It’s a Matter of Heart
Ways to Reduce Your Risk for Heart Disease

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Exercise is Medicine Credential Level III
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Human Performance Clinical/Research Laboratory
Colorado State University
Cardiovascular Disease (CVD) Risk Factors

- Physical inactivity
- Hypertension
- Diabetes
- Cigarette smoking
- Second hand smoke
- Family history
- Obesity
  - Abdominal fat pattern
- Abnormal lipids
  - High triglycerides
  - High LDL
  - High cholesterol
  - Low HDL
- Obesity
- Emotional stress
- Social isolation
Am I At Risk?

If you have any of these risk factors, you are at risk for heart disease.

**Controllable Risk Factors**
- High Cholesterol
- High Blood Pressure
- Physical Inactivity
- Obesity and Overweight
- Type 2 Diabetes
- Smoking

**Uncontrollable Risk Factors**
- Increasing Age
- Heredity (family history)
- Race (members of some races, particularly African-Americans, are at higher risks)
Life’s Simple 7™

1. Get Active
2. Control Cholesterol
3. Eat Better
4. Manage Blood Pressure
5. Lose Weight
6. Reduce Blood Sugar
7. Stop Smoking

First step: Know your numbers!
Life’s Simple 7™

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Your Risk: Physical Inactivity

How active are you??

All healthy adults ages 18-65 should be getting at least:
150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic or a combination of both.
"That's not what the doctor meant when he said to spend 20 minutes a day on the treadmill."
Physical activity will add years to your life and life to your years.
Life’s Simple 7™ www.mylifecheck.heart.org

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Your Risk: High Blood Cholesterol

Know your numbers!

Total Cholesterol Level
Desirable = Less than 200
Borderline High = 200 to 239
High = 240 and above
Dyslipidemia

- Cholesterol  < 200 mg/dL
- Triglycerides  < 150 mg/dL
- LDL  < 100 mg/dL
  - Low density lipoprotein
- HDL  > 55 mg/dl in women
  > 45 mg/dL in men
  - High density lipoprotein
- Cholesterol/HDL  < 4.5
## Importance of Lipid Levels

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Change</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cholesterol (TC)(^1)</td>
<td>For every 10 mg/dL increase in TC</td>
<td>9% increase in CVD death</td>
</tr>
<tr>
<td>Triglycerides (TG)(^2)</td>
<td>For every 89 mg/dL increase in TG</td>
<td>75% increase in risk for CVD in women; 30% increase in risk for CVD in men</td>
</tr>
<tr>
<td>HDL(^3)</td>
<td>For every 1 mg/dL decrease in HDL</td>
<td>4% increase in CVD death in women; 5% increase in CVD death in men</td>
</tr>
</tbody>
</table>

\(^1\)Anderson, KM et al. JAMA 1987;257:2176-2180.
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Life’s Simple 7 – Healthy Diet

• 5 cups of fruits and vegetables per day
• 3.5 oz. or more whole grain per day
• 2-3 servings of fish per week
  – 3.5 oz. = 1 serving
• Under 450 Calories of added sugar per week or < 36 oz. sugar-sweetened beverages
• Less than 1500 mg sodium per day
Goodbye Pyramid!
Hello Plate!
Build a Healthy Meal

• Make ½ your plate fruits & veggies.
• Add lean protein.
  – Lean beef and pork
  – Chicken
  – Turkey
  – Beans
  – Tofu
• Include whole grains.
• Avoid extra fat.
• Take your time.
• Use a smaller plate.
• Take control of your food.
  – Eat at home or bring from home.
HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.

The more veggies—and the greater the variety—the better. Potatoes and french fries don’t count.

Eat plenty of fruits of all colors.

Healthy Oils

Vegetables

Whole Grains

Healthy Protein

Fruits

Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

Eat whole grains (like brown rice, whole-wheat bread, and whole-grain pasta). Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat; avoid bacon, cold cuts, and other processed meats.

STAY ACTIVE!

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Harvard School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource

Harvard Medical School
Harvard Health Publications
www.health.harvard.edu
Never eat more than you can lift. - Miss Piggy
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Blood pressure

- Systolic blood pressure* $\geq 140$ mm Hg
- Diastolic blood pressure* $\geq 90$ mm Hg
- Antihypertensive medication

*Blood pressures confirmed by measurements on at least 2 separate occasions
Your Risk: High Blood Pressure

What is your normal blood pressure?

Normal = Below 120/80

Pre-Hypertension = 120-139/80-89

Hypertension = 140/90 or higher
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Obesity

• Waist circumference
  – > 102 cm (> 40 in) for men
  – > 88 cm (> 35 in) for women

• Body mass index (BMI)
  – Weight in kg / (height in m)^2
Obesity Trends* Among U.S. Adults
BRFSS, 1985

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
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BRFSS, 1988

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Obesity Trends* Among U.S. Adults

BRFSS, 1989

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1990

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1991

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1992

(*BMI \(\geq 30\), or \(\sim 30\) lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1993
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1994

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1995

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1996

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1997

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BRFSS, 1999
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BRFSS, 2000

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2001

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2002

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2003

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2004

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2005

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2006

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2007

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2008

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 2009

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults

BRFSS, 2010

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Prevalence\(^\d\) of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2011

\(^\d\) Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
Prevalence\(^\d\) of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2012

\(^\d\) Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) \(\geq\) 30%.
Prevalence\(^*\) of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2013

\(^*\) Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
Prevalence\(^\dagger\) of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2014

\(^\dagger\) Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) \(\geq 30\%\).
Summary

- No state had a prevalence of obesity less than 20%.
- 5 states and the District of Columbia had a prevalence of obesity between 20% and <25%.
- 23 states, Puerto Rico, and Guam had a prevalence of obesity between 25% and <30%.
- 19 states had a prevalence of obesity between 30% and <35%.
- 3 states (Arkansas, Mississippi and West Virginia) had a prevalence of obesity of 35% or greater.

¹Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

http://www.cdc.gov/obesity/data/prevalence-maps.html
Your Risk: Obesity & Overweight

Excess Weight:
- Strains your heart
- Raises blood pressure and cholesterol
- Can lead to diabetes

Do not gain more weight!
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Blood Sugar (Glucose)

- What is your fasting glucose?

<table>
<thead>
<tr>
<th>Category (fasting)</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;100 mg/dL</td>
</tr>
<tr>
<td>Impaired</td>
<td>100-126 mg/dL</td>
</tr>
<tr>
<td>Diabetes</td>
<td>&gt;126 mg/dL</td>
</tr>
</tbody>
</table>

- Dysfunction leads to diabetes
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Smoking

• Women smokers experience heart attacks earlier
  – N = 1,784

<table>
<thead>
<tr>
<th></th>
<th>Age of first heart attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male, smoker</td>
<td>64</td>
</tr>
<tr>
<td>Male, non-smoker</td>
<td>72</td>
</tr>
<tr>
<td>Female, smoker</td>
<td>66</td>
</tr>
<tr>
<td>Female, non-smoker</td>
<td>81</td>
</tr>
</tbody>
</table>

Study reported to the European Society of Cardiology, September 2008
Your Risk: Smoking

Benefits of Quitting

• Within 1 to 2 years of quitting, your risk of coronary heart disease is substantially reduced.
• Your sense of smell and taste come back.
• A smoker’s cough will go away.
• You breathe much easier.
• It is easier to be physically active.

Second and third hand smoke do exist!!
They are harmful!!
Beyond Life’s Simple 7

- Family history
- CRP-hs
Family History of CVD

• Myocardial infarction, coronary revascularization, or sudden death
  – Before 55 years of age in father or other male first-degree relative
  – Before 65 years of age in mother or other female first degree relative
hs-CRP and Risk of Future Cardiovascular Events in Apparently Healthy Women

Making Lifestyle Changes

• Little changes can make a BIG difference!

• 90% of what we do is habit.
Create an action list.

• Review Life’s Simple 7.

• What do you need to know?

• Small steps are important.
Heart Disease Prevention Program

- Goals of the HDPP:
  - Assessment of known risk factors for cardiovascular disease
  - Use of cardiovascular risk factor status in the development of individualized strategies for lifestyle changes
  - Reduction of the likelihood of developing heart and vascular disease
- Located at the Human Performance Clinical/Research Laboratory in the Moby building
- Includes 3 visits
Risk Parameters (1 of 2)

- Medical and Family History
- Resting 12-lead Electrocardiogram
- Complete Blood and Urine Analysis
  - Lipid panel, CBC, liver panel, kidney panel, glucose, insulin, A1c, CRP-hs, and iron
  - PSA available at an additional cost
- Blood Pressure
- Cardio-respiratory Physical Examination
- Pulmonary function testing
  - FEV1, TLC, VC and RV
Risk Parameters (2 of 2)

- Nutrition analysis of 3 day diet diary
- Psychosocial assessment
- Daily physical activity assessment
- Body composition
  - Skinfold measurements, girth measurements and underwater weighing
- Muscular strength and flexibility
- Maximal exercise test on treadmill
  - Physician supervised
Coronary Risk Profile

- Comprehensive individualized summary of risk factors and guidance to reduce risk
  - Lifestyle modification
  - Exercise prescription
  - Nutrition information
  - Information on risk factors and risk factor reduction
HDPP Eligibility

• CSU employees
  • Faculty and Admin Pro on CSU plan
    • Preventative Care Benefit ($0 - $80)
  • State Classified and all others
    • $320

• Available to the general public that are asymptomatic for CVD
  – Fee for service ($400)
How do I sign up?

• Call Tiffany at the HPCRL and schedule your preliminary visit.
  – 970-491-3847
  – Tiffany.lipsey@colostate.edu

• Three visits
  – 1st Preliminary Visit 1.5 hr
  – 2nd Stress Test 1.0 hr
  – 3rd Results and Follow-up Visit 1.0 hr
Ask not what your body can do for you, but what you can do for your body.

Tiffany Lipsey
Tiffany.lipsey@colostate.edu
970-491-7035 or 970-491-3847