Chapter 13
Cardiovascular Disease (CVD)

What are the Drivers?

Leading Causes of Death
United States, 2008

Actual Causes of Death
United States, 2000

- Tobacco
- Poor diet/
  Physical inactivity
- Alcohol consumption
- Infectious agents
- Poisoning
- Suicide
- Suicide


Atherosclerosis: The Process of Cardiovascular Disease

Risk Factors That Cannot Be Changed

- **Heredity**
  - CVD has genetic component; high cholesterol levels, blood clotting and obesity

- **Aging**
  - Over the age of 65

- **Being male**
  - Men have higher risk earlier in life

**Gender, Ethnicity & CVD**
- Increases women’s risk for heart disease
- 1/3 die from HD, 1/34 from breast cancer

**are at greatest risk for CVD**
- Should treat high blood pressure at 130/80
- Greater salt sensitivity

**Diabetes variation**
- Higher among Mexican Americans and Puerto Ricans
- Lower in
Risk Factors You Can Change

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>Don't smoke</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Regular check-up and control of blood pressure</td>
</tr>
<tr>
<td>High Cholesterol</td>
<td>Avoid fatty food and cholesterol lowering drugs</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>Treatment of diabetes mellitus</td>
</tr>
<tr>
<td>Obesity</td>
<td>Avoid overeating, keep healthy weight</td>
</tr>
<tr>
<td>Lack of exercise</td>
<td>More exercise</td>
</tr>
<tr>
<td>Stress</td>
<td>Relaxation</td>
</tr>
</tbody>
</table>

Characteristics of Metabolic Syndrome

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35 or more inches (88 cm) for women</td>
</tr>
<tr>
<td></td>
<td>40 or more inches (102 cm) for men</td>
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<tr>
<td></td>
<td>150 mg/dl or higher</td>
</tr>
<tr>
<td></td>
<td>Or taking medication to treat high triglycerides</td>
</tr>
<tr>
<td></td>
<td>Less than 50 mg/dl for women</td>
</tr>
<tr>
<td></td>
<td>Less than 40 mg/dl for men</td>
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<tr>
<td></td>
<td>Or taking medication to treat low HDL</td>
</tr>
<tr>
<td></td>
<td>130/85 mm Hg or higher (one or both numbers)</td>
</tr>
<tr>
<td></td>
<td>Or taking medication to treat high blood pressure</td>
</tr>
<tr>
<td></td>
<td>100 mg/dl or higher</td>
</tr>
<tr>
<td></td>
<td>Or taking medication to treat high blood sugar</td>
</tr>
</tbody>
</table>

A person having three or more factors listed here is diagnosed with metabolic syndrome.

Other Factors you can change

- Weight gain => less active, muscle, fat and live less sensitive to insulin, pancreas must work harder.
- C-Reactive Protein (CRP) released => elevated risk for heart attack and stroke.

Psychological & Social Factors:
- Stress
- Chronic hostility & anger
- Suppressing psychological distress
- Depression
- Anxiety
- Social isolation
- Low socioeconomic status

What’s your life purpose?

- People who didn’t have a strong life purpose — which was defined as “__________________________” — were more likely to die than those who did, and specifically more likely to die of ____________________.
- Strong life purpose was associated with reduced risk of mortality and cardiovascular events, such as ____________________________.

What’s Your Purpose? Finding A Sense Of Meaning In Life Is Linked To Health (5/25/2019)

https://www.npr.org/sections/health-shots/2019/05/25/726695968/whats-your-purpose-finding-a-sense-of-meaning-in-life-is-linked-to-health
**Smoking & heart disease**

- According to a new study, 
  
  ________________________________________________________________ 
  
  Risk of ___________________________________________ was much greater in men who smoke than in woman smokers. The associated risk of congenital heart defects increased by 74% for men smoking, 124% for passive smoking in women, and 25% for women smoking (all compared to no exposure).

[https://www.zmescience.com/medicine/fathers-smoke-baby-health-3525623 3/25/19]  

**Alcohol & Heart Health**

“____________________________________________________”  

- “Reducing the amount of alcoholic beverages consumed, even for light-to-moderate drinkers, may improve cardiovascular health, including a reduced risk of coronary heart disease, lower body mass index and blood pressure, according to a new multi-center study. The latest findings call into question previous studies which suggest that consuming light-to-moderate amounts of alcohol may have a protective effect on cardiovascular health.” (University of Pennsylvania School of Medicine)  
Tobacco

- 1 in 5 deaths from CVD is a smoker
- Smokers have 2 to 3 times higher risk of death from a heart attack, than non-smokers
- Damages the lining of arteries
- Reduces HDLs
- Raises triglycerides and LDLs
- Nicotine increases blood pressure
- CO displaces O2
- Speeds the development of fatty deposits in the arteries

Cholesterol

- Fatty wax substance in the blood
  - Cell membranes
  - Sex hormones
  - Vitamin D
  - Lung coating
  - Nerve protective sheath
- Excessive – clogs arteries
- Low-density lipoproteins
  - Moves cholesterol from liver to the organs
- High-density lipoproteins
  - Moves unused back to liver
  - Removes cholesterol from blood vessels (protects against atherosclerosis)

Ideal:

http://farm5.static.flickr.com/4022/4655619987_ e6d1182bc_b.jpg
Lowering BP Naturally

- Losing weight — 5-20 mmHg decrease per 20 lbs weight lost
- Eating a healthy diet — 8-14 mmHg decrease
- Reducing sodium — 2-8 mmHg decrease
- Regular physical activity — 4-9 mmHg decrease
- Reducing alcohol consumption — 2-4 mmHg decrease

Put all these together and you can realize anywhere from a 20 to 55 mmHg drop on your own. That's the same kind of result you’d get from being on a bunch of medications!


Professor Betty C. Jung

Diabetes & Heart Disease

AT THE HEART OF DIABETES

U.S. DIABETES PATIENTS HAVE:

- 2-3x increased risk for heart disease
- 30% of coronary stents implanted in 2011
- 280,000 heart attacks annually
- 2-4x higher heart disease morbidity and mortality rates
- 60% chance of dying from heart disease

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Heart Attack

- Women can have different symptoms

Helping a Heart Attack Victim

- Aspirin (325 mg) helpful – anti-clotting
- Most die within 2 hours from initial symptoms
- Cardiopulmonary resuscitation (CPR)

Heart Disease in Women

- Uncommon in women
- No gender difference in disease severity
- Common symptoms: shortness of breath, fatigue, upper arm pain, jaw pain, nausea, indigestion, back pain, neck pain, shoulder pain, chest pain, unexplained sweating, heartburn, nausea, fatigue

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Stroke (Brain Attack)

780,000 Americans suffer strokes each year.
2 million brain cells die per minute during a stroke.
Interruption of the blood supply or any area of the brain prevents the nerve cells from functioning in some cases causing death.

Ischemic stroke (Clot) __%  
____________stroke

Hemorrhagic stroke (Bleed) __%  

Clot-dissolving drugs should be given only for __________Strokes

http://www.stroke.org/redesign/core/img/stroke_infographic_web.jpg
Being Heart Healthy

Strategies for Reducing Your Risk of Cardiovascular Disease

**Do More**
- Eat a diet rich in fruits, vegetables, whole grains, and low-fat or fat-free dairy products. Eat five to nine servings of fruits and vegetables each day.
- Eat several servings of high-fiber foods each day.
- Eat two or more servings of fish per week; try a few servings of nuts and soy foods each week.
- Choose unsaturated fats rather than saturated and trans fats.
- Be physically active; do both aerobic exercise and strength training on a regular basis.
- Achieve and maintain a healthy weight.
- Develop effective strategies for handling stress and anger. Nurture old friendships and family ties, and make new friends; pay attention to your spiritual side.
- Obtain recommended screening tests and follow your physician's recommendations.

**Do Less**
- Don't use tobacco in any form: cigarettes, spit tobacco, cigars and pipes, bidis and clove cigarettes.
- Limit consumption of trans fats and saturated fats.
- Limit consumption of salt to no more than 2300 mg of sodium per day (1500 mg if you have or are at high risk for hypertension).
- Avoid exposure to environmental tobacco smoke.
- Avoid excessive alcohol consumption—no more than one drink per day for women and two drinks per day for men.
- Limit consumption of added sugars and refined carbohydrates.
- Avoid excess stress, anger, and hostility.

Professor Betty C. Jung