

Science Base Chapter:

Dietary Patterns, Foods and Nutrients, and Health Outcomes

Subcommittee 2

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Introduction

- A major goal of the DGAC was to describe the common characteristics of a healthy dietary pattern.
- Committee focused on research examining dietary patterns because the totality of diet may have synergistic and cumulative effects on health and disease.
- In this chapter, the Committee focused on providing a qualitative description of healthy dietary patterns based on evidence from epidemiological studies and intervention trials for several health outcomes.

Methodology

- Dietary patterns were defined as:
 - *the quantities, proportions, variety or combinations of different foods and beverages in diets, and the frequency with which they are habitually consumed.*

Dietary Pattern Methodologies

Selective Diets

- People who meet/don't meet criteria

Indexes/ Scores

- Individuals' scores on quality and its components

Cluster Analysis

- Groups of individuals and their diet patterns

Factor Analysis

- Factors explaining variation in individuals' scores

Hypothesis Testing

How do dietary patterns relate to health outcome?

Methodology

- When reviewing the evidence, the Committee attempted to adhere to the language used by the study authors in describing food groupings. There was some variability across studies in defining the food groupings.
 - Example: “Vegetables” seemed to most often exclude potatoes, but some studies included potatoes, yet they rarely provided information on how the potatoes were consumed (e.g., fried versus baked).

Methodology

- Since most studies compared highest versus lowest intake levels, the Committee presented its conclusions with relative terminology (e.g., “higher” and “lower” in a certain component).

Topics and Methodology

- Dietary Patterns and:
 1. Cardiovascular Disease
 2. Body Weight
 3. Type 2 Diabetes
 4. Cancer
 5. Congenital Anomalies
 6. Neurological and Psychological Illnesses
 7. Bone Health
- Existing Reports
- Original NEL
Systematic Reviews
-
- ```
graph LR; subgraph Existing_Reports; T1[1. Cardiovascular Disease]; T2[2. Body Weight]; T3[3. Type 2 Diabetes]; end; subgraph Original_NEL_Systematic_Reviews; T4[4. Cancer]; T5[5. Congenital Anomalies]; T6[6. Neurological and Psychological Illnesses]; T7[7. Bone Health]; end;
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# Status Update

- No substantive changes since the work was previously reported in a public meeting.

# Major Conclusions

- Strong evidence:
  - CVD; weight loss among overweight and obese adults
- Moderate evidence:
  - T2D; colorectal cancer; postmenopausal breast cancer; and body weight – weight gain or incidence of overweight and obesity (adults)
- Limited evidence:
  - Premenopausal breast cancer; lung cancer; neural tube defects; depression (adults); age-related cognitive impairment; bone health (adults); and body weight (children)
- Grade not assignable:
  - Prostate cancer; depression (post-partum women; children); congenital heart defects; cleft lip/palate; and bone health (children)

# Major Conclusions

- Numerous dietary patterns were identified, with the most common ones defined using indices or scores such as the Healthy Eating Index (HEI)-2010, the Alternate HEI-2010, or various Mediterranean-style dietary patterns, the DASH pattern, vegetarian patterns, and data-driven approaches.
- The Committee's examination of the association between dietary patterns and various health outcomes revealed remarkable consistency in the findings.

# Major Conclusions

- Common characteristics of dietary patterns associated with positive health outcomes include:
  - higher intake of vegetables, fruits, whole grains, low-fat dairy, fish/seafood, legumes, lean meat, and nuts;
  - moderate intake of alcohol;
  - lower consumption of red and processed meat, and
  - low intake of sugar-sweetened foods and beverages, and refined grains.

# Recommendations

- The U.S. population should consume dietary patterns that are:
  - rich in vegetables, fruits, whole grains, fish/seafood, legumes, and nuts;
  - moderate in dairy products (e.g. low and non-fat dairy) and alcohol; and
  - lower in red and processed meat, and
  - low in sugar-sweetened foods and beverages and refined grains.

# Recommendations

- These dietary patterns can be achieved in many ways and should be tailored to the individual's biological and medical needs as well as socio-cultural preferences.
- The dietary pattern characteristics being recommended by the 2015 DGAC reaffirms the dietary pattern characteristics recommended by the 2010 DGAC.
- The dietary pattern characteristics discussed in the chapter informed and is complementary to the quantitative description of dietary patterns provided in ***Part D. Chapter 1: Food and Nutrient Intakes, and Health: Current Status and Trends.***

# Recommendations

- Very little evidence examined dietary patterns during childhood.
- The healthy dietary pattern components discussed also apply to children and are reaffirmed with the USDA Food Patterns, which are designed to consider nutrient needs across the lifespan.

# Recommendations: Alcohol

- The Committee confirmed several conclusions of the 2010 DGAC, including that moderate alcohol intake can be a component of a healthy dietary pattern, and that if alcohol is consumed, it should be consumed in moderation, and only by adults.
- However, it is not recommended that anyone begin drinking or drink more frequently on the basis of potential health benefits.
- In addition, there are many circumstances in which people should not drink alcohol.
- Because of the substantial evidence clearly demonstrating the health benefits of breastfeeding, occasionally consuming an alcoholic drink does not warrant stopping breastfeeding. However, women who are breastfeeding should be very cautious about drinking alcohol, if they choose to drink at all.

# Recommendations

- A multi-level process at individual and population levels is required to help achieve a healthy dietary pattern and other lifestyle behaviors so as to reduce chronic disease and improve overall well-being.
- The Committee recommends the development and implementation of policies, programs and services that facilitate the improvement in eating behaviors consistent with healthy dietary patterns in various settings, including preventive services as well as those that reach populations in settings of influence such as preschool and school settings and workplaces, and where they purchase and consume food.

# Research Recommendations

1. Conduct additional dietary patterns research for other health outcomes to strengthen the evidence beyond CVD and body weight in populations of various ethnic backgrounds and life course stages in order for future DGACs to draw stronger conclusions.
2. Improve the understanding of how to more precisely characterize dietary patterns by their food constituents and the implications of the food constituents on nutrient adequacy through the use of Food Pattern Modeling.
3. Examine the long-term cardio-metabolic effects of the various dietary patterns identified in the AHA/ACC/TOS Guidelines for the Management of Overweight and Obesity in Adults that are capable of resulting in short-term weight loss.

# Special Thanks

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*Discussion*