Don’t Miss a Beat!
10 Steps to a Healthy Heart

Joshua L Busch, MD – Southlake Clinic/VMC Cardiology
February 19, 2015
6pm – 7pm

Valley Medical Center
Medical Arts Center
4033 Talbot Road South, WA 98055
10 Steps To a Healthy Heart – Broken down

• Healthy Lifestyle
  – Quit Smoking, eat healthy, reduce stress, get sleep

• Regular Exercise
  – 30 minutes of moderate exercise 5-7 days per week

• Identify and treat medical risk factors
  – Treat blood pressure, cholesterol, diabetes, weight loss

• Make changes!
  – Start with small changes
Healthy Lifestyle

- Includes mental as well as physical health
- Quit Smoking
- Eat a healthy diet
- Reduce stress
- Good sleep habits
Healthy Lifestyle

Step #1 - Smoking Cessation

- Smoking is the leading cause of preventable death – 33% of all cardiovascular death in U.S.
  - Lung Cancer
  - COPD/Emphysema

- 50% of all smokers die from tobacco related illness

- Smoking is associated with increased cardiovascular disease, increased cancer risks, lung disease, infections, diabetes, osteoporosis, fertility and pregnancy issues, peptic ulcer disease, gum disease and postoperative complications
Healthy Lifestyle
Step #1 - Smoking Cessation

- Smoking cessation benefits all ages
- Smoking cessation reduces the risk of stroke, heart attack, and sudden death
- There is no amount of smoking – pipe, cigar, cigarettes that is acceptable
- Cutting down does not equal quitting
Healthy Lifestyle
Step #1 - Smoking Cessation

• How to quit smoking
  – Decide you need to quit!!!
  – Set a quit date
  – Consider nicotine replacement
  – Consider medications that could help
  – Behavioral counseling – cognitive therapy, identify triggers, problem solving and alternate stress reduction techniques

• Smoking cessation requires multiple approaches
Healthy Lifestyle

Step #2 - Eat a Healthy Diet

- Learn to read food labels
  - Pay attention to serving size and servings per package
  - Look at the amount of saturated fat and %DV
  - Look at the amount of sodium
  - Look at carbohydrates and sugars

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**Nutrition Facts**

**Serving Size 1 egg (50g)**

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories 70 Calories from Fat 40</td>
<td></td>
</tr>
<tr>
<td>Fat 4.5g</td>
<td>7%</td>
</tr>
<tr>
<td>Saturated Fat 1.5g</td>
<td>3%</td>
</tr>
<tr>
<td>Polyunsaturated Fat 1.5g</td>
<td></td>
</tr>
<tr>
<td>Monounsaturated Fat 2.0g</td>
<td></td>
</tr>
<tr>
<td>Cholesterol 21.5mg</td>
<td>71%</td>
</tr>
<tr>
<td>Sodium 65mg</td>
<td>3%</td>
</tr>
<tr>
<td>Potassium 60mg</td>
<td>2%</td>
</tr>
<tr>
<td>Total Carbohydrate 1g</td>
<td>0%</td>
</tr>
<tr>
<td>Protein 6g</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Nutrition Facts**

**Serving Size 4 cookies (31g)**

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories 190 Calories from Fat 60</td>
<td></td>
</tr>
<tr>
<td>Total Fat 5.0g</td>
<td>13%</td>
</tr>
<tr>
<td>Saturated Fat 5.0g</td>
<td>28%</td>
</tr>
<tr>
<td>Cholesterol 0mg</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 140mg</td>
<td>6%</td>
</tr>
<tr>
<td>Total Carbohydrate 20g</td>
<td>7%</td>
</tr>
<tr>
<td>Dietary Fiber 1g</td>
<td>5%</td>
</tr>
<tr>
<td>Sugars 11g</td>
<td></td>
</tr>
<tr>
<td>Protein 1g</td>
<td></td>
</tr>
</tbody>
</table>

**Vitamin A 0% • Iron 0%**

**Calcium 0% • Iron 0%**

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

<table>
<thead>
<tr>
<th>Amount Per Container about 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories 200 Calories from Fat 50</td>
</tr>
<tr>
<td>Total Fat Less than 65g</td>
</tr>
<tr>
<td>Saturated Fat Less than 20g</td>
</tr>
<tr>
<td>Cholesterol Less than 300mg</td>
</tr>
<tr>
<td>Sodium Less than 2,400mg</td>
</tr>
<tr>
<td>Total Carbohydrate 300g</td>
</tr>
<tr>
<td>Dietary Fiber 25g</td>
</tr>
<tr>
<td>Protein 5g</td>
</tr>
</tbody>
</table>

**Calories per gram:**

| Fat 9 • Carbohydrate 4 • Protein 4 |
Healthy Lifestyle
Step #2 - Eat a Healthy Diet

• 2000 to 2500 calories per day
  – depending on activity level and gender
• < 10% of calories from saturated fat
• < 30% of calories from total fat (9 Cal/gram)
• < 300 mg of cholesterol
• Less than 2000 mg of sodium (salt)
• Increase fish, fruits, vegetables, whole grains
• Increase foods with magnesium, potassium, calcium and fiber
Healthy Lifestyle
Step #2 - Eat a Healthy Diet

- Consider the DASH diet
  - Originally developed to treat hypertension
  - Rated by US News #1 Diet
  - Lowers blood pressure
  - Raises good cholesterol and lowers bad cholesterol

Search google – DASH diet brief
Healthy Lifestyle
Step #2 - Eat a Healthy Diet

- DASH Diet info
  - High in fruits and vegetables
  - Use low fat dairy products
  - Use whole grains
  - Reduce salt, sugars, red meats
  - Reduce saturated fats
Following the DASH Eating Plan

Use this chart to help you plan your menus—or take it with you when you go to the store.

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Servings Per Day</th>
<th>Serving Sizes</th>
<th>Examples and Notes</th>
<th>Significance of Each Food Group to the DASH Eating Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains*</td>
<td>6</td>
<td>6-8</td>
<td>1 slice bread; 1 oz dry cereal; 1/2 cup cooked rice, pasta, or cereal</td>
<td>Major sources of energy and fiber</td>
</tr>
<tr>
<td>Vegetables</td>
<td>3-4</td>
<td>4-5</td>
<td>1 cup raw leafy vegetable; 1/2 cup cut-up raw or cooked vegetable; 1/2 cup vegetable juice</td>
<td>Rich sources of potassium, magnesium, and fiber</td>
</tr>
<tr>
<td>Fruits</td>
<td>4</td>
<td>4-5</td>
<td>1 medium fruit; 1/4 cup dried fruit; 1/2 cup fresh, frozen, or canned fruit; 1/2 cup fruit juice</td>
<td>Important sources of potassium, magnesium, and fiber</td>
</tr>
<tr>
<td>Fat-free or low-fat milk and milk products</td>
<td>2-3</td>
<td>2-3</td>
<td>1 cup milk or yogurt; 1 1/2 oz cheese; Fat-free skim or low-fat milk or buttermilk; fat-free, low-fat, or reduced-fat cheese; fat-free or low-fat regular or frozen yogurt</td>
<td>Major sources of calcium and protein</td>
</tr>
<tr>
<td>Lean meats, poultry, and fish</td>
<td>3-6</td>
<td>6 or less</td>
<td>Select only lean; trim away visible fats; broil, roast, or poach; remove skin from poultry</td>
<td>Rich sources of protein and magnesium</td>
</tr>
<tr>
<td>Nuts, seeds, and legumes</td>
<td>3 per week</td>
<td>4-5 per week</td>
<td>1/2 cup or 1/2 oz nuts; 2 Tbsp peanut butter; 2 Tbsp or 1/2 oz seeds; 1/2 cup cooked legumes (dry beans and peas)</td>
<td>Rich sources of energy, magnesium, protein, and fiber</td>
</tr>
<tr>
<td>Fats and oils/</td>
<td>2</td>
<td>2-3</td>
<td>1 tsp soft margarine; 1 tsp vegetable oil; 1 Tbsp mayonnaise; 2 Tbsp salad dressing</td>
<td>The DASH study had 27 percent of calories as fat, including fat in or added to foods</td>
</tr>
<tr>
<td>Sweets and added sugars</td>
<td>0</td>
<td>5 or less per week</td>
<td>1 Tbsp sugar; 1 Tbsp jelly or jam; 1/2 cup sorbet, gelatin; 1 cup lemonade</td>
<td>Sweets should be low in fat</td>
</tr>
</tbody>
</table>

* Whole grains are recommended for most grain servings as a good source of fiber and nutrients.
† Serving sizes vary between 1/2 cup and 1 1/2 cups, depending on cereal type. Check the product’s Nutrition Facts label.
‡ Since eggs are high in cholesterol, limit egg yolk intake to no more than four per week; two egg whites have the same protein content as 1 oz of meat.
§ Fat content changes serving amount for fats and oils. For example, 1 Tbsp of regular salad dressing equals one serving; 1 Tbsp of a low-fat dressing equals one-half serving; 1 Tbsp of a fat-free dressing equals zero servings.

Abbreviations: oz = ounce; Tbsp = tablespoon; tsp = teaspoon.
Healthy Lifestyle

Step #3 - Reduce Stress

• Stress does not clearly cause heart disease but does play an important role in overall wellness

• A positive mental attitude can reduce stress
  – Practice gratitude, focus on the positive

• Take 15-20 minutes per day to relax
  – Consider meditation
  – Deep breathing

• Yoga can incorporate physical activity with stress reduction and relaxation
Healthy Lifestyle
Step #4 - Get Adequate Sleep

• Sleep related issues can be due to short duration of sleep or poor quality of sleep

• Goal = more than 7 hours of uninterrupted sleep

• Less than 6 hours of sleep per night
  – 23% increased risk of coronary disease compared to those sleeping over 7 hours per night

• Sleep deprivation – cognitive impairment, poor mood and judgment, increased motor vehicle collisions, reduced quality of life
Healthy Lifestyle

Step #4 - Get Adequate Sleep

– Avoid caffeine, alcohol, nicotine 4-6 hours prior to bedtime

– Make your bedroom sleep inducing – dark, quiet, cool, consider white noise or blackout curtains

– Establish a soothing pre-sleep routine – relaxation, reading, avoid stress

– Don’t watch the clock

– Get daylight exposure when possible

– Have a regular sleep schedule

– Get evaluated for sleep apnea or restless leg syndrome if you have symptoms
Step #5 - Regular Exercise

• Doing something is always better than doing nothing

• Doing more is always better than doing less
Step #5 - Regular Exercise

- **Benefits of exercise** – improved lipid profile, reduced blood pressure, reduced insulin resistance, reduced inflammation

- **Moderate intensity** – you can talk but not sing
  - Brisk walk (~3 mph)
  - Water aerobics, doubles tennis, ballroom dancing

- **Vigorous intensity** – can talk a few words
  - Race walk, jogging, running
  - Swimming laps, singles tennis
  - Bicycle >10 mph, jumping rope
Step #5 - Regular Exercise

• **Goal**
  - 30 minutes of moderate intensity exercise 5 to 7 days per week

• **Options:**
  – Moderate intensity for 150 minutes per week and muscle strengthening exercise 2 days per week
  – Vigorous intensity for 75 minutes per week and muscle strengthening 2 days per week

Step #5 - Regular Exercise

• **What counts:**
  – Aerobic activity for at least 10 minutes at a time
  – At least moderate activity – i.e. brisk walking
  – Muscle strengthening at least one set of 8-12 repetitions for each body area – legs, hips, back, chest, abdomen, shoulders, arms
    • Bonus for doing 2-3 sets
  – Can be lifting weights, resistance bands, body weight exercises
  – Build up over time
Identify and Treat Medical Risk Factors

• Modifiable and non-modifiable risk factors

• Non-modifiable – Age, gender, family history

• **Modifiable**
  – Hypertension
  – High cholesterol
  – Diabetes
  – Obesity
Step #6 – Identify and Treat Hypertension

• What is blood pressure?
  – Blood pressure is the measurement of the pressure in the vascular system when the heart is pumping (systolic) and relaxing (diastolic)
  – Two numbers – top is systolic, bottom is diastolic
Step #6 – Identify and Treat Hypertension

How is it diagnosed?

- At least 3 in office blood pressure readings
- Home monitoring
- Ambulatory BP monitoring
Step #6 – Identify and Treat Hypertension

• Why do we care about blood pressure?

• 67% of adults over 60 have hypertension

• Hypertension is defined as a systolic blood pressure over 140 or a diastolic blood pressure over 90

• Goal Blood pressure is < 140/90 for people without other risk factors
Step #6 – Identify and Treat Hypertension

- Hypertension causes thickening of the heart muscle, also called left ventricular hypertrophy
  - This is associated with increased heart failure, heart attacks, sudden death, and stroke

- Risk of heart failure increases with degree of blood pressure elevation

- Most important risk factor for stroke

- Leading risk factor for heart attacks

- Strong risk factor for kidney disease
Step #6 – Identify and Treat Hypertension

Why do we treat?
- 50% reduced risk of heart failure
- 30-40% reduced risk of stroke
- 20-25% reduced risk of heart attack
- Benefits are probably greater in those over 65

Coronary heart disease mortality related to blood pressure and age

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Step #6 – Identify and Treat Hypertension

• Goal Blood Pressure:

• For most people goal is less than 140/90
  – For age over 80, goal of <150/90 is reasonable

• In some cases with diabetes, kidney disease, or known coronary heart disease – a lower goal is appropriate at < 130/80
Step #6 – Identify and Treat Hypertension

- Treatment – All people with BP > 140/90 should be treated
- First – Lifestyle changes
  - Healthy diet – reduced salt, increased fruit/veg, DASH diet
  - Weight loss
  - Increased exercise
  - Reduction of alcohol intake
- Second – if elevated BP persists - medications
**Step #6 – Identify and Treat Hypertension**

<table>
<thead>
<tr>
<th>Commonly used medications</th>
<th>Types</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diuretics (water pills)</strong></td>
<td>Several types</td>
<td>- Hydrochlorothiazide (HCTZ), Chlorthalidone,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- spironolactone,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Furosemide</td>
</tr>
<tr>
<td><strong>ACE inhibitor</strong></td>
<td>Name ends “-pril”</td>
<td>Lisinopril, enalapril, benazepril, etc…</td>
</tr>
<tr>
<td><strong>Angiotensin receptor blocker - ARB</strong></td>
<td>Name ends “-sartan”</td>
<td>Losartan, valsartan, olmesartan, etc…</td>
</tr>
<tr>
<td><strong>Calcium channel blockers</strong></td>
<td>2 types</td>
<td>- verapamil, diltiazem</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- nifedipine, amlodipine, felodipine</td>
</tr>
<tr>
<td><strong>Beta blockers</strong></td>
<td>Name ends “-lol”</td>
<td>Metoprolol, atenolol, carvedilol, bisoprolol</td>
</tr>
</tbody>
</table>
Step #7 – Identify and Treat High Cholesterol

• **What is cholesterol?**
  
  – Cholesterol is a waxy fat like substance
    • Your body needs cholesterol to make cell walls, hormones, vitamins and digestive enzymes

  – Cholesterol travels the body in packages called lipoproteins which can have high or low density
    • HDL – high density lipoprotein – good cholesterol
    • LDL – low density lipoprotein – bad cholesterol
    • VLDL – very low density lipoprotein – Carries Triglycerides
      – Excess calories, alcohol and sugar are converted to triglycerides and stored in fat cells throughout the body

  – High cholesterol leads to plaque buildup
Step #7 – Identify and Treat High Cholesterol

Death of an Artery

Clear Artery
In this example, the inside of the artery is completely clear. This is a healthy artery with no sign of atherosclerosis, or hardening of the arteries, the cause of coronary artery disease.

Buildup Begins
Here, fats have started to build up in the artery. This is the beginning of atherosclerosis. As the blockage grows, the heart must work harder to pump blood through the system.

Reduced Flow
As more fats build up, a fatty-like substance called plaque is formed and clogs the artery. Plaque also irritates the artery, causing calcium deposits to build up.

High Risk
This artery has only a small opening for the passage of blood, putting a great strain on the heart. A blood clot may form, completely blocking the artery.

Damage Occurs
Now the artery is completely blocked by plaque and/or blood clots. When complete blockage occurs, it may cause stroke, heart attack and other serious conditions that can end in death.

Cutting down on cholesterol and fats, eating a healthy diet and exercising regularly can help prevent this from happening!
Step #7 – Identify and Treat High Cholesterol

• What causes high cholesterol?
  – **Diet** – diets high in saturated fat increase levels
  – **Overweight** – losing weight lowers LDL and total cholesterol and can increase HDL
  – **Lack of exercise** – Exercising 150 minutes per week will lower cholesterol
  – **Age and gender** – Older age and after menopause tend to lead to higher levels
  – **Diabetes** – Poorly controlled will increase levels, especially triglycerides
  – **Genetics** – High cholesterol runs in families
Step #7 – Identify and Treat High Cholesterol

• **Know your numbers!**

• Fasting blood tests will measure total cholesterol, HDL, LDL, and triglycerides

• Knowing your cholesterol numbers helps to calculate your 10-year risk of cardiovascular disease

http://tools.cardiosource.org/ASCVD-Risk-Estimator/
Step #7 – Identify and Treat High Cholesterol

• Cholesterol goals – vary based on other risk factors such as BP, diabetes, heart disease, stroke

• Newer guidelines recommend treating based on a specific person’s 10 year risk and lowering cholesterol independent of any specific goal

• In general
  – Total cholesterol below 200
  – LDL below 130, HDL over 40
  – Triglycerides below 150
Step #7 – Identify and Treat High Cholesterol

• Who needs to be treated?
  – Known cardiovascular disease – includes stroke/TIA, coronary artery disease, peripheral artery disease
  – LDL over 190
  – Diabetes – aged 40-75, LDL between 70 and 189
  – 10 year risk over 7.5%

http://tools.cardiosource.org/ASCVD-Risk-Evaluator/
Step #7 – Identify and Treat High Cholesterol

• How do I lower my cholesterol?

• Lifestyle modifications
  – Quit smoking
  – Eat a healthy diet – low saturated fat, high fruit/veg
  – Increase exercise
  – Treat other conditions – diabetes, thyroid disease

• Cholesterol lowering medications
  – Statins – Proven to reduce risk of stroke and heart attacks, drugs end in “-statin” – simvastatin etc…
  – Non statins – Niacin, bile-acid resins, fibrates
Step #8 – Identify and Treat Diabetes

• What is diabetes?
  • Body is unable to properly use and store sugar causing elevated blood glucose levels

• Two Types:
  – Type 1 – Body completely stops producing insulin
  – Type 2 – Insulin deficiency and/or insulin resistance

• Type 2 diabetes is the most common type, more frequently found in adults, related to obesity, inactivity, age, and family history
Step #8 – Identify and Treat Diabetes

• Common symptoms:
  – Often there can be none in type 2, slow onset
  – Very thirsty
  – Frequent urination
  – Blurry vision
  – Weight loss that is unexplained
  – Increased hunger, irritability
  – Tingling in hands or feet
  – Frequent skin, bladder, or gum infections
  – Poor wound healing
  – Extreme unexplained fatigue
Step #8 – Identify and Treat Diabetes

- Diagnosis based on symptoms and measured blood sugar levels either fasting or random
  - Fasting >126, Random >200

- Follow Hemoglobin A1C to assess response to treatment, can be used for diagnosis if >6.5
Step #8 – Identify and Treat Diabetes

Complications from diabetes:
- Eye disease
- Strokes
- Heart attacks
- Kidney disease
- Nerve conduction disorders
- Peripheral artery disease
- Foot ulcers - amputation
Step #8 – Identify and Treat Diabetes

• Treating Diabetes

• Step One: Lifestyle modification
  – Dietary modification (best to be guided by a nutritionist) – though the DASH diet is reasonable
  – Increase exercise
  – Lose weight

• Step Two: Diabetes Medications
  – Oral medications
  – Injectable non insulin medication
  – Insulin

• Treat co-existing issues – BP, cholesterol
  – Smoking cessation
Routine care

- Regular office visits to evaluate effectiveness of treatment
- Check A1C at least twice per year – goal < 7%
- Routine eye exams to look for retinopathy
- Routine foot exams to look for reduced sensation, skin ulcers/injury or reduced pulses
- Routine BP measurement at every visit
- Smoking cessation
- Statin treatment
- Aspirin 81 mg if known cardiovascular disease or if risk >10%
Step #9 – Weight Loss

- **Obesity** is defined medically by the BMI or Body Mass Index - weight in kg divided by height in meters squared, kg/m²
  - Normal BMI – 18.5 to 24.9
  - Overweight – 25 to 29.9
  - Obesity – BMI over 30
  - Severe Obesity – BMI over 40

- Waist circumference >40 in for men, 35 inches for women

Convert pounds to kg – multiply by 0.45
Convert inches to meters – multiply by 0.025
Step #9 – Weight Loss

- In the US about 35% of adults are obese
- Health Hazards – 20-30% or more increased mortality
- Each 5 kg/m² increase in BMI leads to increased mortality from cardiovascular disease, diabetes, cancer and respiratory disease
- Obesity (BMI>30) is associated with reduced life expectancy of 6-7 years
  - This doubles if you add smoking…
Step #9 – Weight Loss

- Obesity affects nearly all organ systems
- Associated with diabetes, hypertension, high cholesterol, gout, all types of heart disease, abnormal heart rhythms, stroke, blood clots, dementia, GI disease, cancer, arthritis, infection, respiratory problems, kidney disease
Step #9 – Weight Loss

• Weight loss
  – Set goals – be realistic – goal 5-10% of body weight
  – Lifestyle changes
  – Caloric restriction, choose healthier foods
  – Increase exercise
  – Behavioral modification – modify and monitor food intake

• Medications
  – Orlistat – first line, good safety profile, reduces fat absorption – mostly GI side effects
  – Lorcaserin – serotonin agonist, reduces food intake, limited long term safety data

• Surgical options – BMI > 40 or >35 with comorbidity

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Step #10 – Make Changes!

• Doing nothing will guarantee that nothing changes

• Start with small steps
  • Take a brisk ten minute walk
  • Lift a heavy book a few times per day
  • Eat an extra serving of fruit or vegetables
  • Eat a healthy breakfast
  • Cut out sodas and fancy lattes
  • Eat a snack of nuts
  • Replace one serving of meat with fish
10 Steps To a Healthy Heart

1. Quit Smoking
2. Eat a healthy diet – high in fruits, vegetables, whole grains
3. Reduce stress
4. Sleep at least 7 hours per night
5. 30 minutes of moderate exercise 5-7 days per week
6. Treat blood pressure
7. Treat high cholesterol
8. Treat diabetes
9. Lose weight

10. Start with small changes
Thanks for your time and attention!

Any questions?