Nutrition and Heart Disease

by Rachel Kay, MS, RDN, CD
Clinical Nutrition Specialist at Swedish Medical Center
Objectives

1. Be able to identify recommended diet changes for patients with cardiovascular disease, including knowledge of core themes and similarities between all heart healthy diets.

2. Be able to identify common foods and areas of diets that are not appropriate for those with CV disease or risk factors and which foods should be increased to promote health compared to usual American diet.
Case study with question

Mr. X is a 67 year old patient of yours who had an MI 4 months ago, he has a history of DM and HTN. He is interested in changing his diet now to reduce his risk of having another MI in the future. How comfortable do you feel with being able to give Mr. X a detailed explanation of what foods he should/should not eat and what kind of diet is best for him to follow?

1 – very uncomfortable/unfamiliar
2 – uncomfortable/somewhat familiar
3 – not uncomfortable/somewhat familiar, maybe fuzzy on specifics
4 – comfortable/familiar
5 – very comfortable/very familiar
Why is diet so important?

• Up to 45.4% of deaths from CVD are related to poor diet

• Among 17 leading risk factors in 2010 suboptimal dietary habits were the LEADING CAUSE of all cause mortality and DAYLs
  • Attributed to 678,000 deaths

• Many risk factors for CVD can be improved by diet and lifestyle changes
  • DM, HTN, HLD, overweight, obesity

US Burden of Disease Collaborators. JAMA. 2013;310(6)
Why is diet so important?


Afshin and Sur, 2017. Presentation at 2017 EPI/Lifestyle conference
Common Heart Healthy Diets

• American Heart Association guidelines (AHA)
  • Generally follows DASH and/or TLC recommendations
• Dietary Approaches to Stop Hypertension (DASH)
  • Shown to lower blood pressure, improve LDL cholesterol
• Therapeutic Lifestyle Changes (TLC)
  • Created by The Adult Treatment Panel III (ATP III) of the National Cholesterol Education Program to help patients lower LDL cholesterol as first line of defense
• Dietary Guidelines for Americans (DGA) 2015 update
Heart Healthy Diets vs Typical American Intake

### Vegetable Intake

<table>
<thead>
<tr>
<th></th>
<th>AHA</th>
<th>DASH</th>
<th>TLC</th>
<th>DGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Serving size:
- 1 cup raw leafy vegetable
- 1/2 cup cut raw or cooked vegetable
- 1/2 cup vegetable juice

### Fruit Intake

<table>
<thead>
<tr>
<th></th>
<th>AHA</th>
<th>DASH</th>
<th>TLC</th>
<th>DGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Serving size:
- 1 medium fruit
- 1/2 cup fresh, frozen or canned fruit
- 1/4 cup dried fruit
- 1/2 cup fruit juice

### Whole Grains

<table>
<thead>
<tr>
<th></th>
<th>AHA</th>
<th>DASH</th>
<th>TLC</th>
<th>DGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Serving size:
- 1 slice bread
- 1 oz dry cereal
- 1/2 cup cooked rice, pasta, etc.

---

National Heart, Blood, and Lung Institute
AHA Scientific Statement – Diet and Lifestyle Recommendations Revision 2006
2015-2020 Dietary Guidelines for Americans
What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intakes and limits.
Heart Healthy Diets vs Typical American Intake

<table>
<thead>
<tr>
<th></th>
<th>AHA</th>
<th>DASH</th>
<th>TLC</th>
<th>DGA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beans, Seeds (weekly)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serving size:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 ½ oz nuts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Tbsp nut butter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Tbsp seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>½ cup cooked legumes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Meat</strong></th>
<th>AHA</th>
<th>DASH</th>
<th>TLC</th>
<th>DGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serving size:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 oz cooked meat, fish, poultry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 egg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Dairy</strong></th>
<th>AHA</th>
<th>DASH</th>
<th>TLC</th>
<th>DGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serving size:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 cup milk, yogurt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 ½ oz cheese</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Micha, Penalvo, Cudhea, et al. JAMA. 2017;317(9)
National Heart, Blood, and Lung Institute
AHA Scientific Statement – Diet and Lifestyle Recommendations Revision 2006
2015-2020 Dietary Guidelines for Americans
What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intakes and limits.
Heart Healthy Diets vs Typical American Intake

**Sugar (servings)**
- AHA: 1
- DASH: 4
- TLC: 3
- DGA: 2

**Saturated Fat (% daily calories)**
- AHA: 12
- DASH: 11
- TLC: 10
- DGA: 9

**Sodium (grams)**
- AHA: 4
- DASH: 3
- TLC: 2
- DGA: 1

Serving size:
- 1 Tbsp sugar
- 1 tbsp jelly or jam
- 1/2 cup sorbet, jello
- 1 cup lemonade

---


National Heart, Blood, and Lung Institute

AHA Scientific Statement – Diet and Lifestyle Recommendations Revision 2006

2015-2020 Dietary Guidelines for Americans

What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intakes and limits.
Typical Eating Habits vs Ideal Patterns

• Diet has improved between 2003 to 2012 – to a whopping 1.5% of adults


Benjamin et al. Circulation. 2017;135:e146-e603
Other Heart Healthy Diets

• Mediterranean
• OmniHeart (modified DASH)
• Nordic style
• Plant based diets – vegan, Ornish
Common Themes in ALL Heart Healthy Diets

More

• At least twice as much produce (the more, the better) – should be 50% of all meals and snacks
• 3 times as much whole grain choices
• Beans and seeds should replace at least 1 meat choice each day; fish should replace other meat at least twice weekly
• Move more! At least 150 minutes weekly (in 10 minute+ increments)

Less

• Saturated fat
  • Particularly from animal sources
• Added sugar (milk and fruit sugars that are naturally present don’t “count”)
• Salt
• Moderate alcohol intake if consumed, not recommended to add if not currently drinking
Case study with question

Mrs. L is a 50 year old patient of yours with a history of elevated TG and LDL cholesterol and a family history of early onset CVD. She is interested in changing her diet. How comfortable do you feel with being able to give Mrs. L a detailed explanation of what foods she should/should not eat and what kind of diet is best for her to follow?

1 – very uncomfortable/unfamiliar
2 – uncomfortable/somewhat familiar
3 – not uncomfortable/somewhat familiar, maybe fuzzy on specifics
4 – comfortable/familiar
5 – very comfortable/very familiar