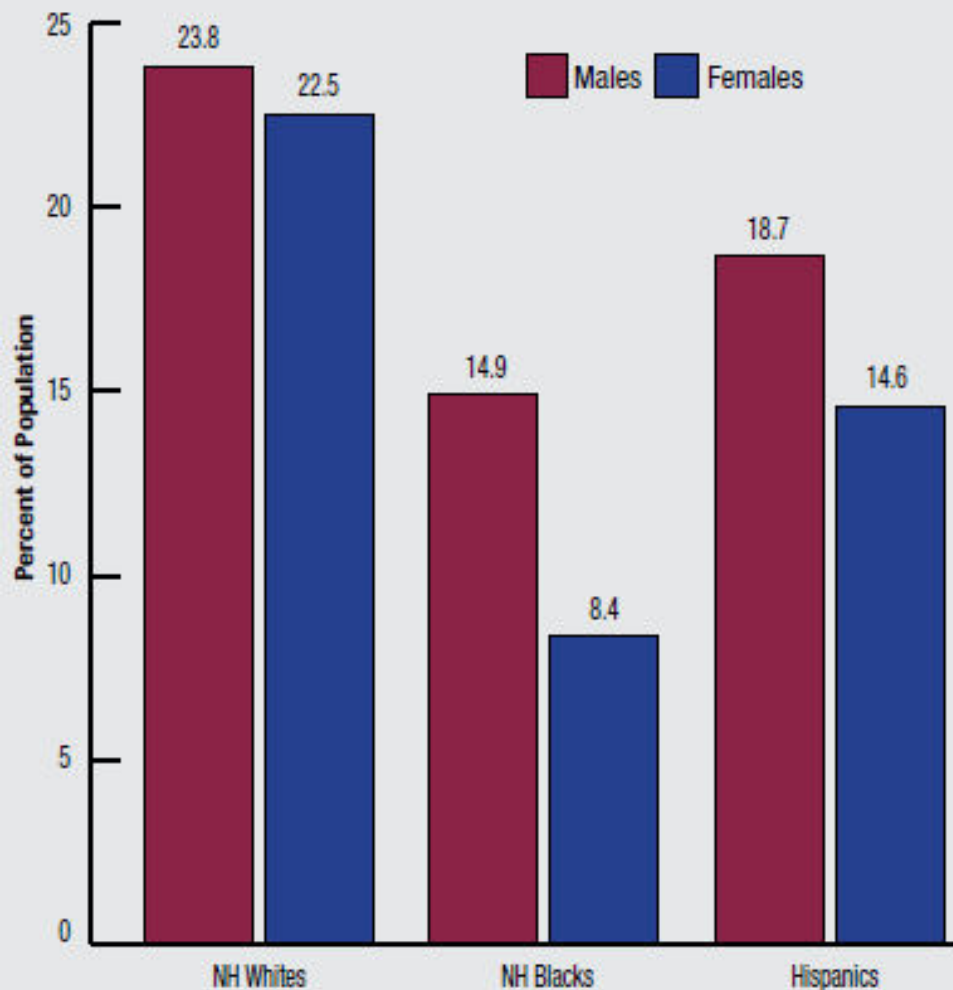
- **45.3 million** Americans (**20.6 % of adults**) were current smokers in 2006
- **45.7 million** Americans were former smokers in 2006
- Prevalence of smoking decreased 40% between 1965 and 1990, but has been **UNCHANGED** since
- Males 23.6%
- Females 17.8%
- American Indians/ Alaskan Natives 32.2%
- Whites 21.8%
- Blacks 22.6%
- Hispanics 15.1%
- Asians 10.3%
- High school students **smoking** trend is alarming: data from 2004 →
  - **Hispanics 26.2%**
  - **African Americans 17.1%**
  - **Whites 31.5%**





## Prevalence of Students in Grades 9–12 Reporting Current Cigarette Use by Sex and Race/Ethnicity

YRBS: 2007



Source: *MMWR Surveill Summ.* 2008;57:1-131.  
NH indicates non-Hispanic.

2007

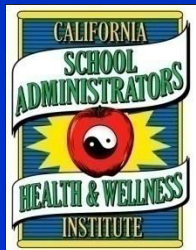
**20% high school students were smokers**

**6% middle school students were smokers**

# Smoking

## Smoking Facts

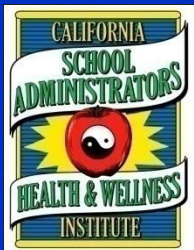
- **2005: Advertising** by the 5 major tobacco companies totaled **\$13.1 billion** → **\$35 million / day**
- **90%** of adults who smoke start by the age of 21
- **50%** became regular smokers by the age of 18
- **Average youth in the US is annually exposed to 559 tobacco ads**
  - 617 tobacco ads for every adult female
  - 892 tobacco ads for every adult African American



# Smoking

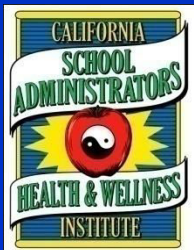
## ➤ Smoking in Pregnancy

- Smoking accounts for 20-30% of low birth weight
  - 14% of preterm deliveries
  - 10% of all infant deaths
  - **10.7% of women smoked during pregnancy in 2005** (down 45% from 1990)
  - Neonatal health-care costs attributed to maternal smoking is **\$366 million per year**
- Mothers who smoke can pass nicotine to their children through breast milk



# Second Hand Smoke

- Described by the EPA as a known human **Group A carcinogen**
- Contains **more than 250 toxic or cancer causing chemicals**, including formaldehyde, benzene, vinyl chloride, arsenic, ammonia, and hydrogen cyanide
- Current Surgeon General report concluded that there is **NO risk free level** of exposure to secondhand smoke
- Second hand smoke even in short exposures can cause platelets to become stickier, damage blood vessel lining, decrease coronary flow velocity, and reduce heart rate variability → all of these can increase the risk of a heart attack
- **3,400 lung cancer deaths / year**
- **46,000 heart disease deaths / year**



# Smoking

## ➤ Smoking by Parents

### ➤ Exacerbation of asthma

→ 400,000 – 1,000,000 asthma episodes per year

### ➤ Increased frequency of colds and ear infection

→ 790,000 ear infections per year

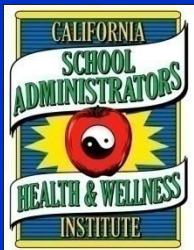
### ➤ Increased risk of respiratory infections

→ 150,000 - 300,000 lower respiratory infections per year

### ➤ Increased frequency of Sudden Infant Death Syndrome

→ 430 cases per year

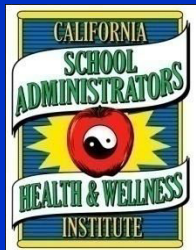
➤ 21 million or 35% of children live with smokers on a regular basis



# Smoking

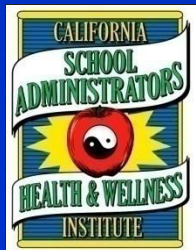
## Cigar smoking

- 5.8% or 12.8 million Americans were current cigar smokers in 2005
- 10.1% or 10.6 million of men
- 1.7% or 2 million of women
- 2007: 13.6% high school students (19.4% of boys and 7.6% of girls)
- 2004: 5.3% of middle school students
  
- Cigars contain the same addictive and carcinogenic compounds as cigarettes
- A single large cigar can contain as much tobacco as an entire pack of cigarettes
  
- Cigar smoking causes
  - Lung Cancer
  - Oral Cavity Cancer
  - Larynx Cancer
  - Esophageal Cancer
  - Pancreatic Cancer
  - COPD



# What to do about Smoking

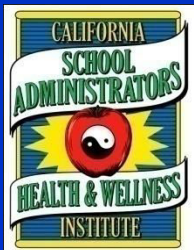
- WHO proven policies for effective tobacco control
  - Raising taxes and prices
    - Price of cigarettes has very significant effect on youth smoking → every 10% increase in price decreased youth consumption by 7%
  - Banning advertising, promotion and sponsorship
  - Protecting people from secondhand smoke
  - Warning everyone about the dangers of tobacco
  - Offering help to people who want to quit
  - Carefully monitoring the epidemic and prevention policies



# Smoking

## Smoking Cessation

- Quitting often requires multiple attempts
- Cutting down on cigarettes but not quitting **DOES NOT** reduce mortality risks from tobacco related illnesses
- **Only 5% long term success with quitting “cold turkey”**
- Counseling and medication in combination is more effective than either one alone
- There are 7 FDA approved medications to aid in quitting smoking

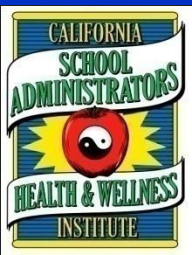




# Smoking

## Benefits

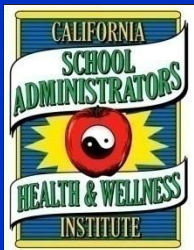
- **20 minutes after last cigarette:**  
blood pressure decreases; pulse rate drops; and body temperature increases
- **8 hours after quitting:**  
carbon monoxide level in blood drops to normal; oxygen level in blood increases to normal
- **24 hours after quitting:**  
chance of a heart attack decreases
- **48 hours after quitting:**  
nerve endings start regrowing; ability to smell and taste is enhanced
- **2 weeks to 3 months after quitting:**  
circulation improves; walking becomes easier; lung function increases
- **1 to 9 months after quitting:**  
coughing, sinus congestion, fatigue, shortness of breath decreases



# Smoking

## Benefits

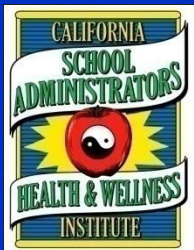
- **1 year after quitting:**  
excess risk of coronary heart disease is decreased to half that of a smoker
- **5 to 15 years after quitting:**  
stroke risk is reduced to that of people who have never smoked
- **10 years after quitting:**  
risk of lung cancer drops to as little as one-half that of continuing smokers  
risk of cancer of the mouth, throat, esophagus, bladder, kidney, and pancreas decreases  
risk of ulcer decreases
- **15 years after quitting:**  
risk of coronary heart disease is now similar to that of people who have never smoked  
risk of death returns to nearly the level of people who have never smoked



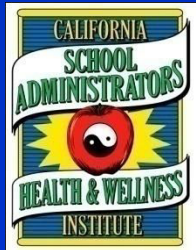
# Smoking

## Life Expectancy Benefit

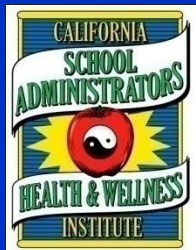
- Quit at age 35 years
- Increase in life expectancy versus those who continue to smoke:
- 6.9 to 8.5 years for men
- 6.1 to 7.7 years for women
  
- Quit at age 45 years
- Increase in life expectancy versus those who continue to smoke:
- 5.6 to 7.1 years for men
- 5.6 to 7.2 years for women
  
- Quit at age 55 years
- Increase in life expectancy versus those who continue to smoke:
- 3.4 to 4.8 years for men
- 4.2 to 5.6 years for women
  
- Quit at age 65 years
- Increase in life expectancy versus those who continue to smoke:
- 1.4 to 2.0 years for men
- 2.7 to 3.7 years for women



# Heart Disease



# Prevalence Incidence

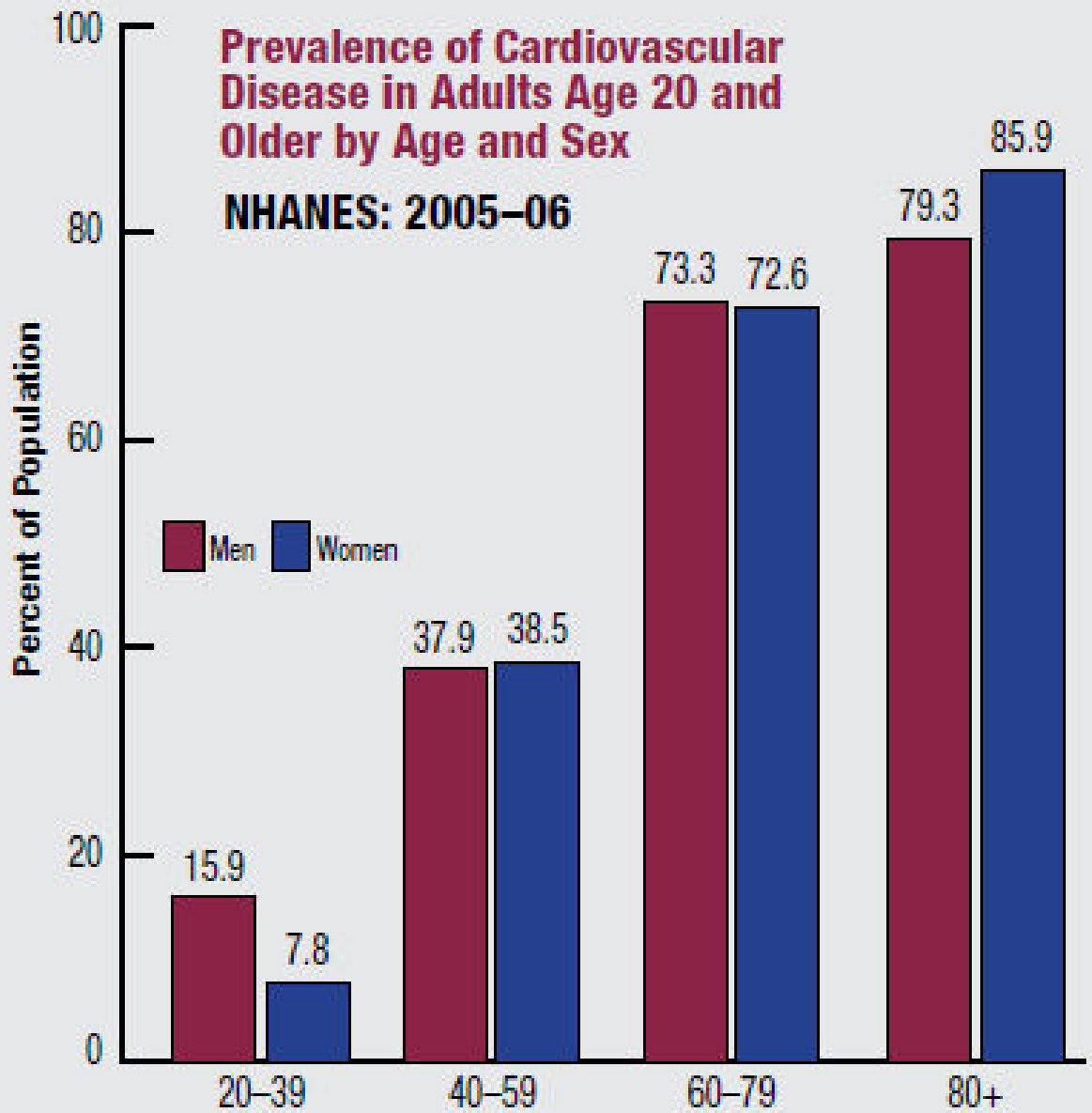


Diseases and Risk Factors	Both Sexes
<b>Total Cardiovascular Disease</b>	
Prevalence 2006**	80.0 M (36.3%)
Mortality 2005++	864.5 K
<b>Coronary Heart Disease</b>	
Prevalence 2006 CHD**	16.8 M (7.6%)
Prevalence 2006 MI**	7.9 M (3.6%)
Prevalence 2006 AP**	9.8 M (4.4%)
New and recurrent CHD* ##	1.26 M
New and recurrent MI##	935.0 K
Incidence AP (stable angina) #	500.0 K
Mortality 2005 CHD++	445.7 K
Mortality 2005 MI++	151.0 K

**Estimated 80 million  
Americans have one or  
more type of  
Cardiovascular Disease →  
1 in 3 American Adults**

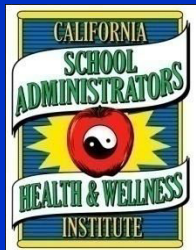
**Table 2-1. Cardiovascular Disease**

Population Group	Prevalence, 2006 Age ≥20 y
Both sexes	80 000 000 (36.3%)
Males	38 700 000 (37.6%)
Females	41 300 000 (34.9%)
NH white males	37.8%
NH white females	33.3%
NH black males	45.9%
NH black females	45.9%
Mexican American males	26.1%
Mexican American females	32.5%



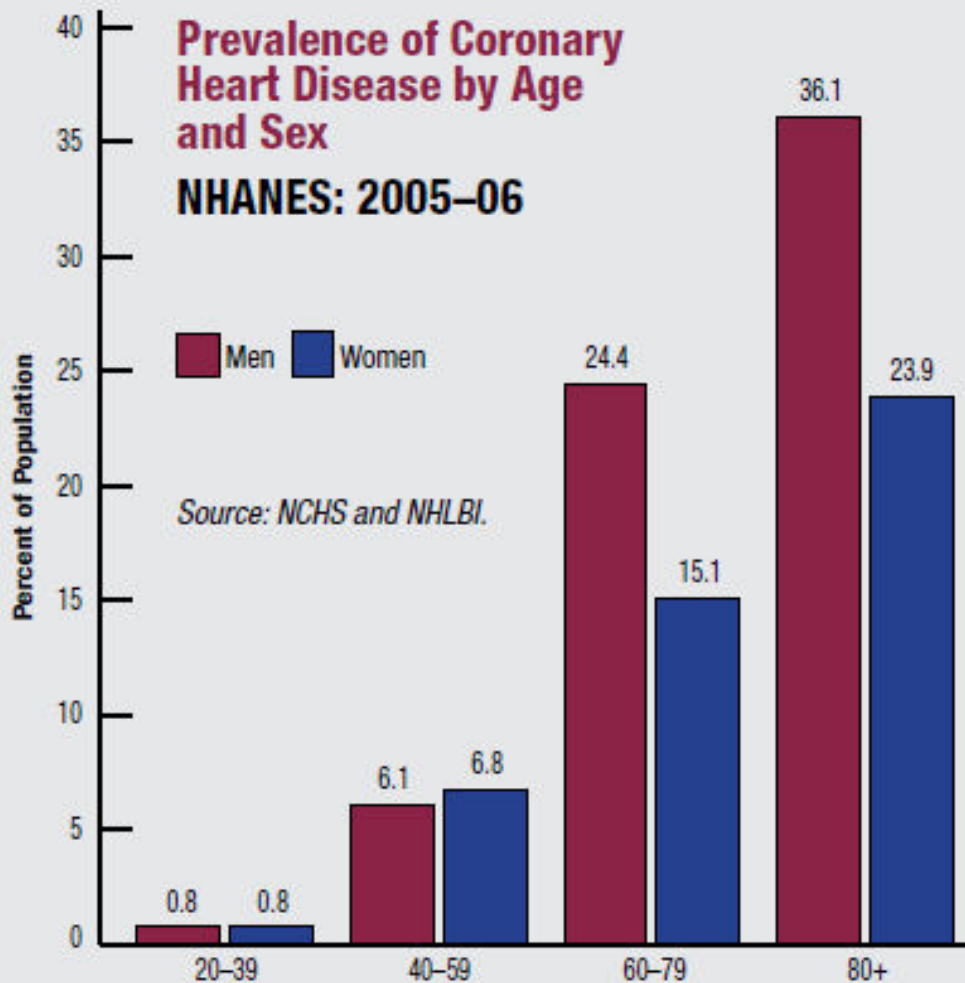
Source: NCHS and NHLBI.

These data include CHD, HF, stroke and hypertension.



## Prevalence of Coronary Heart Disease by Age and Sex

NHANES: 2005–06



### Stroke

Prevalence 2006**	6.5 M (2.9%)
New and recurrent strokes++	795.0 K
Mortality 2005++	143.6 K

### High Blood Pressure

Prevalence 2006**	73.6 M (33.3%)
Mortality 2005++	57.4 K

### Heart Failure

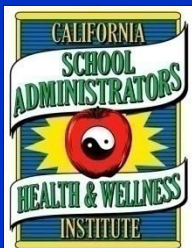
Prevalence 2006**	5.7 M (2.5%)
Mortality 2005++ ≠	292.2 K

### Tobacco

Prevalence 2006+	47.1 M (20.8%)
------------------	----------------

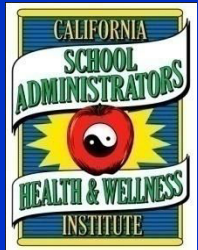
### Blood Cholesterol

Prevalence 2006:	
Total cholesterol $\geq 200$ mg/dL**	98.6 M (45.1%)
Total cholesterol $\geq 240$ mg/dL**	34.4 M (15.7%)
LDL cholesterol $\geq 130$ mg/dL**	71.8 M (32.8%)
HDL cholesterol $< 40$ mg/dL**	33.9 M (15.5%)





# Mortality



**Table 2-1. Cardiovascular Disease**

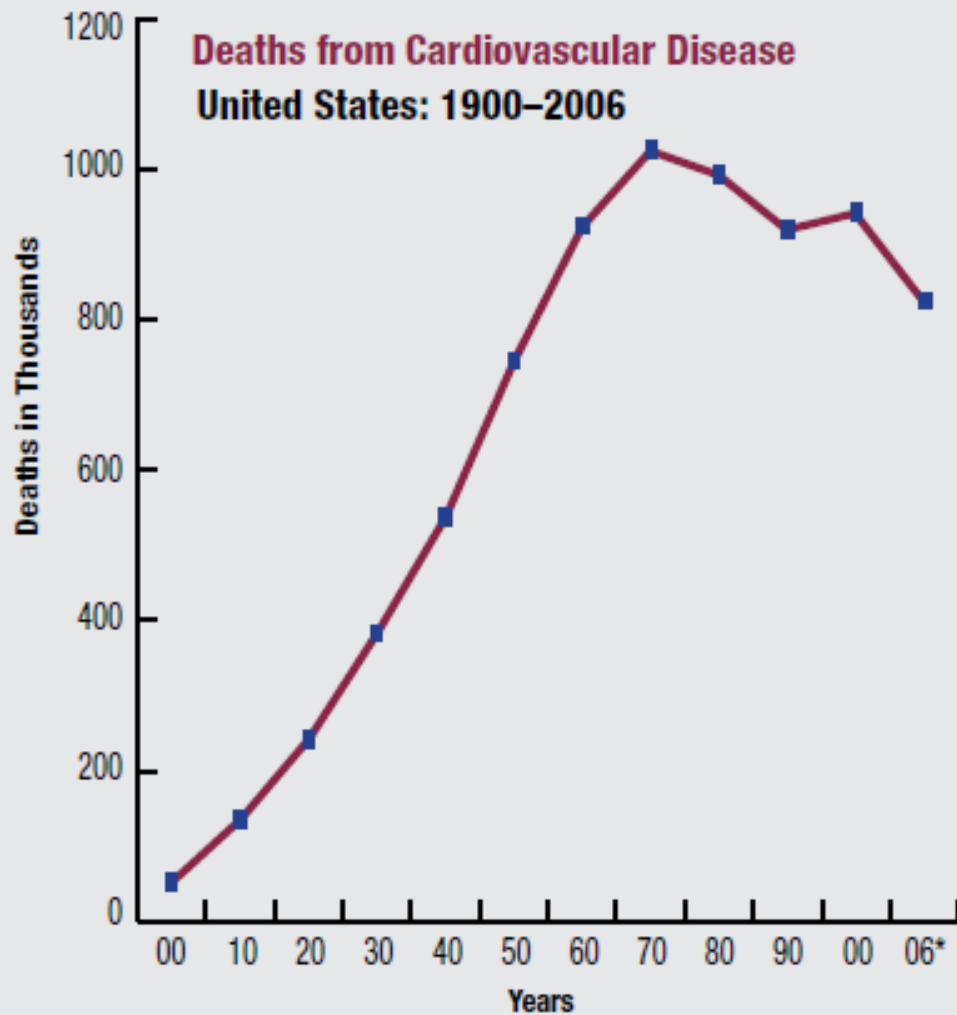
Population Group	Prevalence, 2006 Age $\geq$ 20 y	Mortality, 2005 All Ages*
Both sexes	80 000 000 (36.3%)	864 480
Males	38 700 000 (37.6%)	409 867 (47.4%)†
Females	41 300 000 (34.9%)	454 613 (52.6%)†
NH white males	37.8%	329 607
NH white females	33.3%	372 191
NH black males	45.9%	47 384
NH black females	45.9%	52 401

**Cardiovascular Disease accounts for 35.3% of all deaths in 2005, or one of every 2.8 deaths in the United States.**

**2,400 Americans die of CVD each day → one death every 37 seconds**

**In every year since 1900 except 1918, CVD accounted for more deaths than any other cause.**

### Deaths from Cardiovascular Disease United States: 1900–2006



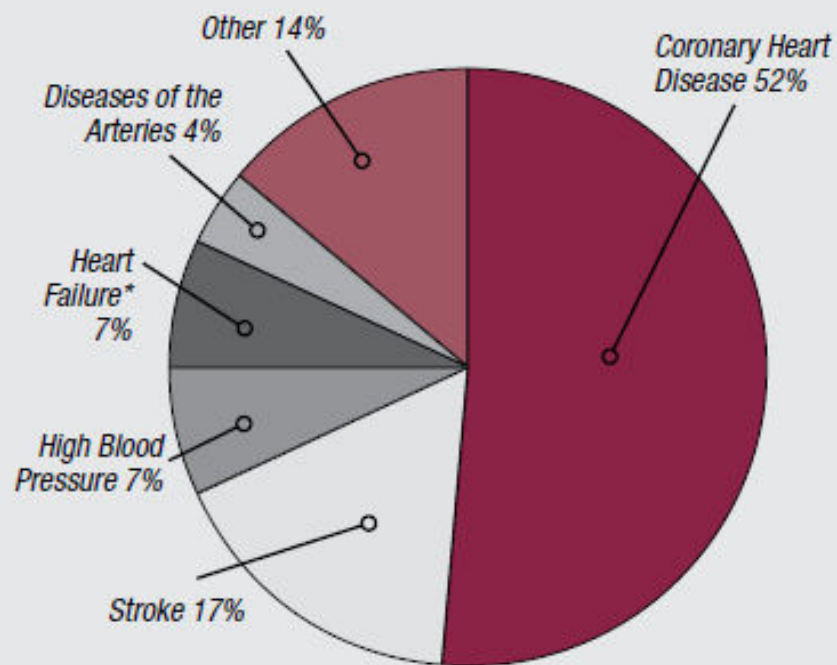
Source: NCHS.

Note: Cardiovascular disease does not include congenital heart disease.

\*Preliminary

### Percentage Breakdown of Deaths from Cardiovascular Diseases

United States: 2006 (Preliminary)



Source: NCHS. \*Not a true underlying cause.

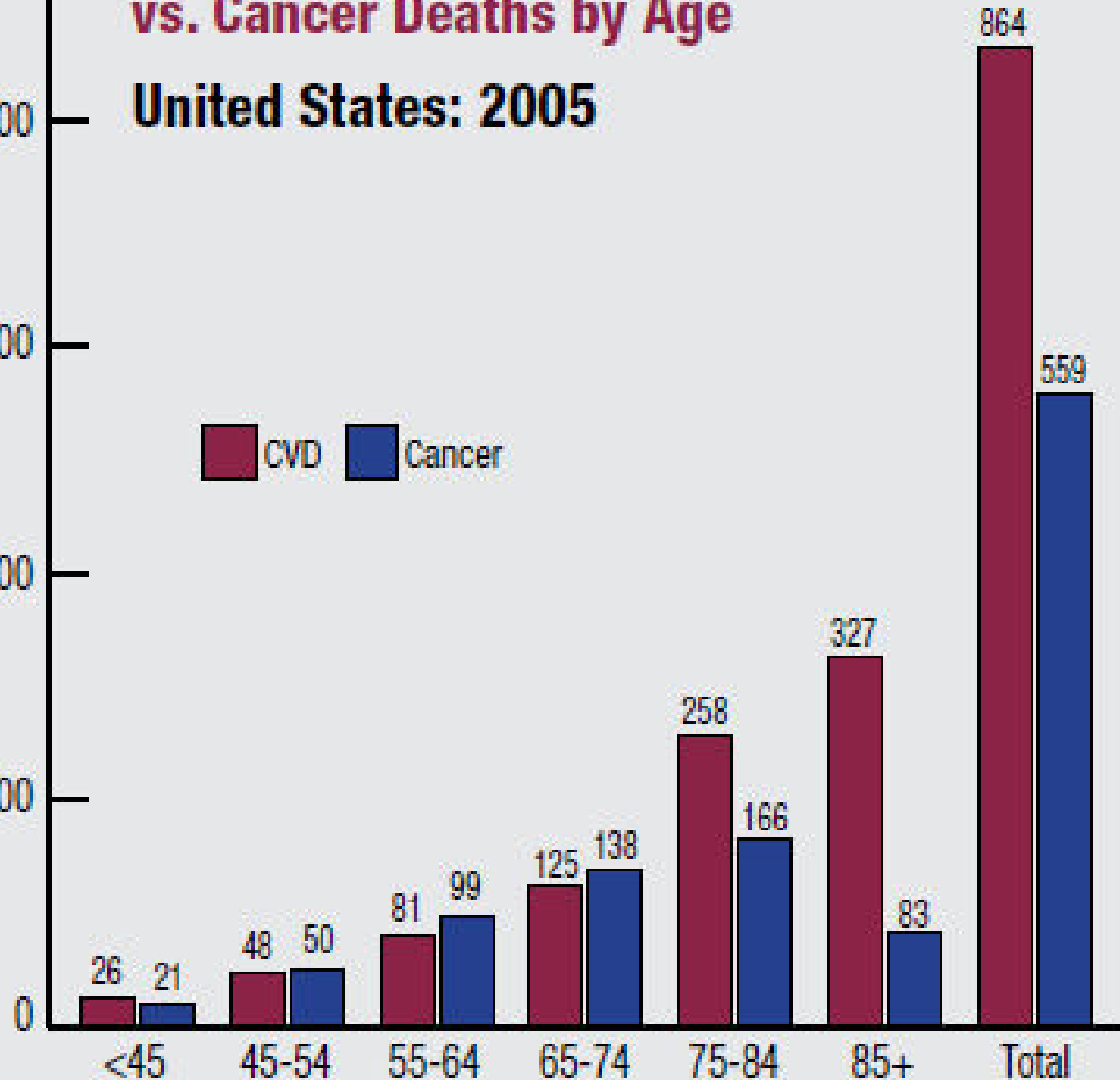
Note: May not add to 100% due to rounding.

# Cardiovascular Disease Deaths vs. Cancer Deaths by Age

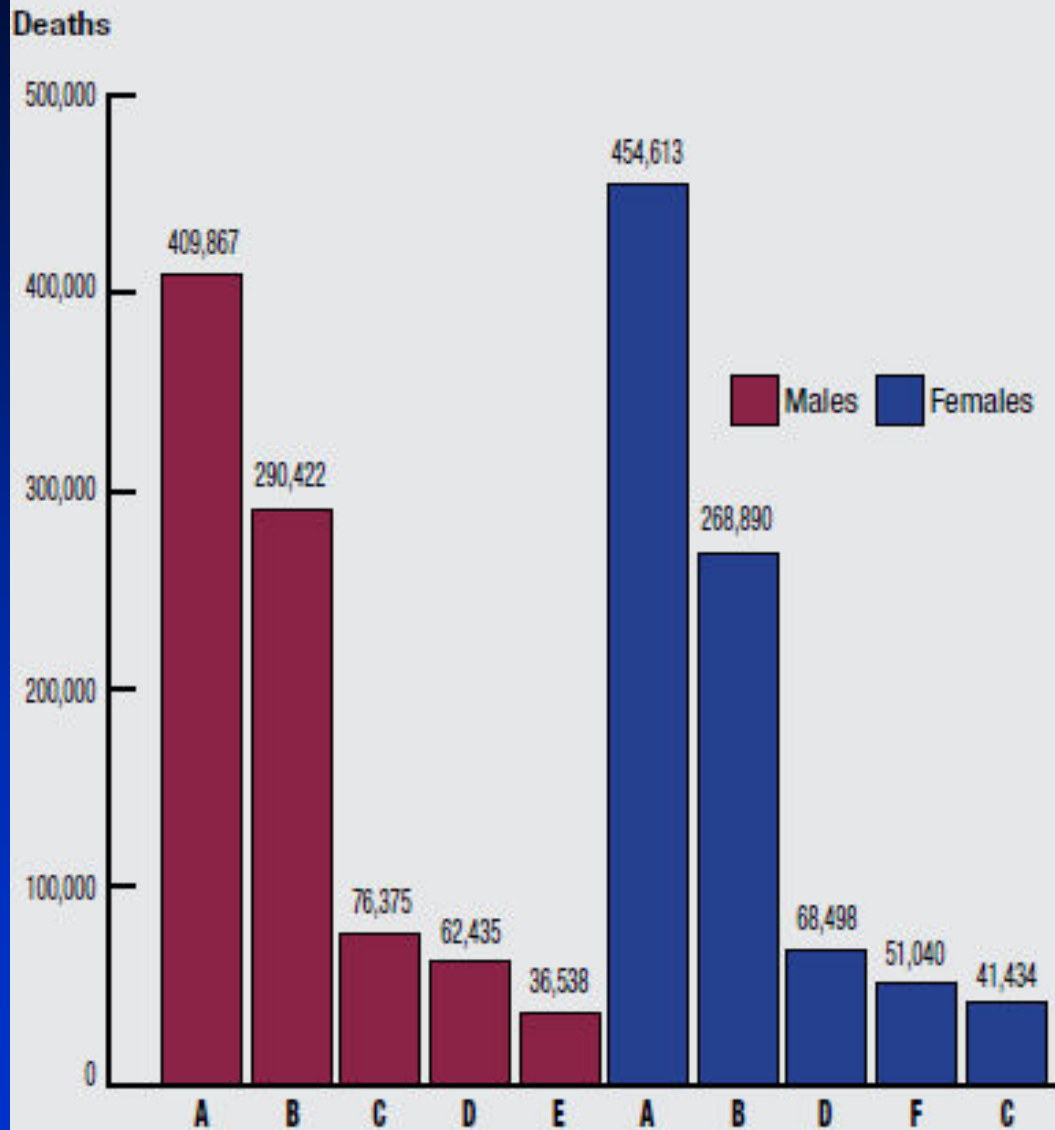
United States: 2005

Deaths in Thousands

CVD Cancer



## Cardiovascular Disease and Other Major Causes of Death for All Males and Females United States: 2005



Source: NCHS and NHLBI.

**Cardiovascular Disease**  
claims more lives each year than  
**Cancer,**  
**Chronic Lower Respiratory**  
**Diseases,**  
**Accidents, and**  
**Diabetes Mellitus**  
**COMBINED!**

### Males

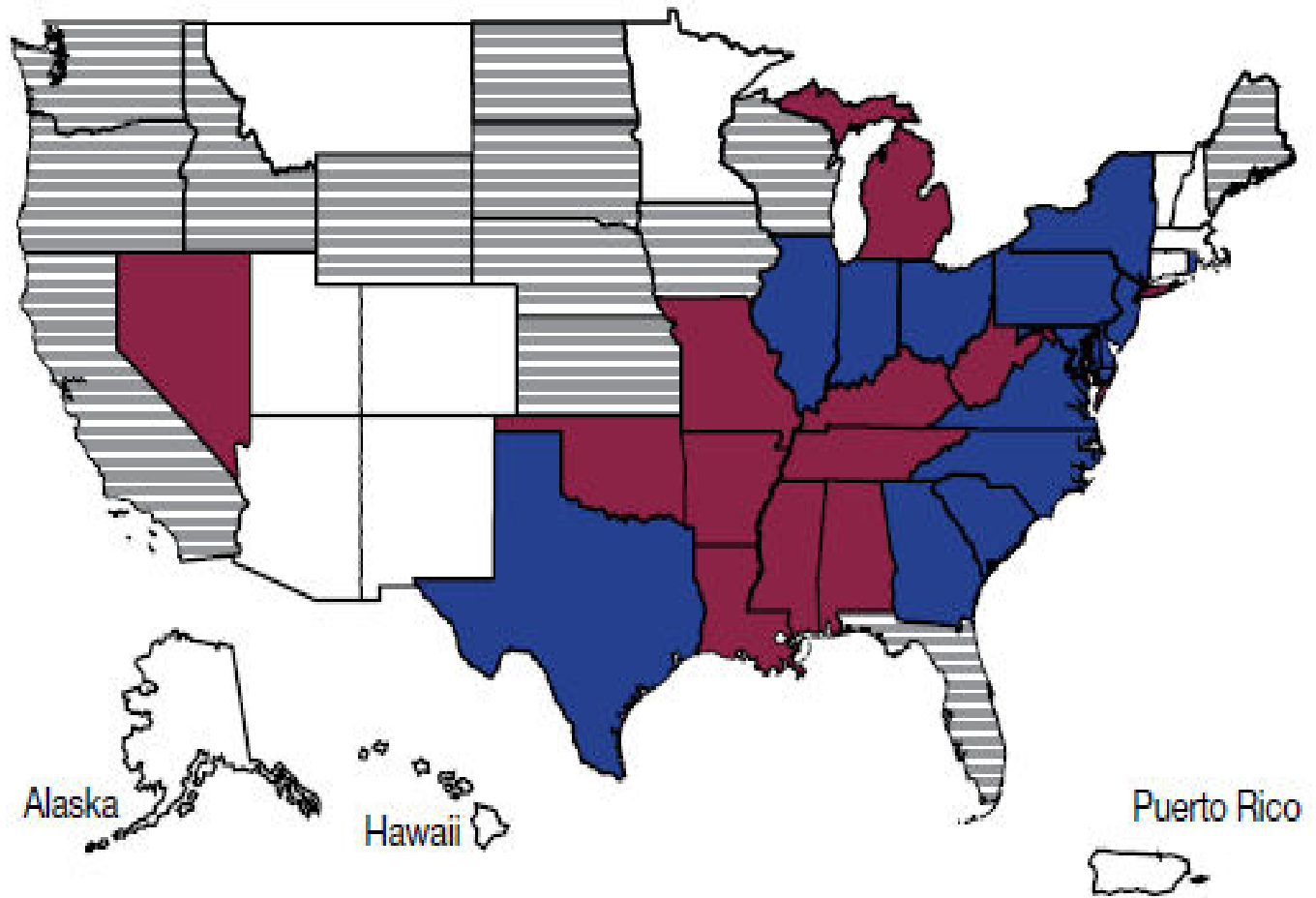
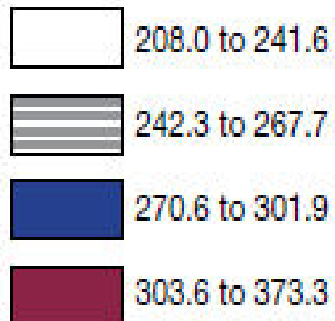
CVD+Congenital Cardiovascular Defects	A
Cancer	B
Accidents	C
Chronic Lower Respiratory Disease	D
Diabetes	E

### Females

CVD+Congenital Cardiovascular Defects	A
Cancer	B
Chronic Lower Respiratory Disease	D
Alzheimer's	F
Accidents	C

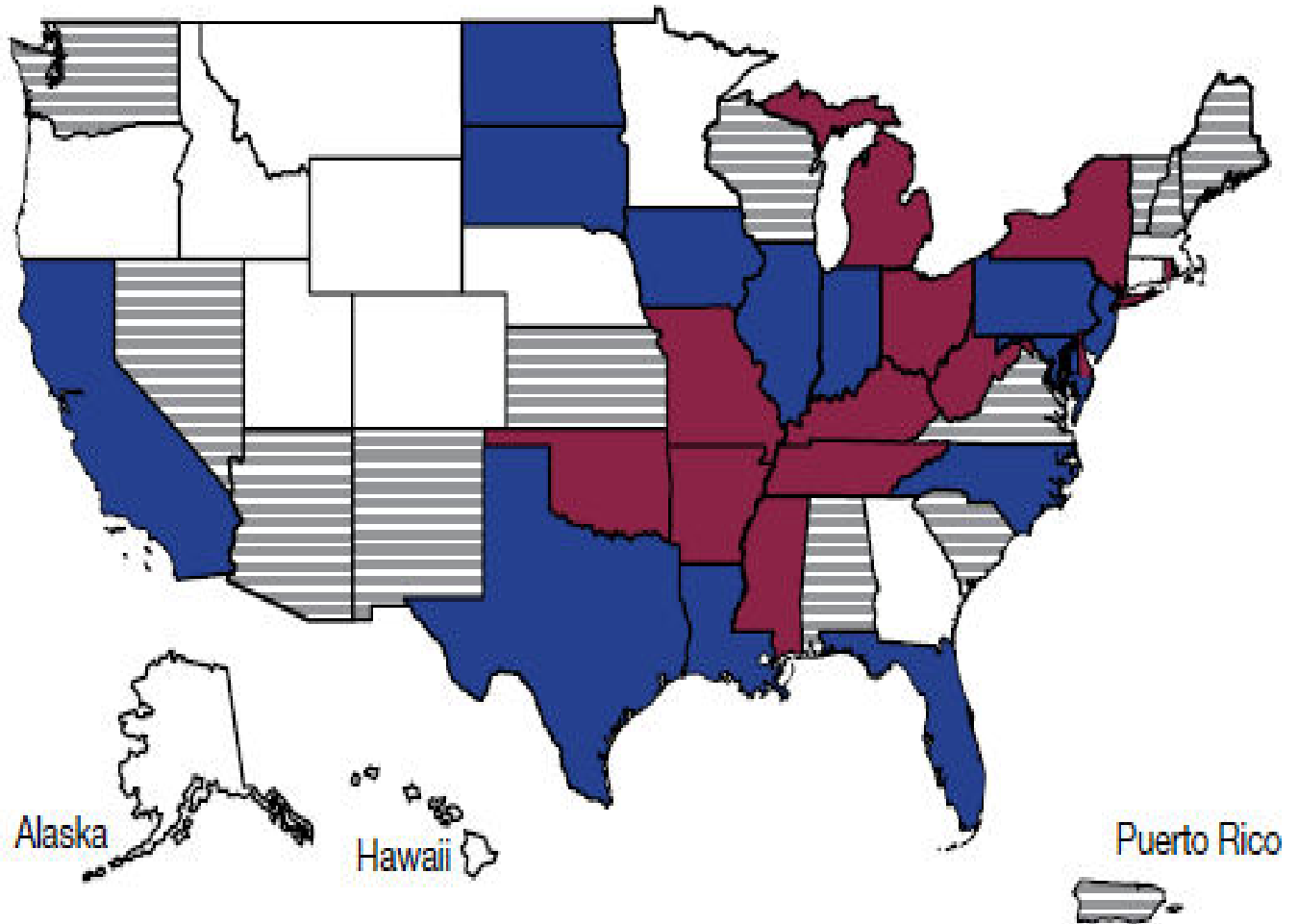
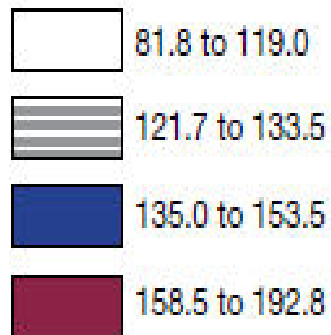
## 2005 Total Cardiovascular Disease Age-Adjusted Death Rates by State

Death Rates Per  
100,000 Population

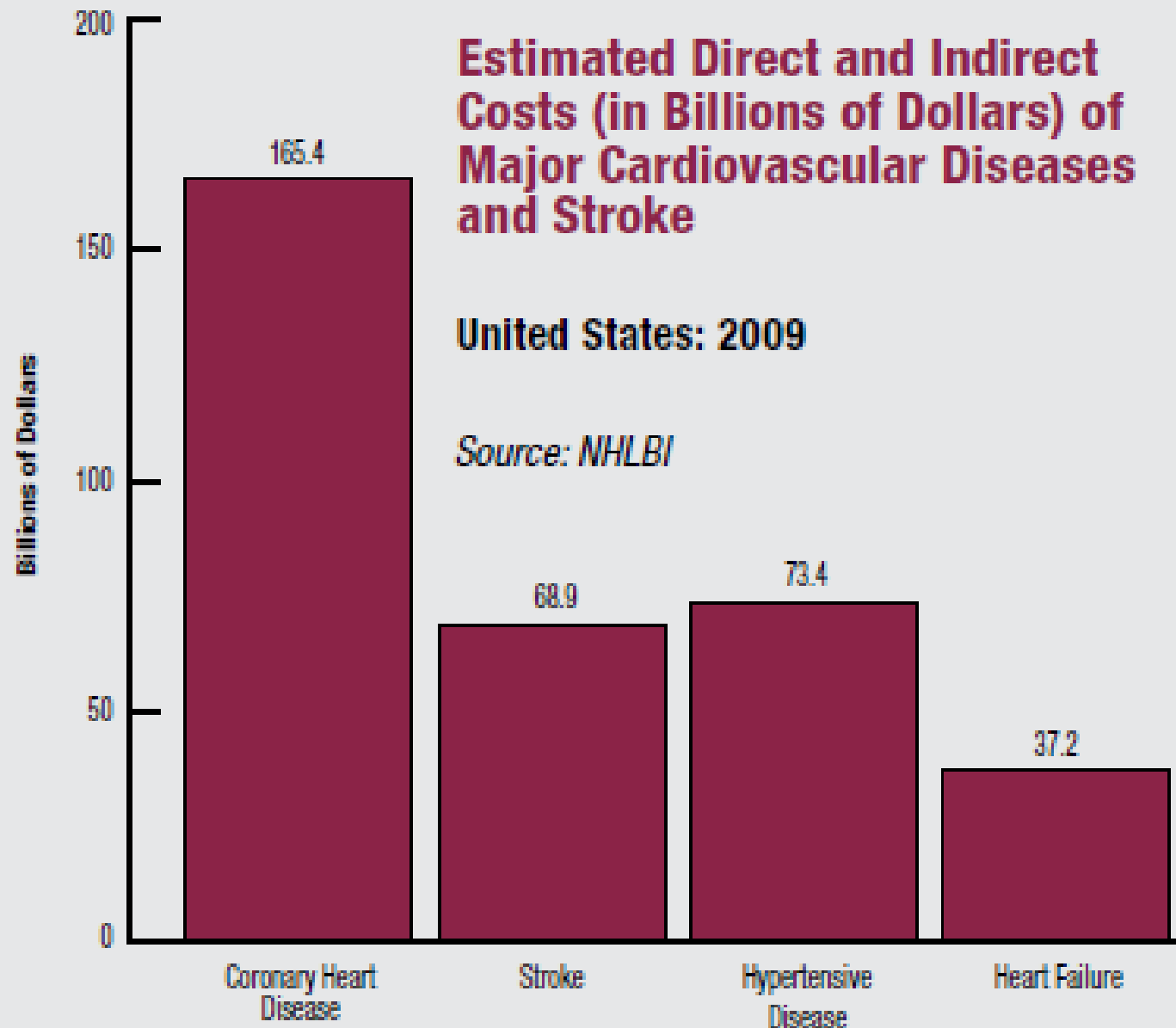


## 2005 Coronary Heart Disease Age-Adjusted Death Rates by State

Death Rates Per  
100,000 Population



# Cost



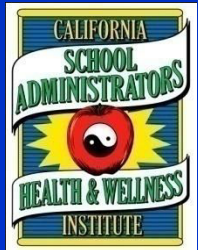


# Cost

Table 20-1. Estimated Direct and Indirect Costs (in Billions of Dollars) of CVD and Stroke: United States: 2009<sup>1-5</sup>

	Heart Diseases*	CHD	Stroke	Hypertensive Disease	HF	Total CVD†
<b>Direct costs</b>						
Hospital	\$106.3	\$54.6	\$20.2	\$8.2	\$20.1	\$150.1
Nursing home	\$23.4	\$12.3	\$16.2	\$4.8	\$4.5	\$48.2
Physicians/other professionals	\$23.8	\$13.4	\$3.7	\$13.4	\$2.4	\$46.4
<b>Drugs/other</b>						
Medical durables	\$22.1	\$10.3	\$1.4	\$25.4	\$3.3	\$52.3
Home health care	\$7.4	\$2.2	\$4.4	\$2.4	\$3.4	\$16.8
Total expenditures‡	\$183.0	\$92.8	\$45.9	\$54.2	\$33.7	\$313.8
<b>Indirect costs</b>						
Lost productivity/morbidity	\$24.0	\$10.6	\$7.0	\$8.4	...	\$39.1
Lost productivity/mortality‡	\$97.6	\$62.0	\$16.0	\$10.8	\$3.5	\$122.4
<b>Grand totals‡</b>	<b>\$304.6</b>	<b>\$165.4</b>	<b>\$68.9</b>	<b>\$73.4</b>	<b>\$37.2</b>	<b>\$475.3</b>

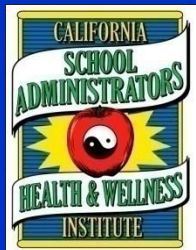
# Risk Factors



# Risk Factors

## ➤ Healthy Lifestyle Characteristics

- Non Smoking 76.0 %
- Healthy Weight 40.1 %
- Five Fruits & Vegetables per day 23.3 %
- Regular Physical Activity 22.2 %
- All 4 Above 3.0 %



# Risk Factors

## ➤ Family History

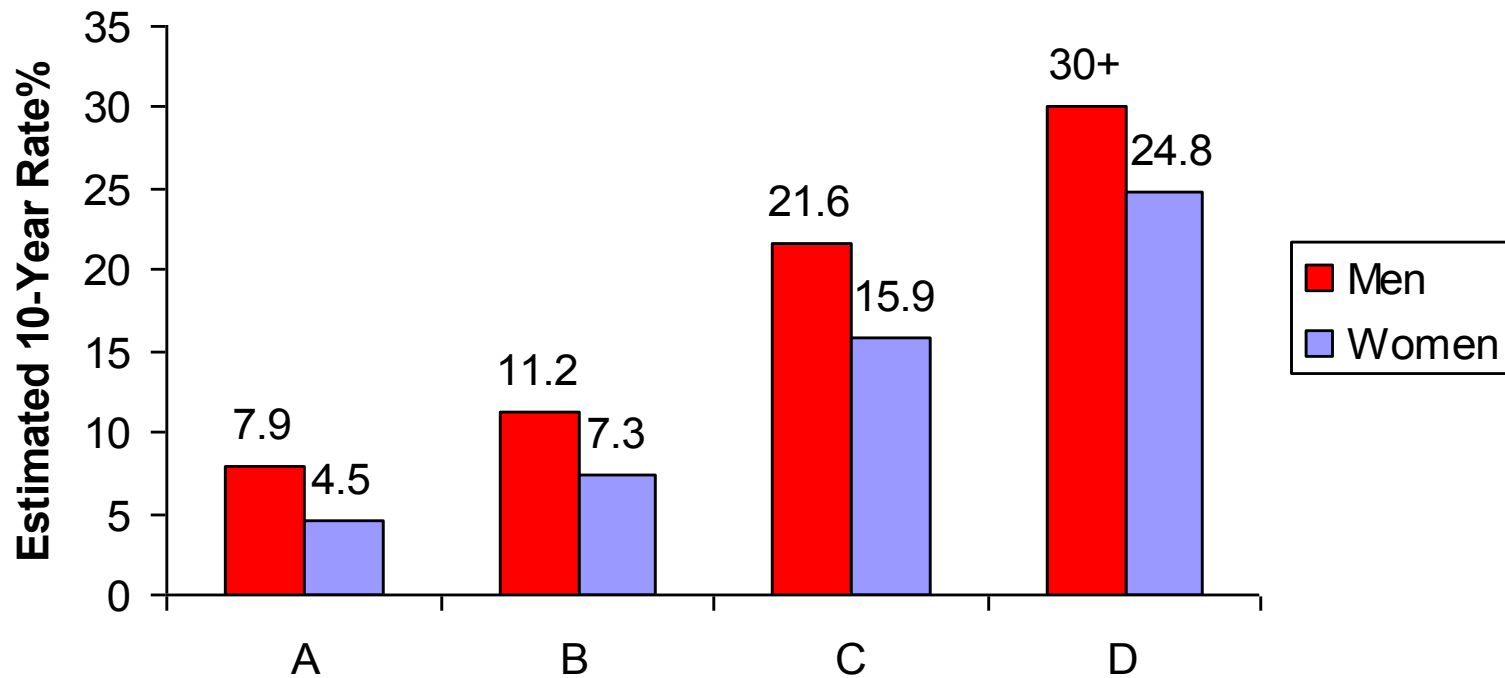
- Cardiovascular disease in parent or sibling associated with **two-fold increase** risk of Cardiovascular disease, **independent** of other risk factors

## ➤ Optimal Risk Factor Profile

- 7900 men and women
- Blood pressure below 120/80 mm Hg
- Total cholesterol below 180 mg/dL
- Non smoker
- No diabetes
- Median **life expectancy was 10 or more years longer** than those with 2 or more major risk factors

## ➤ Diet and Activity

- People age 70-90 eating **Mediterranean-style diet** and **Greater physical activity** → **65-73% lower rate of mortality** including Cardiovascular disease and Cancer

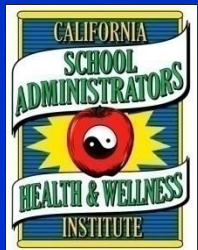


	A	B	C	D
Age	50-54	50-54	50-54	50-54
HDL Cholesterol, mg/dL	45-49	45-49	35-44	35-44
Total Cholesterol (mg/dL)	160-199	200-239	200-239	200-239
Systolic BP mm/Hg, no treat.	120-129	130-139	130-139	130-139
Smoker	No	No	No	Yes
Diabetes	No	No	Yes	Yes

**Estimated 10-Year CVD risk in 50-54-year-old adults according to levels of various risk factors (Framingham Heart Study).**  
**Source: D'Agostino et al., Circulation. 2008;117:743-753.**

# Nutrition

## “America’s Obesity Problem”



# Overweight and Obesity

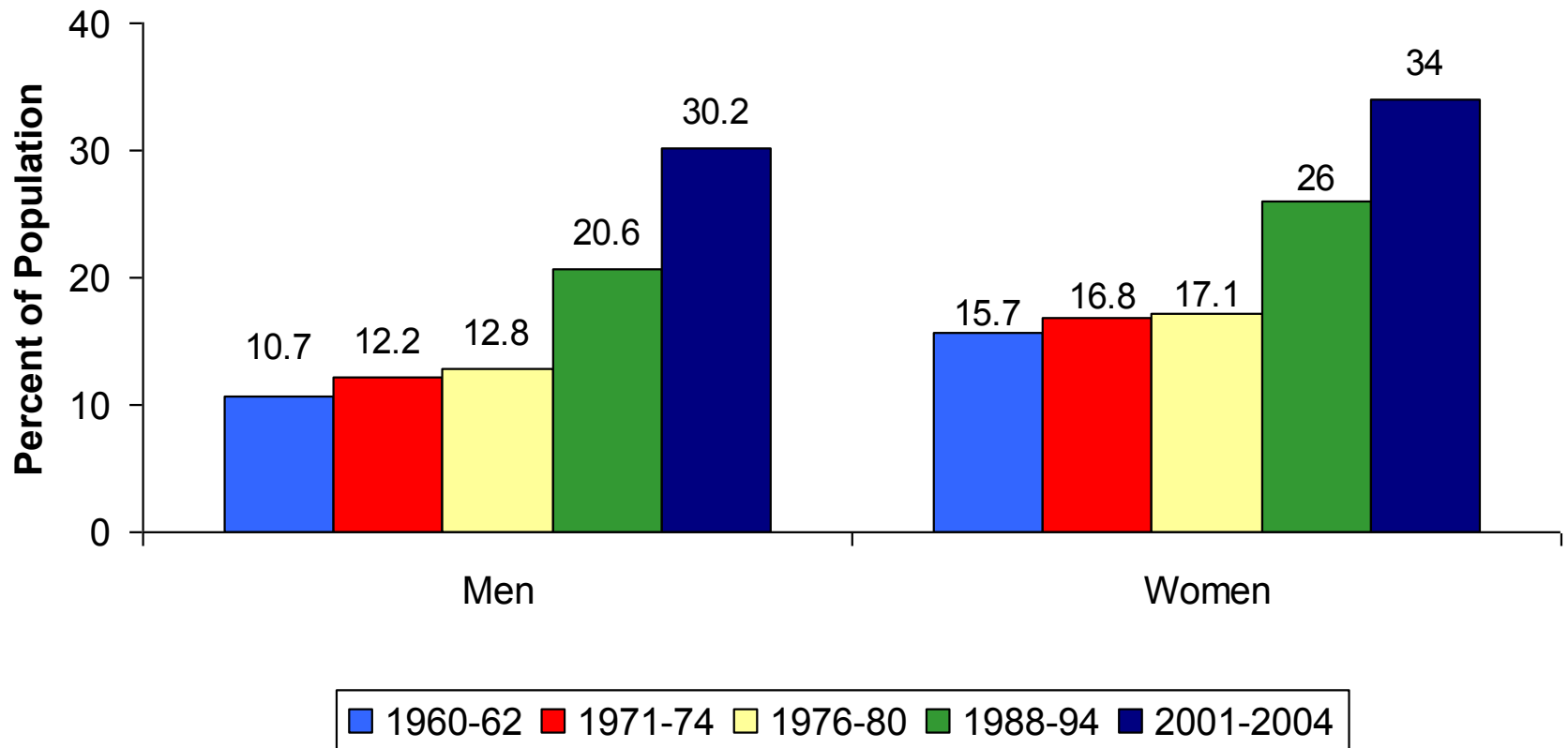
## Adults

- Overweight (BMI > 25)
- Obesity (BMI > 30)
  
- **145 million** Americans are **Overweight or Obese** → **66.7%** of the Adult Population
- **71 million Overweight**
- **74 million Obese**
  
- 1999 to 2003
  - Overweight ↑ **1.8%**
  - Obesity ↑ **3.8%**
  - Extreme Obesity (BMI >40) ↑ **1.2%**
  
- Cost
  - Between \$92 - \$117 billion annually (2002)

Worldwide  
By 2015,  
number of **overweight** people will be **2.3 billion**  
and  
**obese** people will number **700 million**

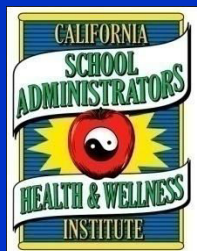
Table 13-1. Overweight and Obesity

Population Group	Prevalence of Overweight and Obesity in Adults, 2006 Age ≥20 y	Prevalence of Obesity in Adults, 2006 Age ≥20 y
Both sexes, n (%)	145 000 000 (66.7)	74 100 000 (33.9)
Males, n (%)	76 900 000 (73.0)	34 700 000 (32.7)
Females, n (%)	68 100 000 (60.5)	39 400 000 (35.0)
NH white males, %	72.4	32.3
NH white females, %	57.5	32.7
NH black males, %	73.7	36.8
NH black females, %	77.7	52.9
Mexican American males, %	74.8	26.8
Mexican American females, %	73.0	41.9
Hispanic or Latino age ≥18 y, † %	67.8	27.5
Asian-only, age ≥18 y, † %	38.1	8.9
American Indian/Alaska Native, age ≥18 y, † %	67.1	32.4



**Age-adjusted prevalence of obesity in Adults ages 20-74 by sex and survey.**  
 (NHES, 1960-62; NHANES, 1971-74, 1976-80, 1988-94 and 2001-2004).

**Source: Health, United States, 2007. NCHS.**





# Overweight and Obesity

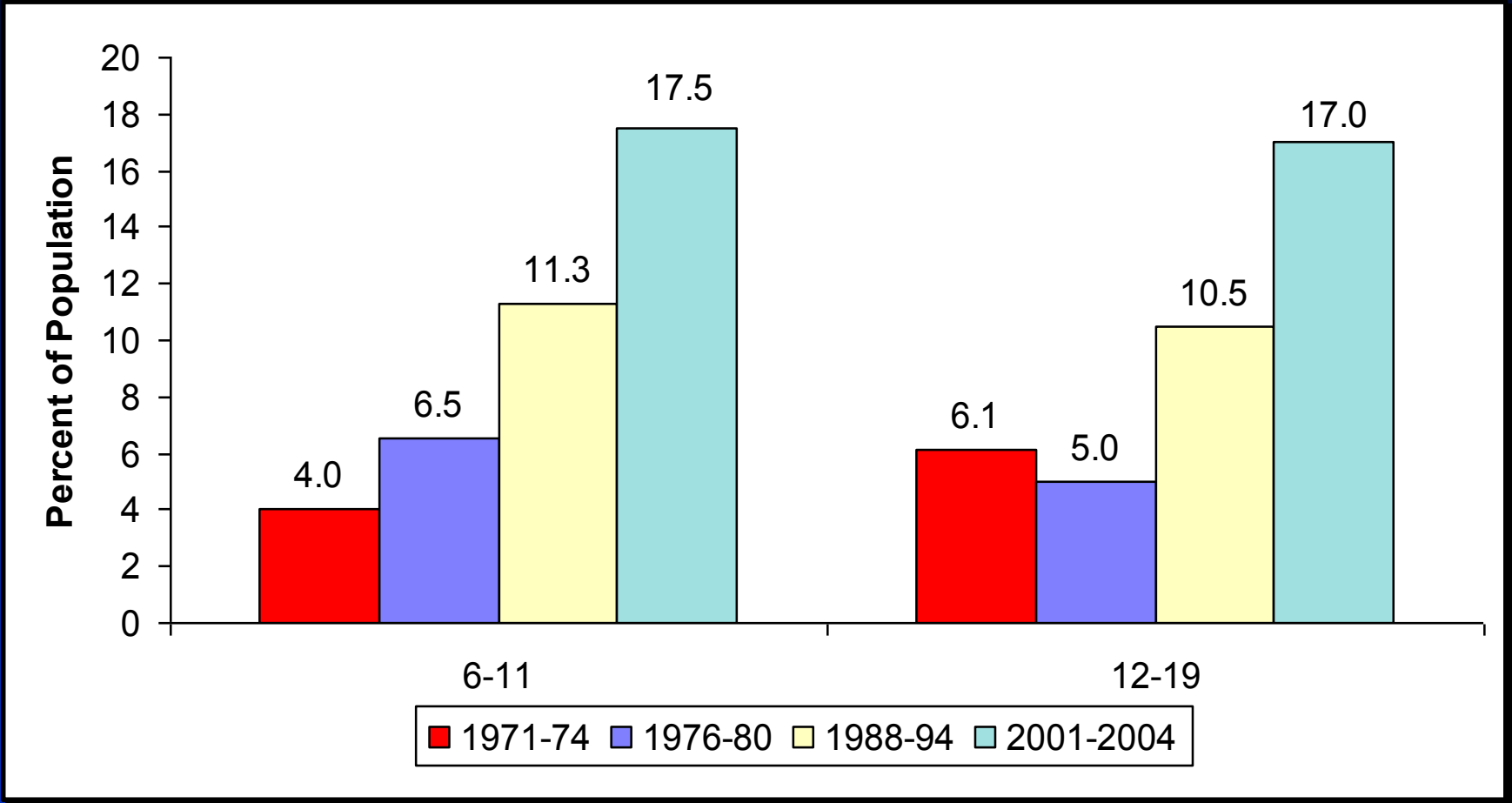
## Youth

- Overweight (BMI > 25)
- Obesity (BMI > 30)
  
- **23 million** children & adolescents are **Overweight or Obese** → **31.9%** of the Population
- **11 million Overweight**
- **12 million Obese**
  
- 1971-1974 to 2003-2006
  - Overweight ↑ from **4.0% to 17.0%** (ages 6-11)
  - Overweight ↑ from **6.1% to 17.6%** (ages 12-19)

Population Group	Prevalence of Overweight and Obesity in Children, 2006 Ages 2–19 y	Prevalence of Obesity in Children, 2006 Ages 2–19 y
Both sexes, n (%)	23 400 000 (31.9)	12 000 000 (16.3)
Males, n (%)	12 300 000 (32.7)	6 400 000 (17.1)
Females, n (%)	11 100 000 (31.0)	5 600 000 (15.5)
NH white males, %	31.9	15.6
NH white females, %	29.5	13.6
NH black males, %	30.8	17.4
NH black females, %	39.2	24.1
Mexican American males, %	40.8	23.2
Mexican American females, %	35.0	18.5
Hispanic or Latino age ≥18 y, † %	...	...
Asian-only, age ≥18 y, † %	...	...
American Indian/Alaska Native, age ≥18 y, † %	...	...

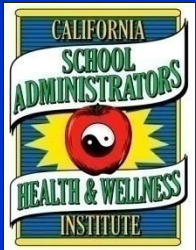
### Worldwide

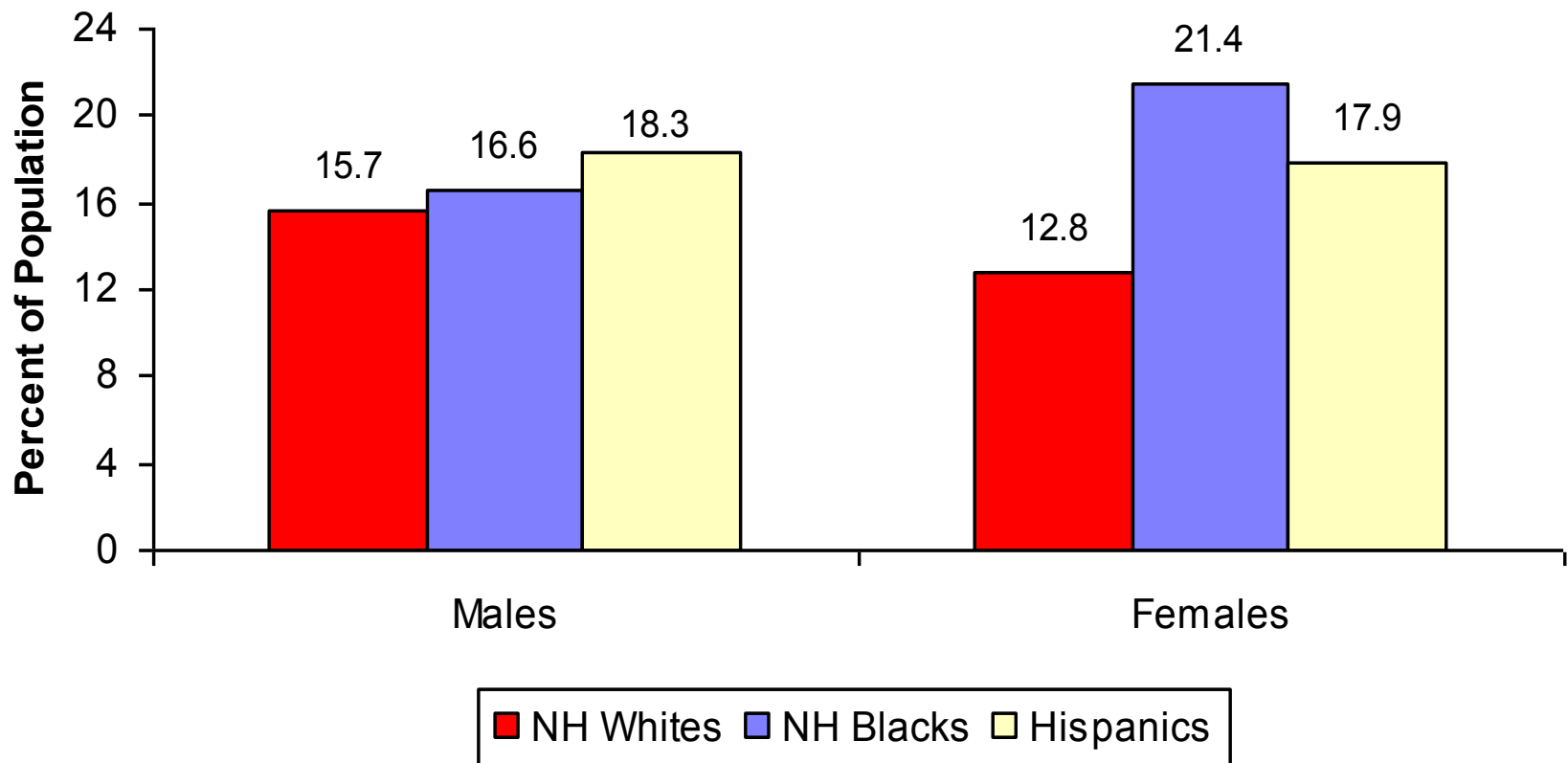
In 2005,  
number of **overweight** children  
under the age of 5 was  
**20 million**



**Trends in prevalence of overweight among U.S. children and adolescents by age and survey. (NHANES, 1971-74, 1976-80, 1988-94 and 2001-2004).**

**Source: Health, United States, 2007. NCHS.**

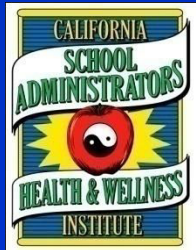




**Prevalence of overweight among students in grades 9-12 by race/ethnicity and sex (YRBS: 2007).**

**Source: MMWR. 2008 57: No. SS-4. BMI 95th percentile or higher by age and sex of the CDC 2000 growth chart. NH – non-Hispanic.**

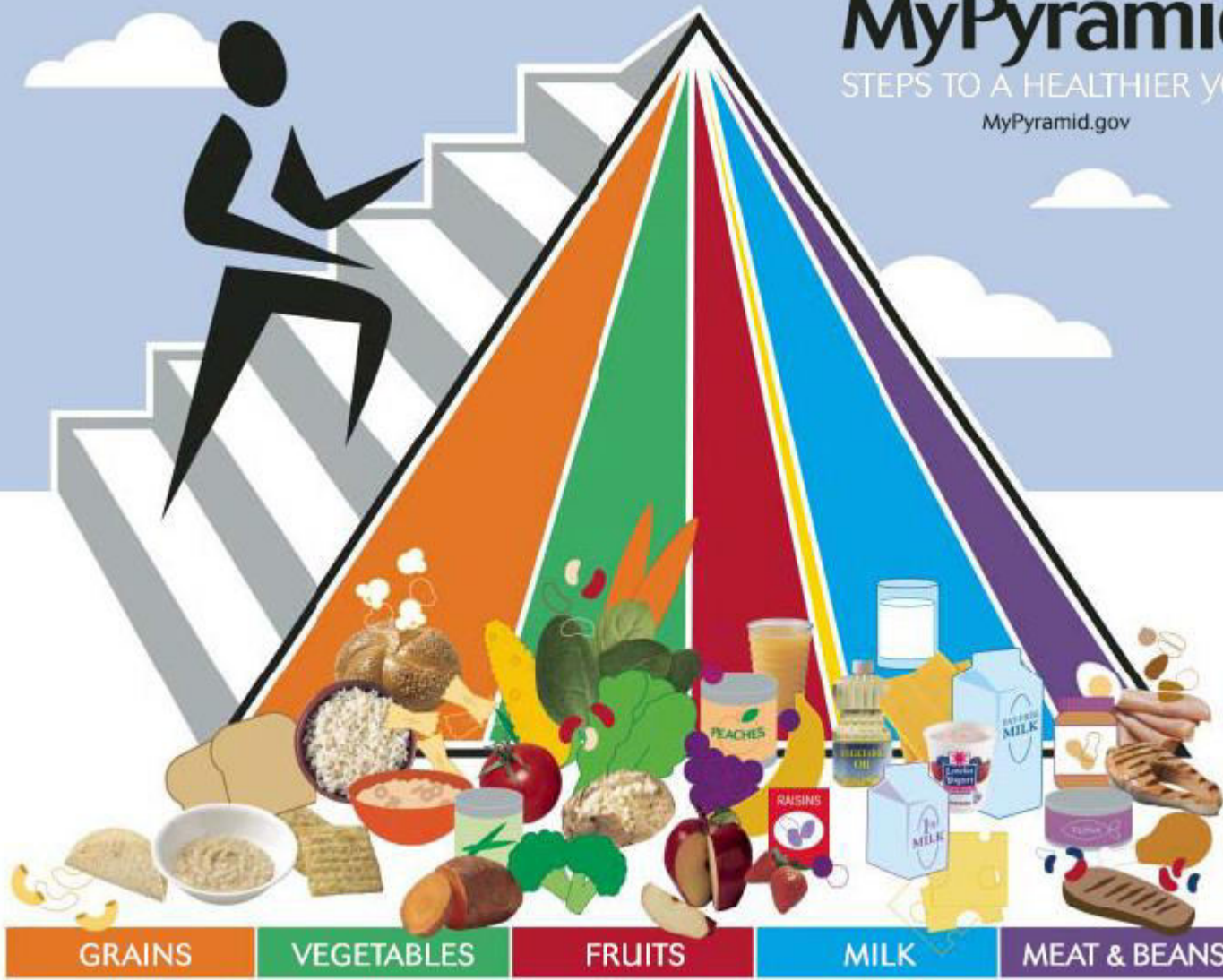
# Nutrition



# MyPyramid

STEPS TO A HEALTHIER YOU

MyPyramid.gov



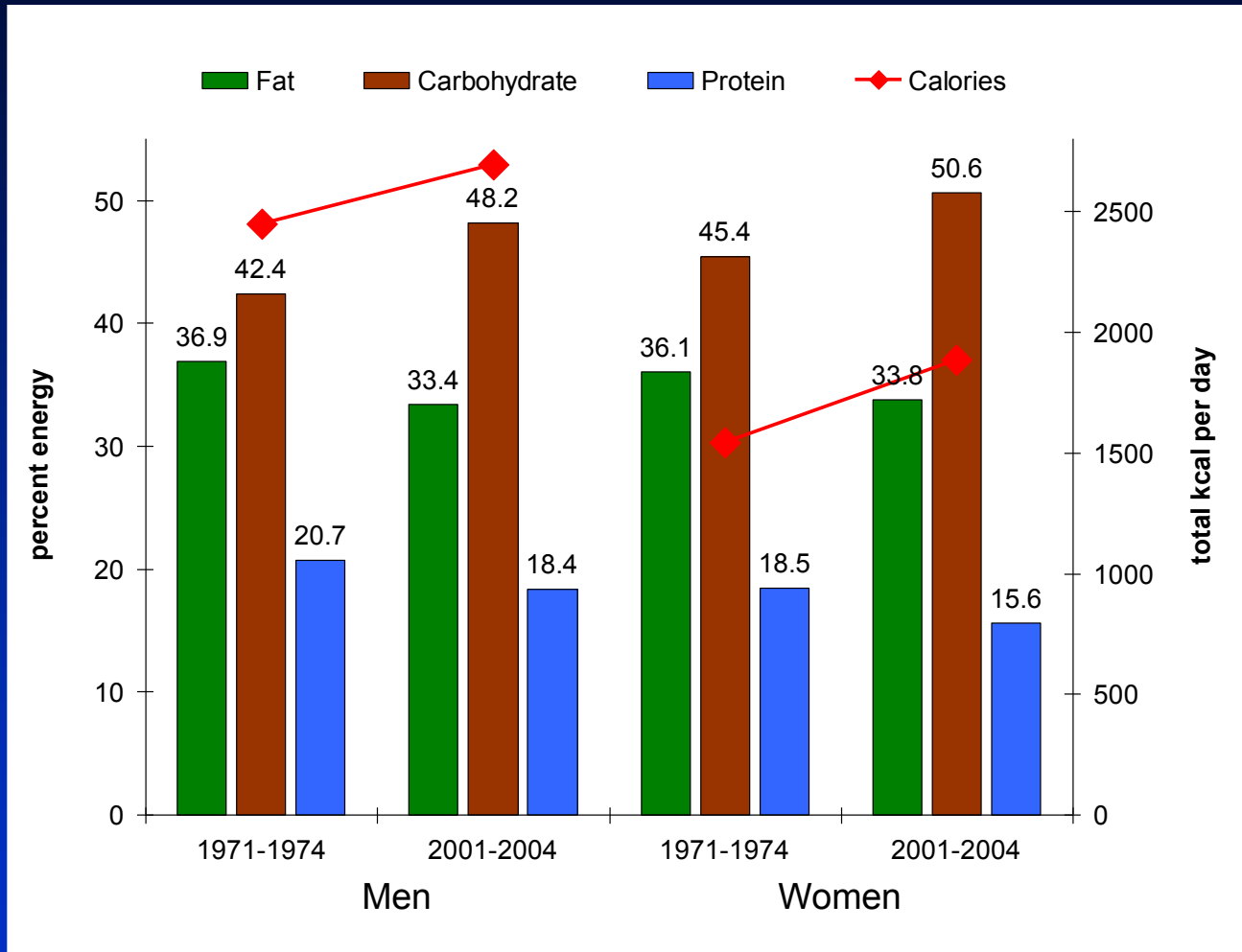
<b>GRAINS</b> Make half your grains whole	<b>VEGETABLES</b> Vary your veggies	<b>FRUITS</b> Focus on fruits	<b>MILK</b> Get your calcium-rich foods	<b>MEAT &amp; BEANS</b> Go lean with protein
<p>Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day</p> <p>1 oz. is about 1 slice of bread, about 1 cup of breakfast cereal, or ½ 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>
<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 <a href="http://MyPyramid.gov">MyPyramid.gov</a>.</p>				
<p>Eat 6 oz. every day</p>	<p>Eat 2½ cups every day</p>	<p>Eat 2 cups every day</p>	<p>Get 3 cups every day; for kids aged 2 to 8, it's 2</p>	<p>Eat 5½ oz. every day</p>

**Average consumption:**

	<u>Whole Grains</u>	<u>Vegetables</u>	<u>Fruits</u>	<u>Meat</u>
<b>Adults</b>	0.5-0.7 to 2.0 (rec: 6 – 8)	1.2 to 2.1 (rec: 4 – 5)	1.1 to 1.8 (rec: 4 – 5)	1.5 to 3.7
<b>Children</b>	0.4 to 0.5 (rec: 6)	0.8 to 0.9 (rec: 3 – 4)	0.8 to 0.9 (rec: 4)	2.1 to 3.4
	servings per day	servings per day	servings per day	servings per week

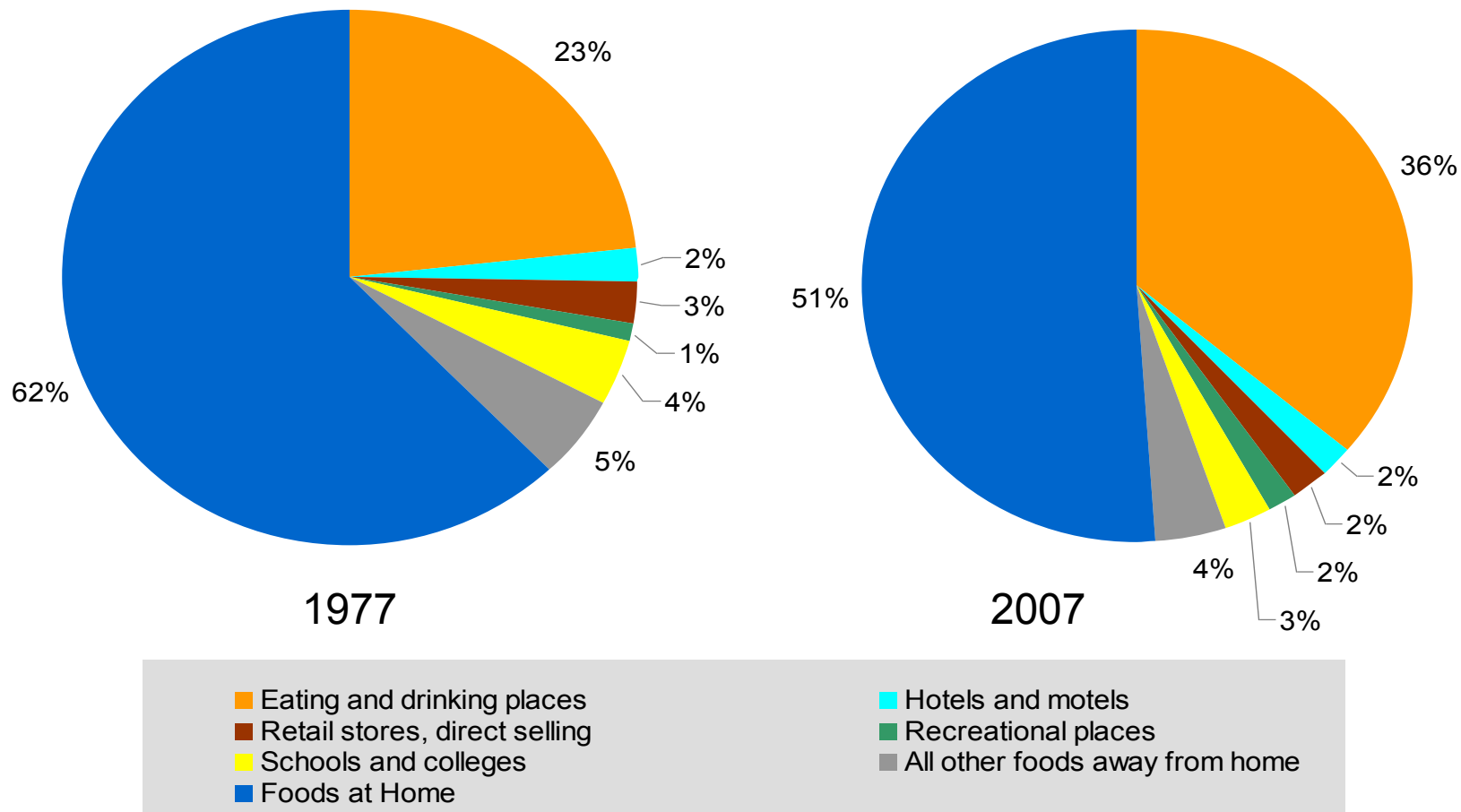
**Sugar Sweetened Beverages:** **Adults** 6 – 18 servings (8 ounces) per week **Children** 8 – 23 servings per week

**Sweets and Bakery Desserts:** **Adults** 4 – 8 servings per day  
(rec: less than 5 per week) **Children** 9 – 10 servings per week  
(rec: 0 per week)



**Figure 16-1. Age-Adjusted Trends in Macronutrients and Total Calories Consumed by U.S. Adults (20-74 years), 1971-2004.**

Source: National Center for Health Statistics. *Health, United States 2007, With Chartbook on Trends in the Health of Americans*. Hyattsville, Md: National Center for Health Statistics; 2007



**Figure 16-3. Total U.S. Food Expenditures Away from Home and At Home, 1977 and 2007.**

**Source: United States Department of Agriculture Economic Research Service**



# Recommendations

- **Choose lean meats and poultry**
  - Prepare without added saturated or trans fat
  - Remove visible fat from meat and skin from poultry
  - Choose white meat when eating poultry
  - Grill, bake or broil meats and poultry
- **Select fat-free, 1 percent fat, and low-fat dairy products**
- **Reduce *trans* fat**
  - Cut back on foods containing partially hydrogenated vegetable oils
  - Limit cakes, cookies, crackers, pastries, pies, muffins, doughnuts, and French fries
- **Eat less than 300 milligrams of cholesterol each day**
  - 200mg per egg yolk, Shellfish 50-100mg per ½ cup, 30mg per cup whole milk
- **Cut back on beverages and foods with added sugars**
- **Eat less than 2,300 milligrams of sodium per day**
- **Drink in moderation**
  - one drink per day for women
  - two drinks per day for men

# Lipid Goals

## ➤ Total Cholesterol <200

**TOTAL CHOLESTEROL:** High cholesterol may put you at risk for heart disease or stroke. Elevated cholesterol levels can be caused by diets high in cholesterol and saturated fats. Genetics or medical conditions such as diabetes, hypothyroidism, kidney disease, liver disease or pregnancy can also raise the amount of cholesterol in your blood. A cholesterol result below 200 is desired; however, extremely low levels may indicate malnutrition, intestinal malabsorption, hyperthyroidism, chronic anemia, liver disease or other medical conditions.

Reference Interval (mg/dL)

Desirable ..... 125-199  
Borderline Hig ..... 200 – 239  
High ..... greater than 239

## ➤ HDL Cholesterol > 40 at least

- Eliminate Saturated Fat
- Use Unsaturated Fat instead
- Reduce alcohol consumption
- Increase exercise

## TOTAL CHOLESTEROL-TO-HDL CHOLESTEROL RATIO:

This ratio is another indicator of heart disease risk. A ratio of 3.5 or less is associated with a lower risk of heart disease.

Reference Interval (mg/dL)

Average Risk ..... less than or equal to 5.0  
Optimal ..... less than or equal to 3.5

**HDL-CHOLESTEROL:** Elevated High Density Lipoprotein (HDL) Cholesterol is associated with decreased risk of coronary heart disease (CHD). Unlike other cholesterol levels, a high HDL result is desirable. Levels may increase with regular exercise and moderate alcohol intake. A low level of HDL cholesterol can be associated with increased risk for heart disease. Smoking has been shown to decrease HDL levels.

Reference Interval (mg/dL)

Decreased risk factor ..... greater than or equal to 60  
Increased risk facto ..... less than 40

# Lipid Goals

## ➤ LDL Cholesterol <100

- Reduce Fat → Decrease Saturated Fat and Eliminate Trans Fat
- Eat less than 300 milligrams of cholesterol each day

**LDL CHOLESTEROL:** Elevated Low Density Lipoprotein (LDL) Cholesterol is associated with an increased risk of heart disease. LDL often increases with a diet high in cholesterol and saturated fats. LDL cholesterol treatment goals depend upon heart risk assessment. For high-risk individuals, the treatment goal is less than 100 mg/dL and for very high-risk individuals, the treatment goal of less than 70 mg/dL may be considered.

### Reference Interval (mg/dL)

Optimal .....	55-99
Near/Above Optimal .....	100 – 129
Borderline High .....	130 – 159
High .....	160-189
Very High.....	greater than 189

## ➤ Triglycerides < 150

- Reduce High Fat foods
- Reduce High simple sugar foods
- Reduce red meat intake
- Reduce/Eliminate alcohol consumption
- Increase exercise

**TRIGLYCERIDES:** These are fats composed of fatty acids and glycerol. Triglycerides are transported through the bloodstream by combining with proteins to form particles called lipoproteins. Triglycerides pass from the liver to other parts of the body that need this energy source. The level of triglycerides in your blood can indicate how efficiently your body processes the fat in your diet.

### Reference Interval (mg/dL)

Optimal .....	less than 150
Borderline high .....	150 – 199
High .....	200 – 499
Very high.....	greater than 499

# Nutrition Facts

Serving Size 1 slice (47g)  
Servings Per Container 6

## Amount Per Serving

**Calories** 160      Calories from Fat 90

### % Daily Value\*

**Total Fat** 10g      15%

Saturated Fat 2.5g      11%

*Trans* Fat 2g

**Cholesterol** 0mg      0%

**Sodium** 300mg      12%

**Total Carb** 15g      5%

Dietary Fiber less than 1g      3%

Sugars 1g

**Protein** 3g

Vitamin A 0%      Vitamin C 4%

Calcium 45%      Iron 6%

Thiamin 8%      Riboflavin 6%

Niacin 6%

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

Start here

Check the total calories per serving

Limit these nutrients

Get enough of these nutrients

Quick Guide to % Daily Value:  
5% or less is low  
20% or more is high

➤ Trans Fat  
Hydrogenated

➤ Saturated Fat  
Animal Fat  
Palm oil / Palm kernel oil  
Coconut oil

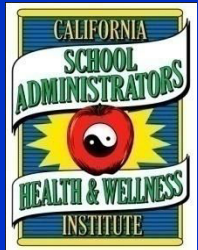
➤ Monounsaturated Fat  
(may decrease LDL)  
(may maintain HDL)

Olive oil  
Peanut oil  
Canola oil  
Avocado, Nuts, Seed

➤ Polyunsaturated Fat  
(may decrease LDL and HDL)

Safflower oil  
Sunflower oil  
Corn oil  
Soybean oil  
Omega 3 and Omega 6

# Exercise



# Recommendations

TABLE 4. Physical activity recommendations for healthy adults aged 18–65 yr—2007.

1. To promote and maintain good health, adults aged 18–65 yr should maintain a physically active lifestyle. I (A)
2. They should perform moderate-intensity aerobic (endurance) physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic activity for a minimum of 20 min on three days each week. I (A)
3. Combinations of moderate- and vigorous-intensity activity can be performed to meet this recommendation. For example, a person can meet the recommendation by walking briskly for 30 min twice during the week and then jogging for 20 min on two other days. IIa (B)
4. These moderate- or vigorous intensity activities are in addition to the light intensity activities frequently performed during daily life (e.g., self care, washing dishes, using light tools at a desk) or activities of very short duration (e.g., taking out trash, walking to parking lot at store or office).
5. Moderate-intensity aerobic activity, which is generally equivalent to a brisk walk and noticeably accelerates the heart rate, can be accumulated toward the 30-min minimum by performing bouts each lasting 10 or more minutes. I (B)
6. Vigorous-intensity activity is exemplified by jogging, and causes rapid breathing and a substantial increase in heart rate.
7. In addition, at least twice each week adults will benefit by performing activities using the major muscles of the body that maintain or increase muscular strength and endurance. IIa (A)
8. Because of the dose-response relation between physical activity and health, persons who wish to further improve their personal fitness, reduce their risk for chronic diseases and disabilities, or prevent unhealthy weight gain will likely benefit by exceeding the minimum recommended amount of physical activity. I (A)

# Recommendations

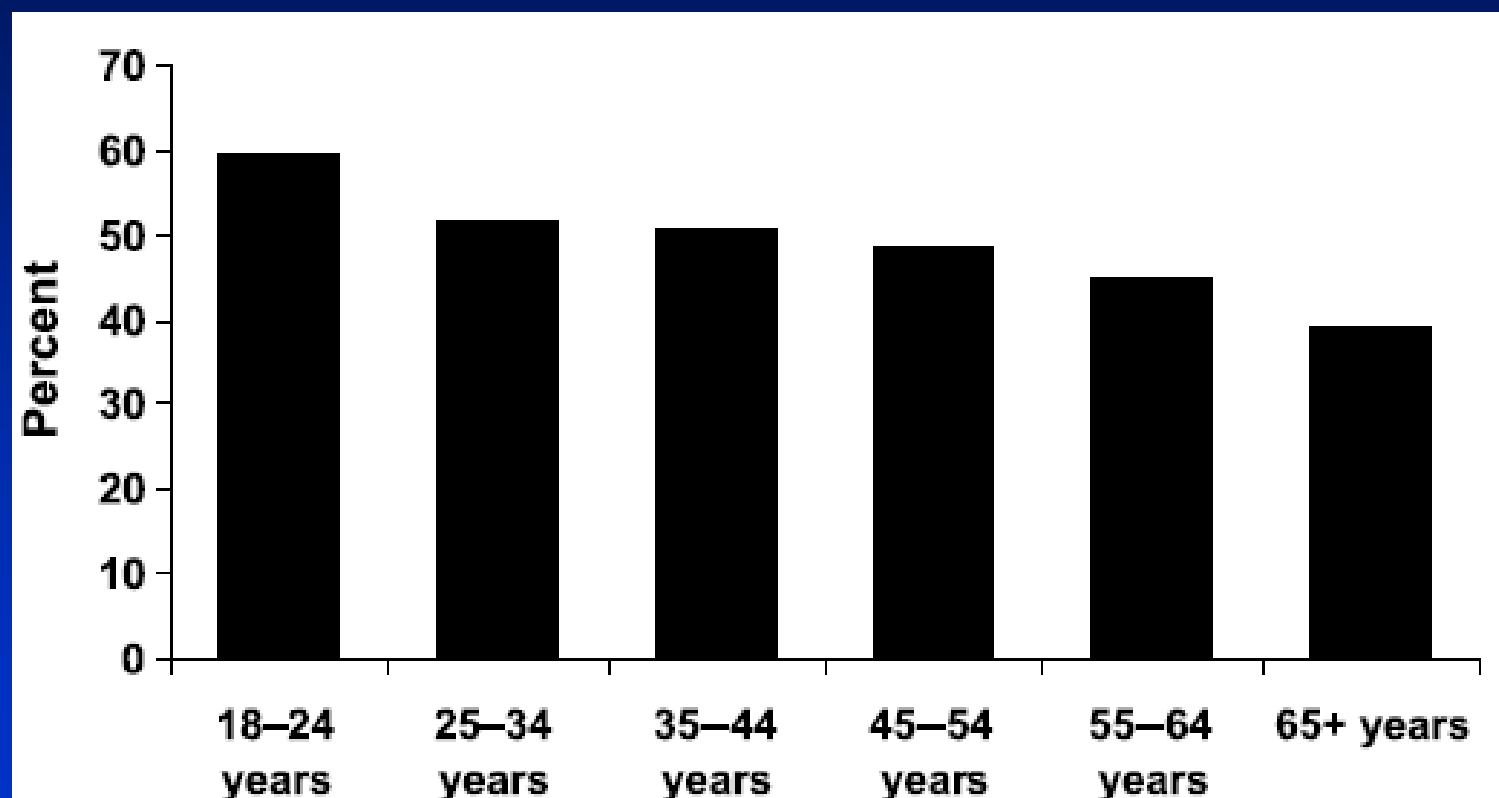
TABLE 4. Summary of physical activity recommendations for older adults – 2007.

1. To promote and maintain good health, older adults should maintain a physically active lifestyle. I (A)
2. They should perform moderate-intensity aerobic (endurance) physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic activity for a minimum of 20 min on three days each week. I (A)  
Moderate-intensity aerobic activity involves a moderate level of effort relative to an individual's aerobic fitness. On a 10-point scale, where sitting is 0 and all-out effort is 10, moderate-intensity activity is a 5 or 6 and produces noticeable increases in heart rate and breathing. On the same scale, vigorous-intensity activity is a 7 or 8 and produces large increases in heart rate and breathing. For example, given the heterogeneity of fitness levels in older adults, for some older adults a moderate-intensity walk is a slow walk, and for others it is a brisk walk.
3. Combinations of moderate- and vigorous-intensity activity can be performed to meet this recommendation. IIa (B) These moderate- or vigorous intensity activities are in addition to the light intensity activities frequently performed during daily life (e.g., self care, washing dishes) or moderate-intensity activities lasting 10 min or less (e.g., taking out trash, walking to parking lot at store or office).
4. In addition, at least twice each week older adults should perform muscle strengthening activities using the major muscles of the body that maintain or increase muscular strength and endurance. IIa (A) It is recommended that 8–10 exercises be performed on at least two nonconsecutive days per week using the major muscle groups. To maximize strength development, a resistance (weight) should be used that allows 10–15 repetitions for each exercise. The level of effort for muscle-strengthening activities should be moderate to high.
5. Because of the dose-response relationship between physical activity and health, older persons who wish to further improve their personal fitness, reduce their risk for chronic diseases and disabilities, or prevent unhealthy weight gain will likely benefit by exceeding the minimum recommended amount of physical activity. I (A)
6. To maintain the flexibility necessary for regular physical activity and daily life, older adults should perform activities that maintain or increase flexibility on at least two days each week for at least 10 min each day. IIb (B)
7. To reduce risk of injury from falls, community-dwelling older adults with substantial risk of falls should perform exercises that maintain or improve balance. IIa (A)
8. Older adults with one or more medical conditions for which physical activity is therapeutic should perform physical activity in a manner that effectively and safely treats the condition(s). IIa (A)
9. Older adults should have a plan for obtaining sufficient physical activity that addresses each recommended type of activity. IIa (C) Those with chronic conditions for which activity is therapeutic should have a single plan that integrates prevention and treatment. For older adults who are not active at recommended levels, plans should include a gradual (or stepwise) approach to increase physical activity over time. Many months of activity at less than recommended levels is appropriate for some older adults (e.g., those with low fitness) as they increase activity in a stepwise manner. Older adults should also be encouraged to self-monitor their physical activity on a regular basis and to reevaluate plans as their abilities improve or as their health status changes.

## Physical Inactivity

### ➤ Adults

- 2007 Prevalence of regular physical activity is **30.8%**
  - **Males 33.9%**                                      **Females 28.9%**
- **66.3% of Women** report **NEVER** engaging in vigorous physical activity
- **56.0% of Men** report **NEVER** engaging in vigorous physical activity



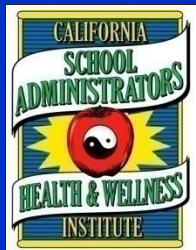
**FIGURE 2**—Prevalence of U.S. men and women meeting the CDC/ACSM physical activity recommendations by age, 2005.

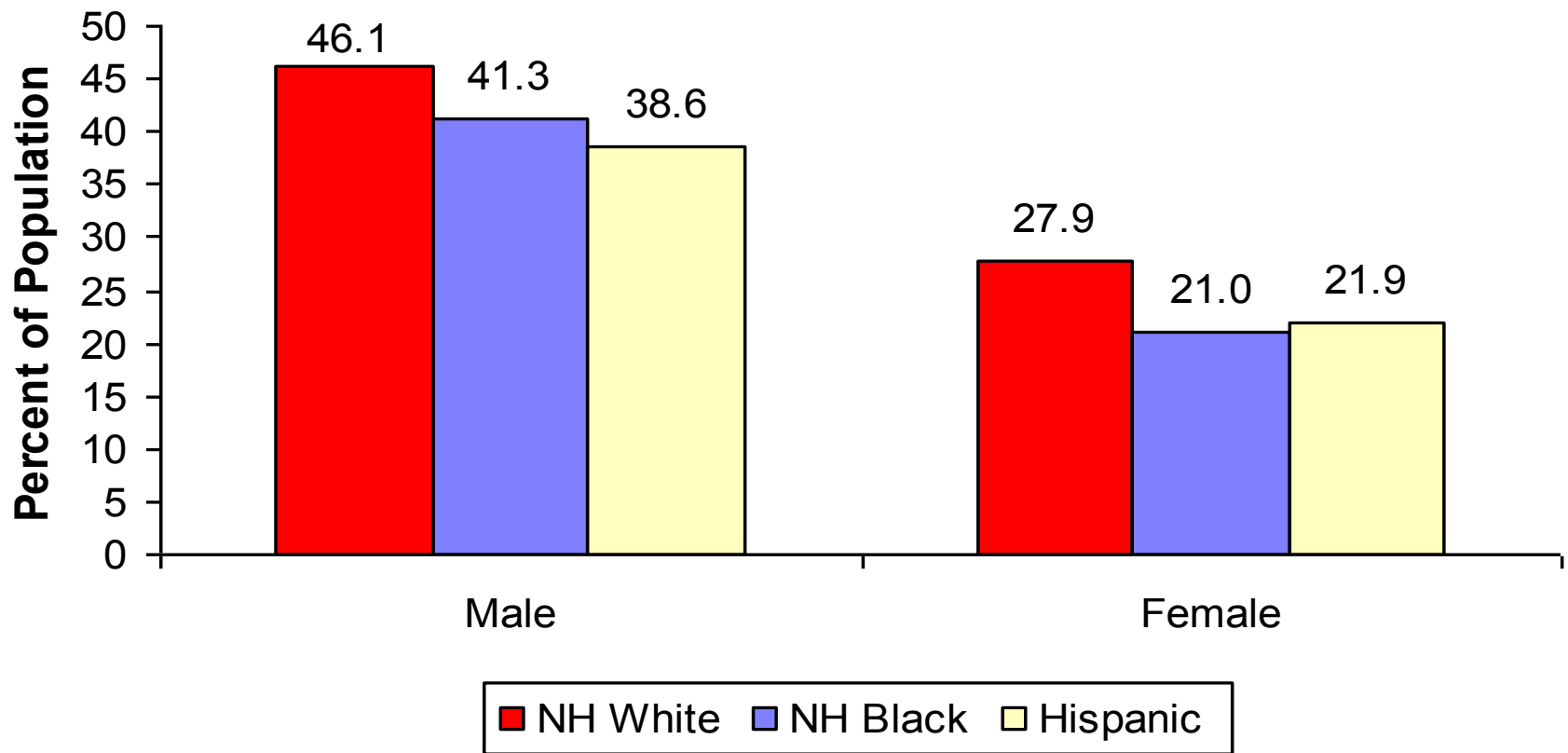


# Physical Inactivity

## Youth

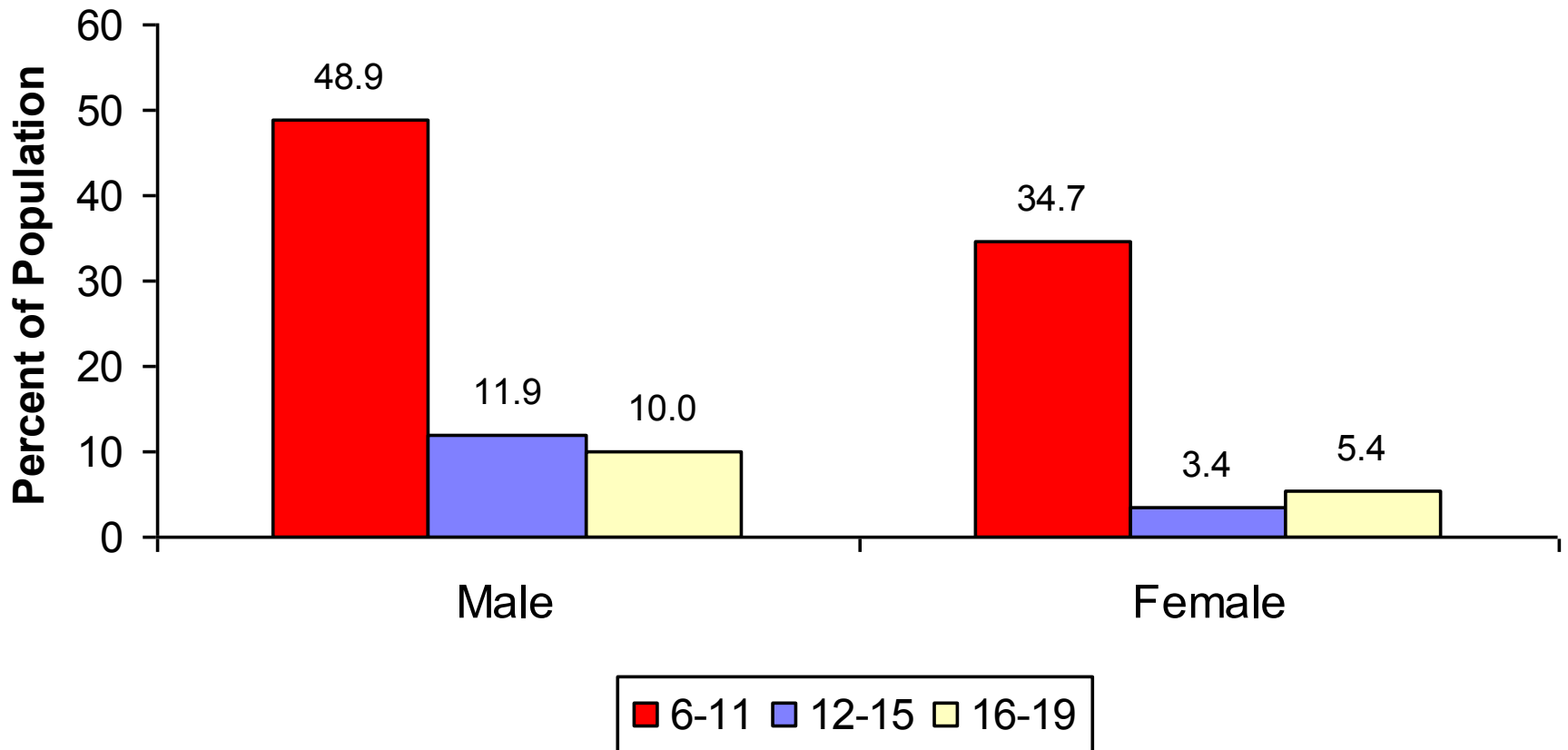
- **61.5%** of children ages 9-13 **DO NOT** participate in any organized physical activity during non-school hours
- **22.6%** **DO NOT** engage in any free-time physical activity
- Girls by the age of 16 or 17:
  - **31%** white girls and **56%** of black girls have **NO** habitual leisure-time activity
- Students grades 9-12:
  - **24.9%** spent 3 or more hours per day using computers outside of school
  - **35.4%** spent 3 or more hours per day watching TV





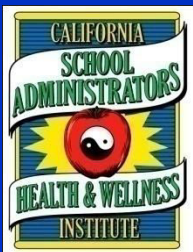
**Prevalence of students in grades 9-12 who met currently recommended levels of physical activity during the past 7 days by race/ ethnicity and sex (YRBS: 2007). Source: MMWR. 2008;57:No. SS-4. NH – non-Hispanic.**

Note: “Currently recommended levels” is defined as activity that increased their heart rate and made them breathe hard some of the time for a total of at least 60 minutes/day on 5 or more of the 7 days preceding the survey.



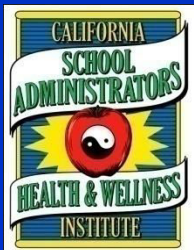
**Prevalence of children ages 6-19 who attained sufficient moderate-to-vigorous physical activity to meet public health recommendations of >60 minutes/day on >5 of 7 days by sex and age.**

**(NHANES: 2003-04). Source: MSSE 2008;40:181-8.**



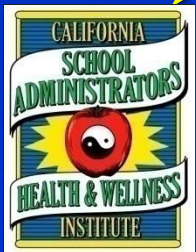
# Summary

- Smoking is the most important **preventable** cause of morbidity and premature mortality Worldwide
- Smoking reduces the normal life expectancy by an average of **13-15 years**
- **20%** high school students were smokers
- **6%** middle school students were smokers
- 2,400 Americans die of Cardiovascular disease each day → one death **every 37 seconds**



# Summary

- **145 million** Americans are **Overweight or Obese** → **66.7%** of the Adult Population
- **23 million** children & adolescents are **Overweight or Obese** → **31.9%** of the Population
- **66.3% of Women** report **NEVER** engaging in vigorous physical activity
- **56.0% of Men** report **NEVER** engaging in vigorous physical activity
- **61.5%** of children ages 9-13 **DO NOT** participate in any organized physical activity during non-school hours



# Take Home Message

- **DO NOT SMOKE**
- Eat a **Heart Healthy Diet**
- Eat and Drink in **Moderation**
- **Be ACTIVE** – for you, for your heart, and for your children!

