Dietary Guidelines: What's in and what's out

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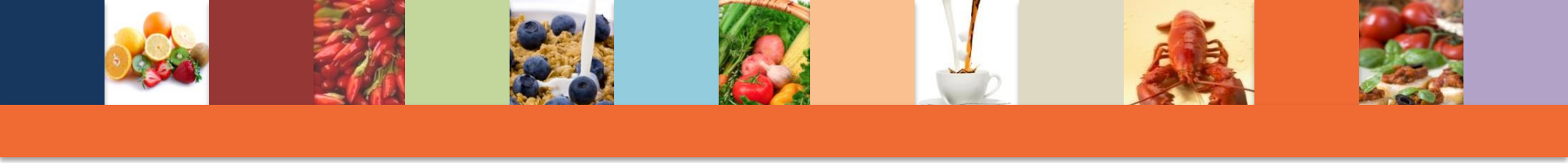
July 28, 2017

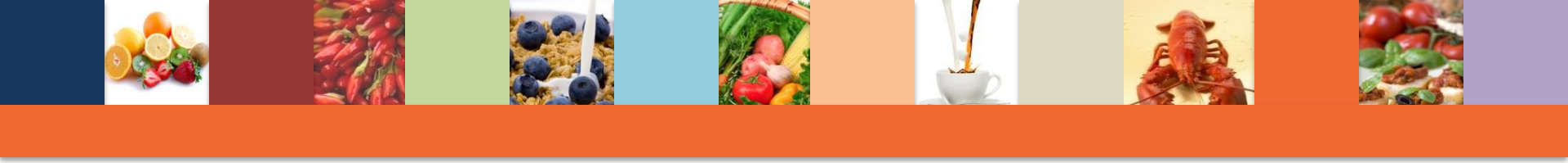


Competing interests

Dr. Slavin thanks the following organizations for providing research funds for her laboratory the past 5 years. American Pulse Association, ILSI-NA, MNDrive Global Food Ventures, United States Department of Agriculture, the Mushroom Council, GSK, Pepsico, Coca-Cola, Danone, Welch's, American Egg Board, Minnesota Beef Council, Minnesota Cultivated Wild Rice Council, Nestle Health Sciences, and DSM. These research projects are in the areas of dietary fiber, whole grains, legumes, FODMAPS, nutrient losses in deep winter greenhouses, mushrooms, digestive health, protein needs, carbohydrate needs, and snacking.

She serves on the scientific advisory board for Tate and Lyle, Kerry Ingredients, Atkins Nutritionals, and the Midwest Dairy Association.

She owns a 1/3 share of the Slavin Sisters Farm LLC, a 119 acre farm in Walworth, WI that is currently rented. Crops in 2016 included corn, soybeans, and pumpkins.



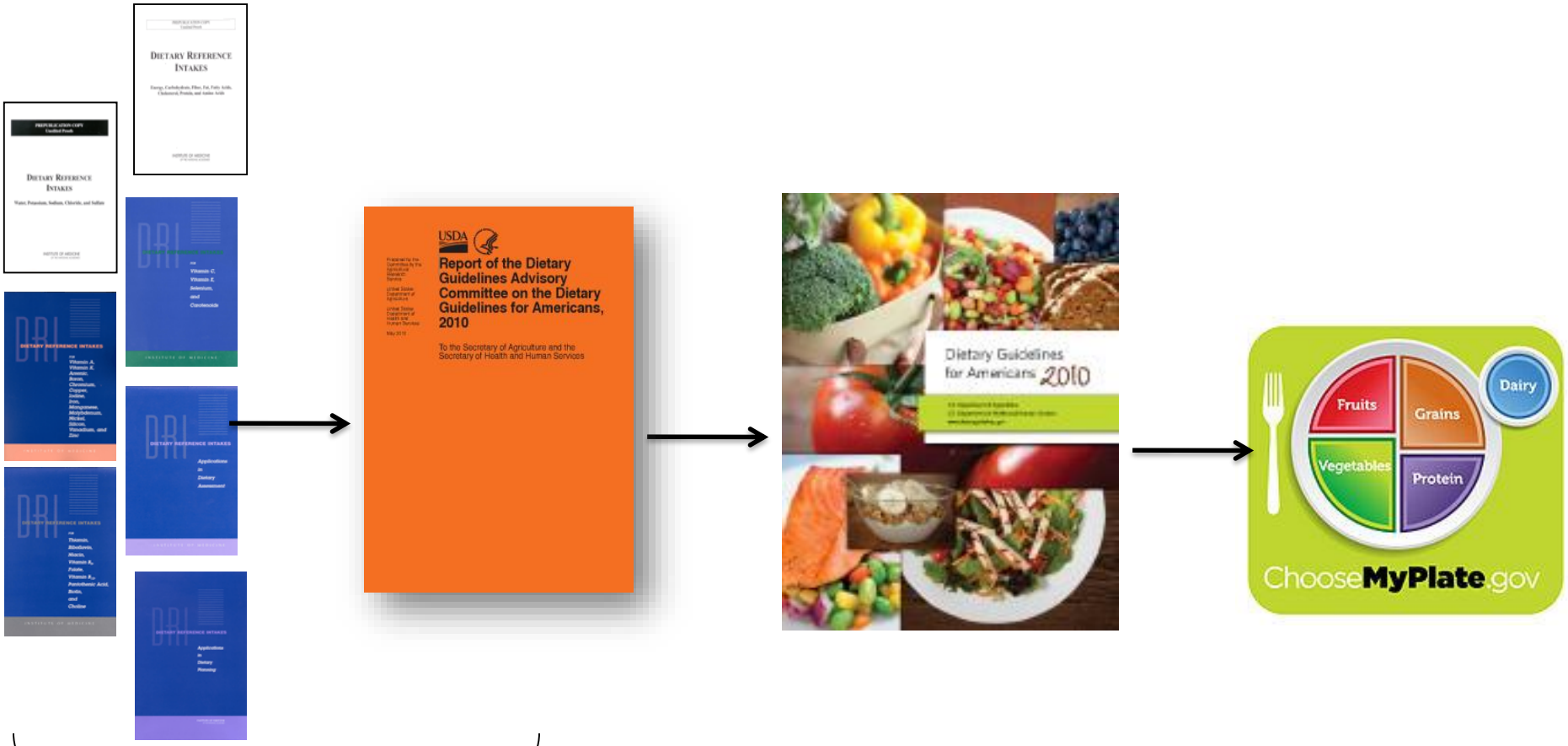
There is no perfect diet!

- Humans are omnivores and are adaptable to a wide range of foods
- Humans have survived and prospered on all kinds of diets, mostly reflecting access to food supply
  - Traditional Arctic diet: 80% of kcals from fat
  - Traditional African diet: 80% of kcals from carbohydrate
- Because of concerns with fat and cardiovascular disease, U.S. diet moved from higher fat (42% of kcal in 1972) to lower fat (32% of kcal in 2000) –current movement toward lower carbohydrate

Nutrient Adequacy

- Meet nutrient needs without exceeding calorie needs
- Dietary Reference Intakes (DRIs)
  - Acceptable Macronutrient Distribution Ranges (AMDR)
    - Protein: 10 - 35% of kcal
    - Carbohydrates: 45 - 65% of kcal
    - Fat: 20 - 35% of kcal
  - Recommended Dietary Allowance (RDA)
  - Adequate Intake (AI)
  - Tolerable Upper Level Intake (UL)

From the Science to Me

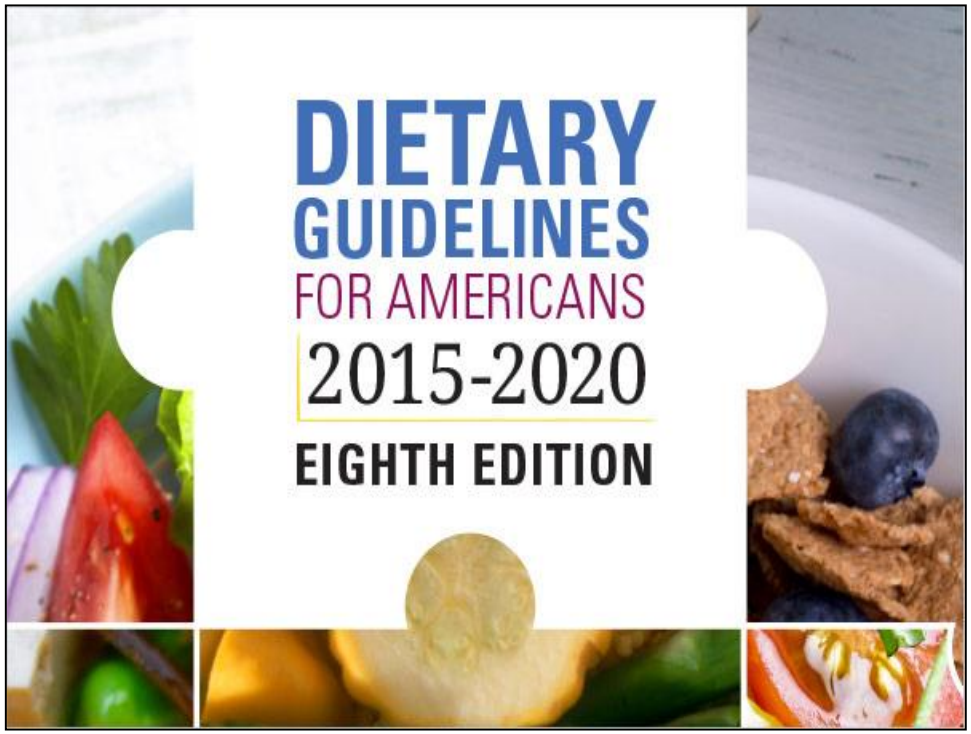


The Science **Policy** **Me**

The Purpose of the *Dietary Guidelines for Americans*

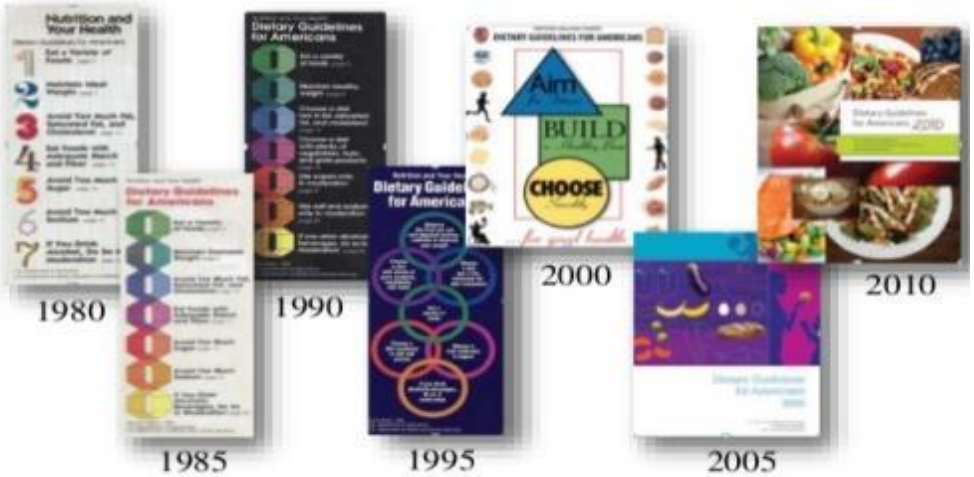
"Designed for professionals to help all individuals ages 2 years and older … consume a healthy, adequate diet."

"Develop food, nutrition and health policies and programs."



The *Dietary Guidelines for Americans*:

The Cornerstone of US Nutrition Policy & Regulation



FDA Food Labeling

USDA Nutrition Programs

FTC Marketing & Advertising

Global Influence

The Science Behind the *Guidelines*

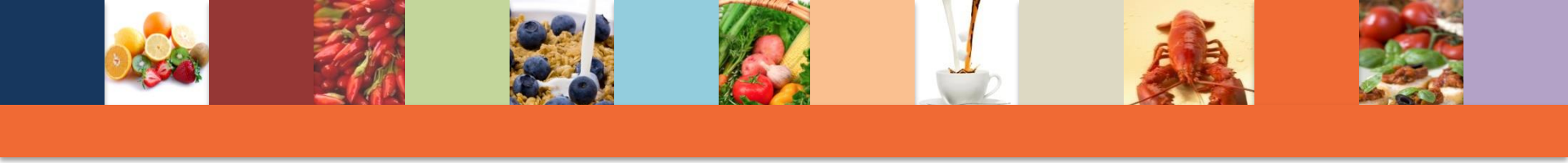
Dietary Guidelines Advisory Committee considers:

- Original systematic scientific reviews
- Existing systematic reviews, meta-analyses and scientific reports
- Dietary data analyses
- Food pattern modeling analyses

Issues technical report with nutrition and health recommendations

DHHS/USDA uses technical report and comments to develop updated *Dietary Guidelines*

- Scientific rationale based on <u>various research methods:</u>



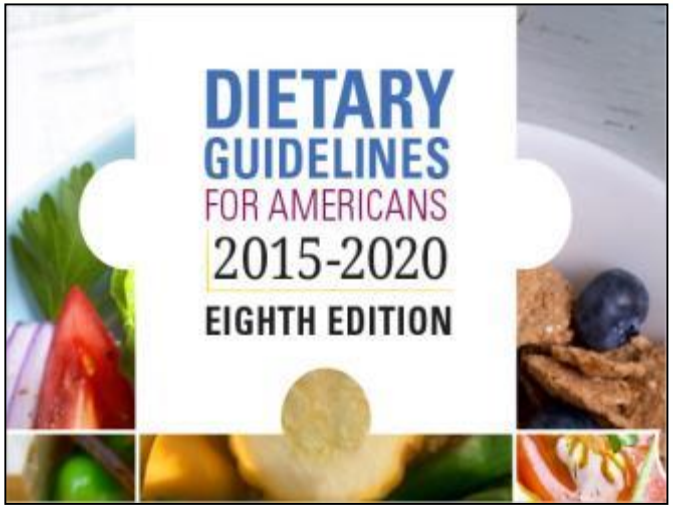
What's Happening with future *Dietary Guidelines for Americans (DGA)*?

- 2015-2020 DGA were controversial
  - Suggestions of the 2015-2020 DGA committee including sustainability and taxation policies were considered outside their scope and resulted in congressional hearings on the DGA process
  - USDA/HHS holding listening sessions to respond to congressional request to only make dietary recommendations when the relationship between dietary exposure and health outcome is strong
  - National Academy of Medicine, (formerly IOM), committee to discuss issues with the DGA process and the composition of the DGA committee
  - 2020-2025 DGAs will include from birth – 24 months – new challenges

2015-2020 *DGA*: A Snapshot

Provides 5 Overarching Guidelines:

1. Follow a healthy eating pattern across the lifespan.
2. Focus on variety, nutrient density, and amount.
3. Limit calories from added sugars and saturated fats and reduce sodium intake.
4. Shift to healthier food and beverage choices.
5. Support healthy eating patterns for all.



A healthy pattern includes:

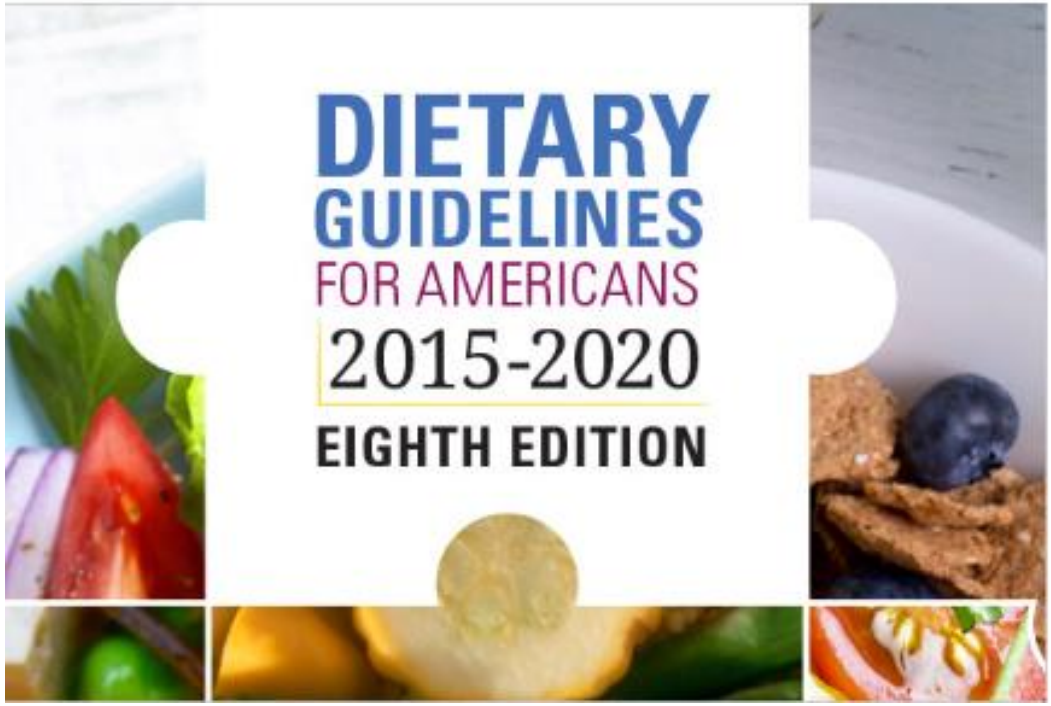
- A variety of vegetables
- Fruits, especially whole fruits
- Grains, at least half of which are WG
- Fat-free /low-fat dairy, including milk & yogurt
- A variety of protein foods
- Oils

A healthy pattern limits:

- Sat fat: <10% of calories/day
- Trans fat: keep as low as possible
- Added sugars: <10% of calories/day
- Sodium: < 2,300 mg of sodium/day

Shift from Individual Foods and Ingredients to Healthy Eating Patterns!

2015 Dietary Guidelines for Americans



A Healthy Eating Pattern <u>Includes</u>:

A Healthy Pattern Includes: *Vegetables & Fruits*

- What's the recommendation?
  - **2½ cups vegetables; 2 cups fruits** daily
    - Intakes remain significantly below recommended amounts
      - **Vegetables:** 87% have intakes below goal
      - **Fruits**: 75% have intakes below goal

- What's changed since 2010?
  - Similar to 2010 recommendations:
    - **Vegetables:** A variety of vegetables from all subgroups – dark green, red and orange, legume, starchy and other
    - **Fruit**: especially whole fruit

A Healthy Pattern Includes: *Grains*

- What's the recommendation?
  - **At least half of grain intake should be whole grain**
    - Continued imbalance of intake between refined grain and whole grain
    - Enriched/fortified grain recognized as important source of folic acid
  - **Recommendation for most adults: 6 ounce equivalents of Grain foods per day**
    - At least 3 should be whole grain
- What's changed since 2010?
  - **Similar to 2010 recommendations:**
    - At least half of grain intake should be whole grain
  - **Differences from 2010 recommendations:**
    - 16g whole grain = 1 whole grain ounce-equivalent
    - Acknowledgement that whole grains vary in fiber content
- What's the scientific basis?
  - **Systematic Reviews, Modeling**

A Healthy Pattern Includes: *Dairy*

- What's the recommendation?
  - **3 cups for ages 9+**
  - **Choose fat-free or low-fat dairy, including milk, yogurt, cheese and/or fortified soy beverages**
    - Almost everyone falls short!

- What's changed since 2010?
  - **Similar to 2010 recommendations:**
    - 2 cups for ages 2-3 years, 2.5 cups for ages 4-8 years, 3 cups for ages 9+
    - Choose fat-free or low-fat dairy foods
  - **Differences from 2010 recommendations:**
    - Choose fat-free and low-fat dairy options with little to no added sugars
    - Choose milk and yogurt over cheese to reduce saturated fat and sodium

- What's the scientific basis?
  - **Systematic Reviews, Modeling**

A Healthy Pattern Includes: *Protein*

- What's the recommendation?
  - **5½ ounce-equivalents/day from a variety of plant and animal sources**
    - Vary the source: seafood, lean meats, poultry, eggs, legumes, nuts, seeds, soy
      - Average intakes are close to recommended amounts
    - *Protein food intakes do decline in adults older than 71: 30% of women and 50% of men meet the recommended intake level of protein foods.*
    - *Intakes of the nutrient protein are adequate across the population and protein is not a shortfall nutrient*

- What's changed since 2010?
  - **Similar to 2010 recommendations:**
    - 5½ ounce-equivalents per day from a variety of plant and animal sources
  - **Differences from 2010 recommendations:**
    - Lower intake of processed meats/poultry - should fit within overall recommendations for calories, sat fat, sodium & added sugars

- What's the scientific basis?
  - **DRIs, Modeling**

Shift the Source of Protein

- Recommendation recap
  - Overall intakes adequate; 5 ½ ounce-equivalents/day
  - Emphasize lean meats, plant-based sources

- How to apply it?
  - ✓ Small shifts:
    - Sub-in seafood favorites
    - Have fun with plant-based protein
  - ✓ Processed meats should fit within overall recommendations for calories, sat fat, sodium & added sugars
  - ✓ Softer, easier to chew meats and protein sources
    - Dairy sources can be a good option

A Healthy Pattern Includes: *Oils*

- What's the recommendation?
  - **~ 5 teaspoons/day (27 g) for a 2000-cal diet**
    - Shift from solid fats to liquid oils
    - Not a food group; food sources recognized as important sources of healthy oils (e.g., nuts, fatty fish)
    - Part of healthy eating pattern as a major source of essential fatty acids, vitamin E
      - *Intakes remain below recommendations for almost every age group*

- What's changed since 2010?
  - **Similar recommendation to 2010**
  - ~ 5 teaspoons/day (27 g) for a 2000-cal diet

A Healthy Eating Pattern

Limits:

A Healthy Pattern Limits:
Saturated, trans, Solid Fats & Cholesterol

Saturated fats and *trans* fats…

- Consume less than 10% of calories/day from saturated fats
  - *Current intakes ~11%*
- Keep trans fat intake as low as possible

Why it's important…

- Reduction strategies impact all food groups
- Natural sources of trans fats do not need to be eliminated but low-fat dairy and lean meats are encouraged to reduce intake
- While there's a high consumer interest, coconut oil is still considered a solid fat

What about Cholesterol?

- **Recommendation for 300 mg limit not carried forward—BUT individuals should eat as little as possible**

A Healthy Pattern Limits: *Added Sugars*

- What's the recommendation?
  - **Less than 10% calories per day from added sugar**
    - Current intakes average >13% of calories, ~270 calories/day
      - *Nutrient-dense foods with added sugars OK within limits (e.g. fat-free yogurt and whole grain breakfast cereals)*

- What's changed since 2010?
  - **Similar to 2010 recommendations:**
    - Reduce added sugar consumption
  - **Differences from 2010 recommendations:**
    - First-time quantitative number

- What's the scientific basis?
  - **World Health Organization Systematic Review, Modeling**
  - **Acknowledgement that evidence is still developing**

A Healthy Pattern Limits: *Sodium*

- What's the recommendation?
  - **<2,300 mg/day ages 14+**
    - Current average intake = 3,440 mg/day
    - Based on relationship between ↑ sodium and ↑ BP

- What's changed since 2010?
  - **Same overall recommendation**
    - <2,300 mg/day ages 14+
  - **Differences from 2010 recommendations:**
    - 1,500 mg/day for adults with prehypertension/hypertension
    - *No longer recommended for subgroups: 51+, African Americans, those with diabetes/chronic kidney disease*

- What's the scientific basis?
  - **DRIs, Systematic Reviews**

Nutrients of Concern & Role of Fortified Foods

Nutrients of Concern & Role of Fortified Foods

What you need to know

- **Nutrients of public health concern:** Calcium, Potassium, Fiber, Vit. D
  - For kids, women capable of becoming/pregnant: *iron*
  - Women capable of becoming/pregnant: *folate*
- **Nutrients under-consumed**: Potassium, Fiber, Choline, Magnesium, Calcium, Vitamins A, C, D, and E

Change from 2010 recommendations:

- *Shift* to eating more vegetables, fruits, whole grains, and dairy to increase intake of nutrients of concern

Why it's important?

- Fortified breakfast cereals and yogurt were identified as key foods that provide nutrients of concern
- Fortified foods and supplements are useful in providing nutrients with inadequate intakes

2015 Healthy Eating Patterns

- US-Style
- Vegetarian
- Mediterranean

2015 Dietary Patterns

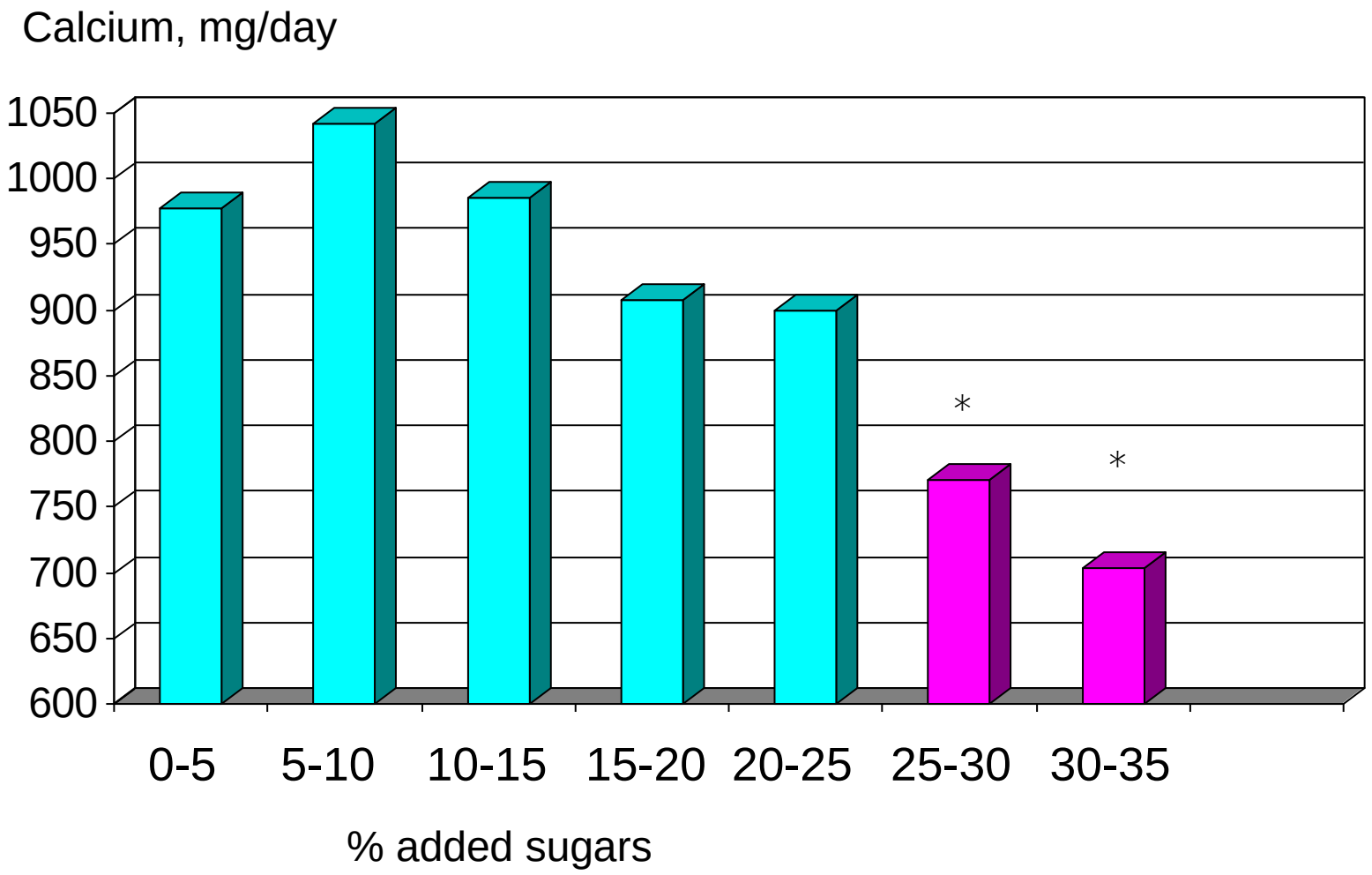
Food Group	Healthy U.S.-style	Healthy Vegetarian Style	Healthy Mediterranean-style*
Vegetables (cup-eq/day)	2.5	2.5	2.5
Fruits (cup-eq/day)	2	2	2.5
Grains (oz-eq/day)	6	6.5	6
Dairy (cup-eq/day)	**3**	**3**	**2**
Protein Foods (oz-eq/day)	5.5	3.5	6.5
Oils (g/day)	27 g	27 g	27 g

Food Pattern Modeling

- Important for "filling the gaps" in evidence
- Used intake data (NHANES) and nutrient composition databases
- Identifies impact on nutrient adequacy of making specific changes in food or dietary pattern (e.g., vegetarian patterns)
- Essential in demonstrating what is "doable" for the American public (e.g., alternatives to milk)
- Takes added sugar and solid fat from foods – to reduce calories -

(Appendix E-3 in 2010 DGAC report)

Calcium intake in children 4-8 Y as a function of added sugar intake



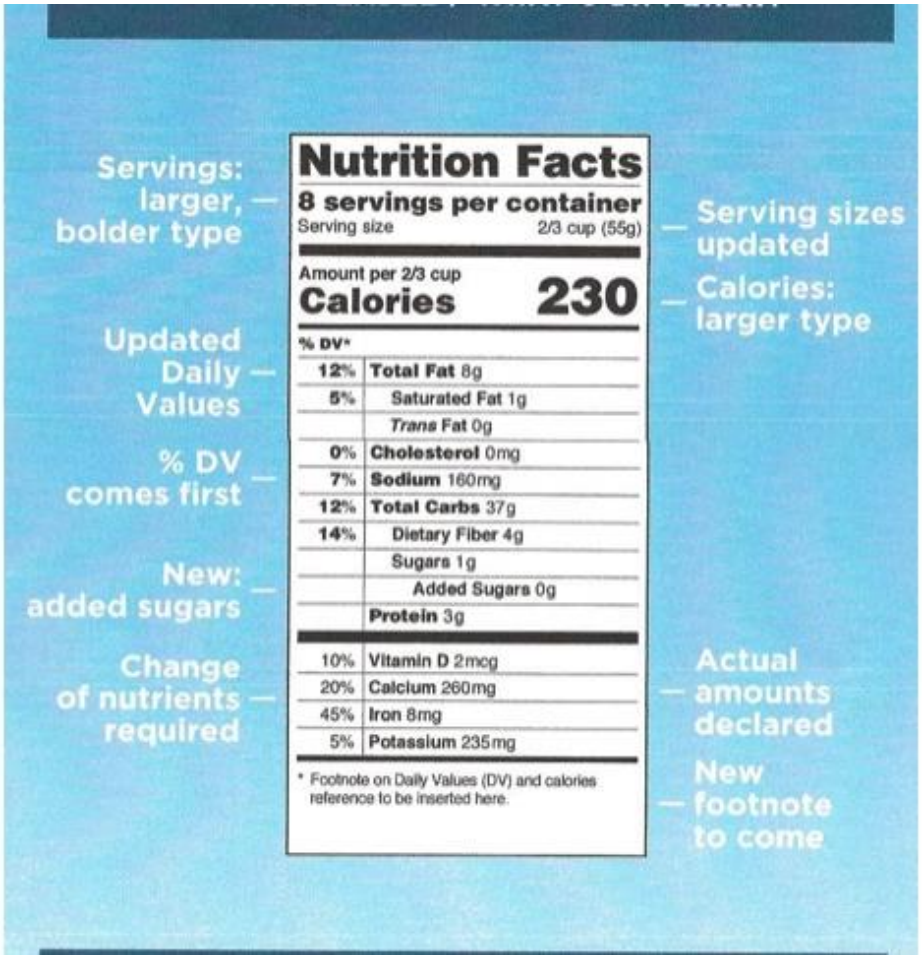
Three daily servings of reduced-fat milk – an evidence-based recommendation?

- Growing acceptance that full fat dairy, including cheese, linked to less disease risk, not more than low fat dairy
- This recommendation for low fat dairy is based on modeling – when you remove fat you remove calories
- Recommendations in the DGAs for lower solid fat and added sugar based on nutrient density, not link to negative health outcome

Diet modeling with dairy consumption

- Modeled recommended intakes of dairy from the 2010 DGAs
- Most children and adults fall short on dairy
- Calcium, magnesium, and vitamin A intakes improved when dairy intake was modeled
- Smaller, but significant increases in Vitamin D and little change in potassium
- Quann EE et al. Nutr J. 2015;14:90

Nutrition Facts: 10% - DV for added sugars



Differences in nutrient content of milks – USDA Nutrient Database

Type	Whole	1% white	FF white	1% choc	FF choc
Calories	146	102	91	158	130
Total fat - g	7.9	2.0	0.6	2.5	0.0
Protein - g	7.7	8.7	8.7	7.9	7.5
Sugar - g	11.0	11.0	12.3	26.0	22.0
Ca - mg	276	299	316	400	300

Flavored milk and nutrients

- Review of 53 studies
- Children drink more flavored milk than plain milk
- When flavored milk is not available, children drink less plain milk
- There is no association between flavored milk intake and weight status among normal weight children
- Flavored milk is a palatable beverage choice that helps children to meet calcium targets.
- Fayet-Moore. *Nutr Rev* 2015;74:1-17

1943: Basic Seven

Margaret Mead:
"People don't eat nutrition – they eat food"

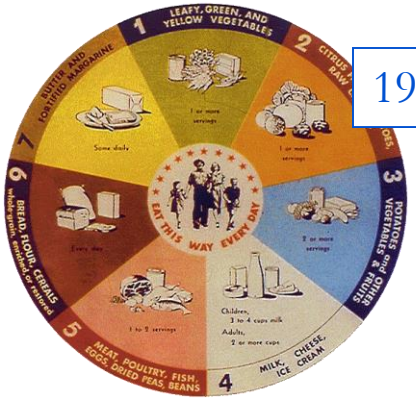
Basic 7 did not specify the number of servings of each food group needed daily

Food advice: Evolution of USDA's Food Guidance – Moderation and Variety

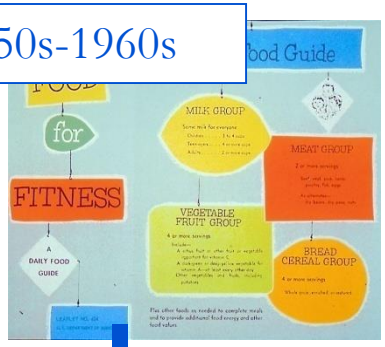
1916

Food for Young Children

1940s

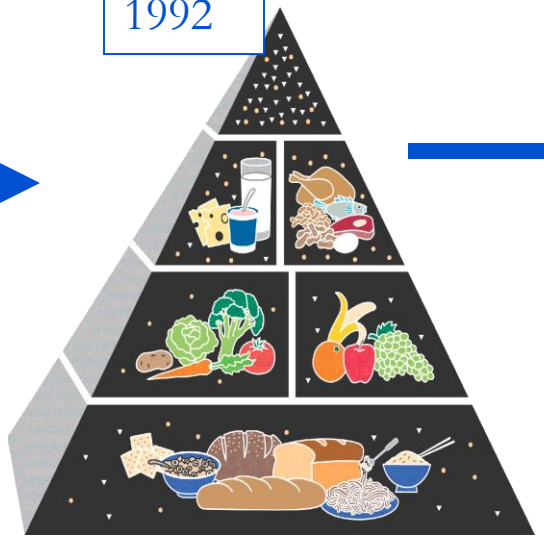


1950s-1960s



1970s

1992



2005

MyPlate.gov (6/2/11)

Conclusions

- Dietary Guidelines for Americans (DGAs) are supported by on an evidence-based review process that is updated every 5 years
- DGAs affect nutrition policy in the United States – Nutrition Facts panel, feeding programs, etc.
- The 2020 DGAs will include from birth to 24 months, which provide more challenges for the DGAC to review new information
- The scope of the DGAs is currently being challenged; does it just include dietary recommendations for disease prevention or can it include sustainability, taxation, and other areas that were not included in the original mandate for the DGAs