Objectives

- Discuss the evolution of the guidelines and practice standards of the DASH Diet using evidence-based recommendations and translate it to practical applications that are culturally relevant and culturally sensitive to African Americans and Hispanic Americans.
- Examine the principles of the DASH Diet as a dietary prescription for healthy lifestyle using the consumer education tool, MyPlate and Mi Plato based on the Dietary Guidelines for Americans highlighting five important food groups.
- Apply evidence surrounding the vital role of dairy in the DASH Diet for maximum effectiveness to help your patients take charge of their blood pressure and develop personalized management strategies to support its use for those with intolerances and culturally diverse.

Disclosures

Cindy Kleckner, RDN, LD, FAND

- Health & Wellness Advisory Council for Dairy MAX
- Co-author, Hypertension Cookbook For Dummies
- Co-author, DASH Diet For Dummies

My Food Philosophy

Food as Medicine

Less than 15 percent of medical visits include counseling for nutrition

Healthcare professionals who have nutrition knowledge and practice healthful behaviors are better able to counsel patients and use nutrition as a complimentary treatment

DASH may be your secret ingredient!

Prevalence of Hypertension
Food as Medicine: The DASH Prescription
Cindy Kleckner, RDN, LD, FAND

What is DASH?

Dietary Approaches to Stop Hypertension

- Developed to lower blood pressure without medication in research sponsored by the U.S. National Institutes of Health
- The first DASH diet research showed that it could lower blood pressure as well as the first line blood pressure medications, even with a sodium intake of 3,300 mg/day

U.S. News Best Diet Rankings

- The DASH Diet was rated “Best Diet Overall” for eight years in a row.
- In 2019 the DASH Diet was awarded the second “Best Overall Diet.”
- The publication bases this designation on several criteria:
  - Nutritional value
  - Heart Health
  - Diabetes
  - Safety
  - Ease of use
  - Effectiveness for short- and long-term weight loss

Focus on Whole Foods

DASH In Depth

• In 1997, it was known that obesity, sodium intake, and alcohol consumption influence blood pressure.
• Approx. 43 million people (24% U.S. adults) had high blood pressure
• Dietary guidelines at the time:
  - Weight control
  - Reduced sodium intake
  - Reduced alcohol consumption
  - Possibly increased potassium intake

Dietary Intervention for Hypertension

Developing DASH: Food First

• Vegetarians tend to have lower blood pressures than non-vegetarians. Diets featured:
  - High amounts of fiber
  - Calcium
  - Magnesium
  - Potassium
• In observational studies, significant inverse associations of blood pressure are seen with:
  - High amounts of fiber
  - Calcium
  - Magnesium
  - Potassium
  - Protein

Developing DASH: Food First

- Not all forms of nutrient delivery were beneficial. Dietary supplements didn’t have the same effects as the food
- In clinical trials where individuals were given single nutrients, often as dietary supplements, the reduction in blood pressure was typically small and inconsistent
- DASH was developed as a trial of dietary patterns rather than individual nutrients
- DASH tested the combined effects of nutrients that occur together in food

Landmark DASH Study

- Instead of looking at what to avoid or specific nutrients, the study sought to determine the effects of certain dietary patterns on blood pressure
  - Wholesome, inexpensive foods that support good health
- Landmark clinical trial in 1997 published in *New England Journal of Medicine*

Landmark DASH Study

- Results found in subjects with or without hypertension, a combination diet reduced blood pressure more than fruits and vegetables or the control diet alone.

- Systolic blood pressure ↓ by 5.5 mm Hg more than control diet
- Diastolic blood pressure ↓ by 3.0 mm Hg more than control diet

Study concluded:

- Certain dietary patterns can have a favorable effect on blood pressure, especially one that is:
  - Rich in fruits and vegetables and low-fat dairy
  - Reduced in saturated and total fat
- Reduction in blood pressure began within 2 weeks and maintained over next 6 weeks
  - Pattern of reduction similar between genders and ethnicities
- DASH trial can be broadly applied to the U.S. population

DASH Follow-Up Studies

- DASH-Sodium Study, 1997-2002
  - Tested the effects of varying levels of sodium: 3,300mg, 2,400mg and 1,500mg
  - Results: switching from a typical U.S. diet to a DASH Diet cut BP by 7-8points; drops 2 more points with a medium-salt diet and 5-6 more points on a low-sodium diet

Positive Results

These results led researchers to recommend adoption of national lower daily allowance for sodium from 2,300mg to 1,500 mg
Positive Results

**ENCORE Trial, 2003-2013**
- Evaluated the effects of the DASH diet alone, DASH plus exercise combined with a behavioral weight loss program on blood pressure compared to a Control Group who maintained usual eating habits
- **Results:** after 4 months, the beefed up DASH group lost an average of 19 lbs; the other groups lost little weight or gained
- Changes in dietary habits, weight, blood pressure persisted 8 months after completion of 16-week ENCORE program with some attenuation of the benefits

Flexibility and Choice

**OMNI-Heart Trial: A Variation on the DASH, 2002-2008**
- The Carbohydrate Diet
- The Protein Diet
- The Unsaturated fat Diet
- **Results:** BP improved on all 3 diets; the diets higher in protein and unsaturated fat had greater impact on BP control for those who already had high BP

Provide Flexibility and Choice

**High-Fat Dairy and DASH**
- HF-DASH lowered blood pressure to the same extent as DASH
- It also decreased TG and VLDL concentrations without significantly increasing LDL

Worth Prescribing

**2017 Randomized Control Trial**
- 400 adults with prehypertension or stage 1 high blood pressure
- DASH or Control Diet for 12 weeks
- Found a low-sodium DASH diet sustainably lowered systolic blood pressure

<table>
<thead>
<tr>
<th>Systolic Blood Pressure</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;150 mmHg</td>
<td>21 mmHg</td>
</tr>
<tr>
<td>140-149 mmHg</td>
<td>10 mmHg</td>
</tr>
<tr>
<td>130-139 mmHg</td>
<td>7 mmHg</td>
</tr>
<tr>
<td>≤130 mmHg</td>
<td>5 mmHg</td>
</tr>
</tbody>
</table>

Putting it in Context

- FDA requires any new antihypertensive agent submitted for approval to lower systolic blood pressure by 3-4 mmHg
- Most established medications on the market, such as ACE inhibitors, beta-blockers, or calcium channel blockers, on average reduce systolic blood pressure by 10-15 mmHg
- Here, the dietary intervention is as effective—or more effective—than antihypertensive drugs

Dietary Challenges
Lactose Intolerance

- **Lactose Intolerance is a food sensitivity** marked by insufficient lactase to digest lactose
  - **Lactase**:
    - Enzyme found in the lining of the small intestine
    - Acts as a catalyst in the breakdown of lactose
  - **Lactose**:
    - A sugar/carbohydrate naturally found in milk
    - Disaccharide containing glucose and galactose
- **Lactose Intolerance is not a food allergy**

An Adult Condition

- Lactose intolerance is **rare** in younger children
- Lactose intolerance typically **emerges in late-adolescence or adulthood**
- Higher incidence in **African Americans, Hispanic Americans, Native Americans, and Asian Americans**

Lactose Intolerance vs. Milk Allergy

<table>
<thead>
<tr>
<th>Lactose Intolerance</th>
<th>Milk Allergy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>Allergy</td>
</tr>
<tr>
<td>Occurs in gastrointestinal system</td>
<td>Triggered by immune system</td>
</tr>
<tr>
<td>A sensitivity to milk carbohydrate (lactose)</td>
<td>A reaction to milk protein</td>
</tr>
<tr>
<td>Rare in young children</td>
<td>Generally impacts young children; may be outgrown</td>
</tr>
<tr>
<td>Can enjoy milk and milk products with simple management strategies</td>
<td>Should avoid milk and milk products (unless allergy is outgrown)</td>
</tr>
</tbody>
</table>

Low Dairy Intake

- Only half of African Americans eat one or more servings of dairy a day
- On average, Hispanic Americans consume only 1.5-1.6 servings of dairy a day


A Critical Time to Grow

6 in 10 moms are restricting their children’s intake of dairy

83 percent of girls do not meet recommended intakes of milk

Source: National Osteoporosis Foundation

Benefits Now and In the Future

Studies show that dairy foods including low-fat milk, cheese and yogurt may be related to reducing your risk of certain diseases.

- Dairy has been linked with a lower risk of Type 2 diabetes
- Dairy has been linked with a lower risk of cardiovascular disease
- Dairy has been linked with a lower risk of osteoporosis

Dairy is the DASH Superstar!

- Dairy is the No. 1 source of both calcium and potassium in the U.S.
- It’s also packed with high-quality protein.
- Dairy foods have those magic minerals:
  - Calcium
  - Potassium
  - Magnesium

The DASH Prescription

What is the DASH Eating Plan?

Dietary Approaches to Stop Hypertension

- Fruits
- Vegetables
- Low-Fat and Fat-Free Dairy
- Lean Meat, Fish, Poultry
- Whole Grains
- Nuts, Seeds, Legumes
- Limits on Fats, Oils and Sweets
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DASH and A Heart Healthy Lifestyle
- Maintain a Healthy Weight
- Be Physically Active
- Make Healthy Eating Choices
- Increase Potassium-Rich Foods
- Reduce Sodium
- Limit Alcohol
- Avoid tobacco use

DASHing Toward Better Health
- The DASH Diet was designed to improve blood pressure but comes with bonus features:
  - Helps manage weight
  - Protects brain function
  - Helps maintain healthy kidney function
  - Helps reduce cancer risk

DASH Really Works

<table>
<thead>
<tr>
<th>Advice</th>
<th>Specifics</th>
<th>Systolic BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lose excess weight</td>
<td>For every 20 lbs. you lose</td>
<td>5 to 20 points</td>
</tr>
<tr>
<td>Follow a DASH Diet</td>
<td>Eat a lower-fat diet rich in vegetables, fruits and low-fat dairy</td>
<td>8 to 14 points</td>
</tr>
<tr>
<td>Limit sodium</td>
<td>Eat no more than 2400 mg a day (ideally 1500 mg)</td>
<td>2 to 8 points</td>
</tr>
<tr>
<td>Exercise daily</td>
<td>Get 30 minutes a day of aerobic activity</td>
<td>4-9 points</td>
</tr>
<tr>
<td>Limit alcohol</td>
<td>Have no more than 2 drinks/ day for men; 1 for women</td>
<td>2 to 4 points</td>
</tr>
</tbody>
</table>

Source: The Eighth Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure

What’s Your Role?

How Can You Make a Difference?
- Encourage lifestyle modification and the DASH guidelines in the treatment of patients with hypertension.
- Provide resources regarding the DASH Diet and make referrals to Registered Dietitian Nutritionists.

Consumers Trust Health Professionals

Which of these sources would you trust the most to provide accurate information about nutrition?
- Healthcare professional are top source
- Friends and family are also relied upon
- Health-focused websites
- Registered Dietitian Nutritionists
- Reading a scientific study
- News article or headline
- Healthcare professional on social media
- Food company
- Fitness professional on social media
- Government agency

Source: IFIC Foundation’s 2017 Food and Health Survey
DASH In Practice

Cook More! Focus of Flavor!
- Infuse more flavor into food without salt:
  - Citrus
  - Herbs and spices
  - Aromatic vegetables: onions, garlic, shallots
  - Veggie purees
  - Roasting and grilling
- Recipe Rehab:
  - Change cooking methods
  - Modify ingredients
  - Add wholesome food – "Nutrition by Addition"

Grilled Romaine Salad with Cilantro Lime Dressing
- The best way to get out of a salad rut is to dress it with a delicious and nutrient-rich "drizzle" of dressing. This yummy salad is a DASH'ed up version:
  - Greek yogurt in place of sour cream for added calcium & vitamin D
  - Include more veggies
  - Use healthy monounsaturated oil
  - Lean protein source that adds fiber

Signature Roasted Vegetables with Herbs
- Add a side dish of colorful vegetables for a generous dose of vitamins, minerals and antioxidants including magnesium, fiber with a lower calorie amount:
  - Think variety
  - Choose seasonal
  - Prepare with healthy monounsaturated oil
  - Variety of herbs and spices gives a little “kick” of flavor in place of excess salt
  - Roasting caramelizes to produce more flavor instead of steaming

Grilled Pineapple with Maple Cream Sauce
- Delicious dessert alternative to a heavy calorie bomb:
  - Fresh pineapple, flavored with sweet hint of cinnamon
  - High in potassium and vitamin C
  - Served with Greek yogurt containing calcium and vitamin D in lieu of high saturated fat ice cream
  - Right size portion following a satisfying meal

"Cooking Makes Nutrition Come Alive"
When patients get inspired and learn a few techniques and the art of flavor building their confidence blossoms and they are better able to follow a healthy eating program!
### References

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