

Subcommittee 3:
Diet and Physical Activity
Behavior Change

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Scope

- Dietary/physical activity (PA) behaviors
 - Motivators/facilitators/barriers
 - Recommended dietary and PA behaviors
 - Interventions to help people improve adherence to dietary and PA recommendations
 - Models of individual and small group dietary and lifestyle behavior change interventions:
 - Behavior change strategies and intervention characteristics
 - Innovations in modes of intervention for individual dietary and lifestyle behavior change

Scope

Contextual Factors

Acculturation

Household Food
Insecurity

Behaviors

Family Shared Meals

Eating Out

Food/Menu Label Use

Sedentary Behaviors

Self-monitoring

Sleep Patterns

Outcomes

Diet, Physical
Activity

Weight/
anthropometry
outcomes

Chronic disease risk/
biomarkers

Key Topic Areas

- Acculturation (presented in July)
- **Household Food Insecurity**
- **Family Shared Meals**
- **Eating Out**
- Food/Menu Label Use
- Mobile Health (presented in July)
- **Sedentary Behavior Including Screen Time**
- **Self-monitoring**
- **Sleep Patterns**

Invited Experts and Consultants

Invited Experts

Individuals invited by the SC, usually on a one time basis, to provide their expertise to inform the SC's work. Invited experts do not participate in decisions at the SC level.

Consultant SC Members

Individuals sought by the SC to participate in SC discussions and decisions on an ongoing basis but are not members of the full DGAC. Like DGAC members, consultants complete training and have been reviewed and cleared through a formal process within the Federal government.

Experts & Consultants

Invited Experts (July to Sept 2014)

None

Consultant SC Members

- Michael G. Perri, PhD, ABPP
 - Dean, College of Public Health and Health Professions
 - The Robert G. Frank Endowed Professor of Clinical and Health Psychology University of Florida

Questions Addressed Today

Household Food Insecurity

1. What is the relationship between household food insecurity and measures of dietary intake and body weight?

Family Shared Meals

2. What is the relationship between frequency/regularity of family meals and measures of dietary intake in US population groups?
3. What is the relationship between frequency/regularity of family meals and measures of weight and obesity in US population groups?

Eating Out

4. What is the relationship between eating out and/or take away meals and body weight in children and adults?

Questions Addressed Today

Sedentary Behavior Including Screen Time

5. How effective are behavioral interventions that focus equally on reducing recreational sedentary screen time and improving physical activity and/or diet for:
 - reducing screen time?
 - improving weight-related outcomes?
 - increasing physical activity?
 - improving diet?

Self-monitoring

6. What is the relationship between use of self-monitoring strategies and body weight outcomes in adults and youth?

Sleep Patterns

7. What is the relationship between sleep patterns and measures of appetite and dietary intake/dietary behavior in US population groups?
8. What is the relationship between sleep patterns and body weight in US population groups?

Household Food Insecurity (HFI)

Household Food Insecurity

What is the relationship between household food insecurity and measures of dietary intake and body weight?

NEL Systematic Review

Household Food Insecurity

USDA Definitions

Food Security

- High food security: no reported indications of food-access problems or limitations.
- Marginal food security: one or two reported indications--typically of anxiety over food sufficiency or shortage of food in the house. Little or no indication of changes in diets or food intake.

Food Insecurity

- Low food security: reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake.
- Very low food security: Reports of multiple indications of disrupted eating patterns and reduced food intake.

USDA ERS website accessed 7-15-14 (

<http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx#.U8WOxLFZg2w>)

Analytical Framework: Household Food Insecurity

Target Population

Children (2-18 years) and adults, healthy and at risk for chronic disease

Intervention/Exposure

Household food insecurity (HFI)

Comparator

Different levels of household food insecurity (HFI) or food security
Examine by age, gender, ethnic/racial group, pregnancy status

Intermediate Outcomes

- Diet quality indices
- Foods/food groups
- Macronutrient intakes/proportions
- BMI, waist circumference
- Weight change, body weight, % body fat
- Child growth indices
- Pregravid obesity, gestational weight gain, weight gain adequacy ratio

Endpoint Health Outcomes

- Incidence of healthy weight, overweight, obesity

Potential confounders:

- Total energy intake
- Nutrient/energy density of diet
- BMI
- SES/socioeconomic position
- Age
- Ethnicity/race
- Physical activity
- Family/household composition
- Affordability of foods available
- Participation in nutrition assistance programs
- Tanner stage (for adolescents)

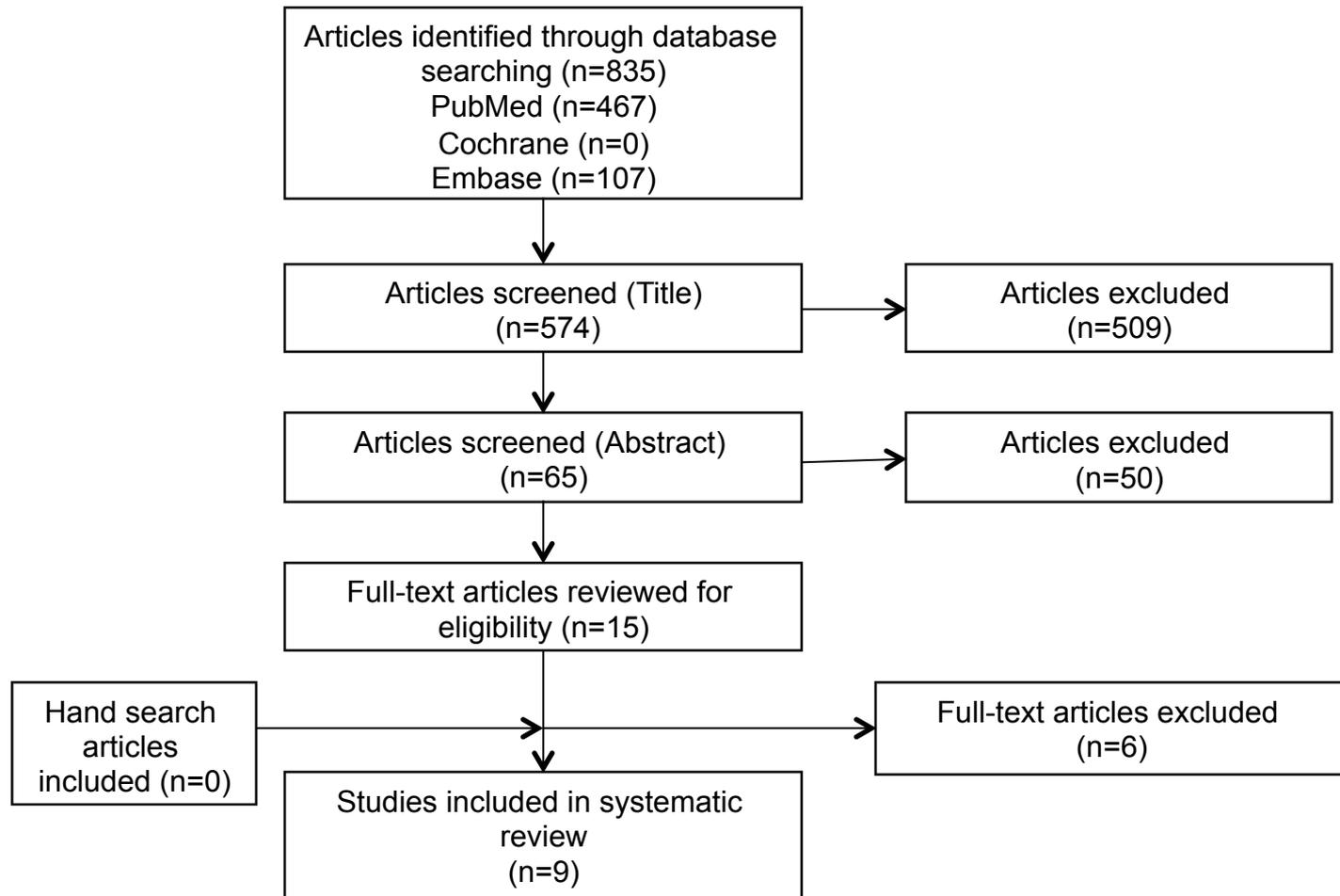
Key Definitions: Food Insecurity: USDA definitions

Household Food Insecurity

Literature Search: Inclusion/Exclusion Criteria

- Peer-reviewed articles published in English between January 2004 – May 2014
- Human subjects > 2 years
- Healthy or with elevated chronic disease risk (excluded studies with all subjects diagnosed with disease)
- Studies conducted in high or very highly developed countries (Human Development Index 2013)
- Prospective cohort studies
- Intervention/Exposure: Household food insecurity
- Outcomes: measures of dietary intake; body weight/BMI

Household Food Insecurity Literature Search Results



Household Food Insecurity

Description of the Evidence - Adults

4 prospective cohort studies

- Women only – 3 studies in US
 - Study size: 303-1,707
 - Ethnically and racially diverse
- Older adults – 1 study in US
 - 2 nationally representative longitudinal panel surveys
 - Study size: 6,354 and 9,481
 - Mean age: 60.8 y and 79.6 y
 - Predominately Caucasian; 48% and 60% female
 - Relationship between food insecurity and weight in older adults & food assistant programs as modifier

Household Food Insecurity

Description of the Evidence - Children

4 studies – 3 in US, 1 in Canada

- Study size/age/racial ethnic:
 - 1,514 nationally representative Canada; 4.5 y (follow-up); 50% female
 - Two national representative cohort studies:
 - 7,635; mean 6 y; 50% female; 65% Caucasian, 9% African American, 16% Hispanic
 - 11,460; mean 6 y; 49% female; 62% Caucasian, 11% African American, 17% Hispanic
 - 28,353 WIC in Massachusetts (infant to 3 y); 50% female; 40% Caucasian, 20% African American, 30% Hispanic

Household Food Insecurity

Draft Key Findings

- Among older adults, becoming food insecure during follow-up was positively associated with BMI in one large cohort.
- Among pregnant women, findings were inconsistent with 1 of 2 studies suggesting no association between food insecurity and pregnancy weight gain outcomes. One study found null findings among marginally food secure, but greater weight gain, adequacy of weight gain, and severe pre-gravid obesity among food insecure women.
- Among children, findings were inconsistent; however, there was some suggestion of an association between food insecurity and weight status for girls and those who had low birth weight.

Household Food Insecurity

Draft Limitations

- Heterogeneity in populations and methodology may contribute to mixed findings. Additional research is needed across a broader age range, among a more ethnically and racially diverse populations using a more consistent approach to measure household food insecurity and analysis of potential mediators including dietary intake, and access to food assistance programs.

Household Food Insecurity

Draft Conclusion Statement

Limited and inconsistent evidence conducted in adults and children suggests a positive association may exist between persistent and/or progressing household food insecurity and body weight in older adults, pregnant women, and young children.

No studies reported a relationship with lower body weight.

Grade: Limited

Household Food Insecurity

Draft Implications

- Federal food assistance programs should carefully document and monitor food insecurity and nutritional risk in program participants.
- Participants should receive tailored counseling to choose foods that meet the Dietary Guidelines for Americans and achieve or maintain a healthy body weight.

Household Food Insecurity

What is the relationship between household food insecurity and measures of dietary intake and body weight?

Discussion

Family Shared Meals

Family Shared Meals

1. *What is the relationship between frequency / regularity of family meals and **measures of dietary intake** in US population groups?*
2. *What is the relationship between frequency / regularity of family meals and **measures of body weight and obesity** in US population groups?*

NEL Systematic Review

Family Shared Meals

Description of the Evidence

- Dietary Intake
 - 2 US studies
 - Study duration: 5 y and 10 y
 - Population:
 - Adolescents transiting from early (middle school) to middle (high school) adolescence
 - Adolescents transitioning to early adulthood
- Weight
 - 6 US studies
 - 1 randomized controlled trial
 - 5 (4 cohorts) prospective cohort studies
 - Study duration: RCT: 6 mo; prospective cohort: 1 to 5 y
 - Population:
 - Children and adolescents, 4-15 y

Family Shared Meals

Description of the Evidence

- Exposure: Self-reported frequency of family/shared meals
 - All meals, breakfast and dinner, or dinner meal assessed
- Outcomes assessed:
 - Dietary intake: energy, fruit (excluding juice), vegetables (excluding potatoes), milk products, whole grains, sugar-sweetened beverages, total fat, saturated fat, and alcohol
 - BMI
 - Incidence of overweight/obesity

Analytical Framework: Family Shared Meals

Target Population

Children (2 to 18 years) and adults, healthy and at risk for chronic disease

Intervention/Exposure

Frequency/regularity of family/shared meals

Comparator

Different levels family meal frequency/regularity;
Examine by gender, ethnic/racial group, geographic location

Intermediate Outcomes

- Diet quality indices (Q1)
- Foods/food groups (Q1)
- Macronutrient intakes/proportions (Q1)
- BMI (Q2)
- Weight change, % body fat mass (Q1)
- Child growth indices (Q2)

Endpoint Health Outcomes

- Incidence of healthy weight, overweight, obesity (Q2)

Key Confounders

- Total energy intake
- BMI
- Age
- Race/ethnicity
- Sex
- SES
- Physical activity
- Baseline overweight status (longitudinal studies)
- Family size
- Familial factors, e.g., family connectedness and weight-specific pressures within the home
- Parent employment status
- Parent work-life stress

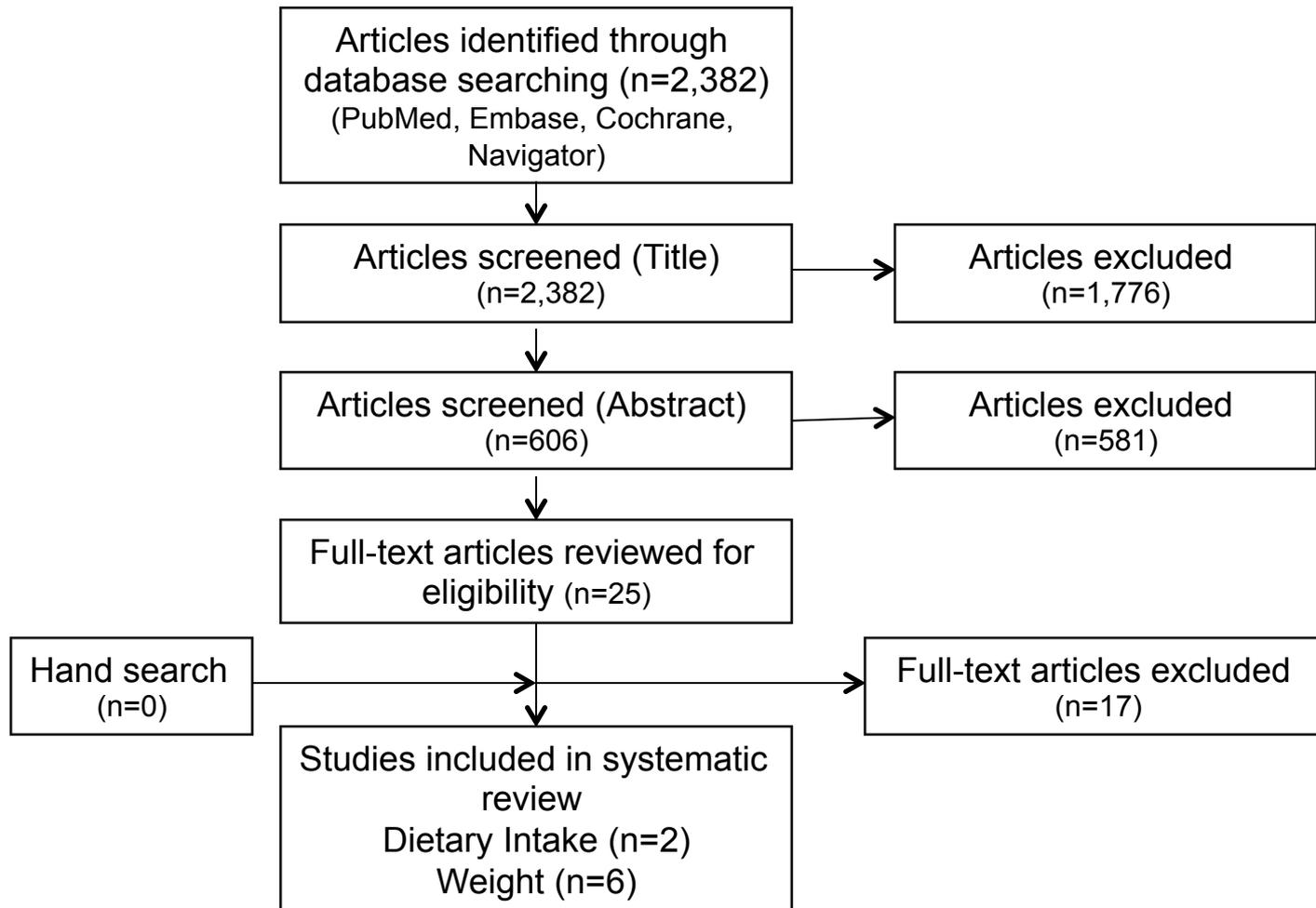
Key Definitions: Frequency of family or household shared meals - NEL will document authors' definitions

Family Shared Meals

Literature Search: Inclusion/Exclusion Criteria

- Peer-reviewed articles published in English between Jan 2004 – Jul 2014
- Human subjects > 2 years of age
- Healthy or with elevated chronic disease risk (excluded studies with all subjects diagnosed with disease)
- International population from countries with a high or very high HDI
- Prospective cohort studies, randomized controlled trials, crossover trials
 - Intervention studies with a dropout rate $\leq 20\%$ and a differential dropout rate of $\leq 15\%$ between groups
 - Intervention studies: at least 30 subjects per study arm
- Frequency/regularity of family/shared meals
- Outcome: Diet quality, intake of foods/food groups, macronutrients, obesity, overweight, and indices of weight, growth, and body composition

Family Shared Meals Literature Search Results



Family Shared Meals

- 1. What is the relationship between frequency/ regularity of family meals and measures of dietary intake in US population groups?*

Family Shared Meals – Dietary Intake

Draft Key Findings

- Two publications from one prospective cohort assessed the relationship between frequency of family meals and dietary intake in children transitioning from early to middle adolescents and into young adulthood.
 - Studies found increased consumption of family meals was associated with improved dietary intake, specifically an increase in fruits and/or vegetables, and calcium-rich or milk-based foods.

Family Shared Meals – Dietary Intake

Draft Conclusion Statement

Insufficient evidence is available examining the association between frequency of family meals and measures of dietary intake to draw a conclusion.

Grade: Not assignable

Family Shared Meals

- 2. What is the relationship between frequency/ regularity of family meals and measures of body weight and obesity in US population groups?*

Family Shared Meals – Weight

Draft Key Findings

- Three out of four prospective cohort studies found no association between frequency of family meals BMI or overweight status.
- Evidence from one prospective study (two articles) showed an increase in frequency of family meals lowered the likelihood or becoming overweight or the persistence of overweight.
 - One study found that among overweight children, eating more family breakfast and dinner meals was associated with lower likelihood of becoming overweight or remaining overweight over a 4 year period.
 - Another article reported children who typically ate more breakfasts with their families had a reduced rate of increase in BMI over 5 years. The number of dinners eaten with family was not associated with change in BMI.

Family Shared Meals – Weight

Draft Key Findings

- One RCT included an intervention that simultaneously focused on four household routines including family meals. While there was a reduction in body weight, there was not change in family meal frequency.

Family Shared Meals – Weight

Draft Limitations

- Studies did not use a standard definition for family meals, two studies assessed only family dinners, two studied assessed breakfast and dinner meals and two studies assessed all meals. No study assessed the quality or source of meals consumed.

Family Shared Meals – Weight

Draft Conclusion Statement

Limited evidence from prospective studies shows inconsistent relationships between the number of family/shared meals and body weight of children.

Grade: Limited

Family Shared Meals

- 1. What is the relationship between frequency/regularity of family meals and measures of dietary intake in US population groups?*
- 2. What is the relationship between frequency/regularity of family meals and measures of body weight and obesity in US population groups?*

Discussion

Eating Out

Eating Out Question

What is the relationship between eating out and/or take away meals and body weight in children and adults?

NEL Systematic Review to update 2010
DGAC

Eating Out Background

2015 Systematic Review Question:

- What is the relationship between eating out and/or take away meals and body weight in children and adults?

2010 Systematic Review Questions:

- What is the relationship between eating out and adiposity in children?
- What is the relationship between eating out and body weight in adults?

Rationale for change:

- Increased popularity of take away meals lead to inclusion of this concept in the 2015 systematic review question. The 2015 DGAC is interested in exploring the impact of eating out at a range of food outlets (i.e., quick serve, casual, formal restaurants, grocery take out).
- Review targets both children and adults and data will be evaluated by age group.

Analytical Framework: Eating Out

Target Population

Children (2 to 18 years) and adults, healthy and at risk for chronic disease

Intervention/Exposure

Frequency of eating out or take away food meals
Types of food outlets when eating out or food taken home (i.e., quick serve, casual, formal restaurant)

Comparator

Different types of food outlets
Different frequency of meals eaten out or as take away meals

Intermediate Outcomes

Adults:

- BMI
- Waist circumference
- Weight change
- % body fat mass

Child growth indices:

- Weight-for-age, Length/stature-for-age, weight for stature
- BMI-for-age, BMI z-score

Key Confounders

- Total energy intake
- Dietary intake
- BMI
- Age
- Race/ethnicity
- Sex
- SES
- Physical activity
- Baseline overweight status (longitudinal studies)
- Familial factors, e.g., family connectedness and weight-specific pressures within the home
- Parent employment status
- Parent work-life stress

Endpoint Health Outcomes

- Incidence of healthy weight, overweight, obesity

Key Definitions: Eating out and take away meals - NEL will document authors' definitions, types of food outlets and take-away foods

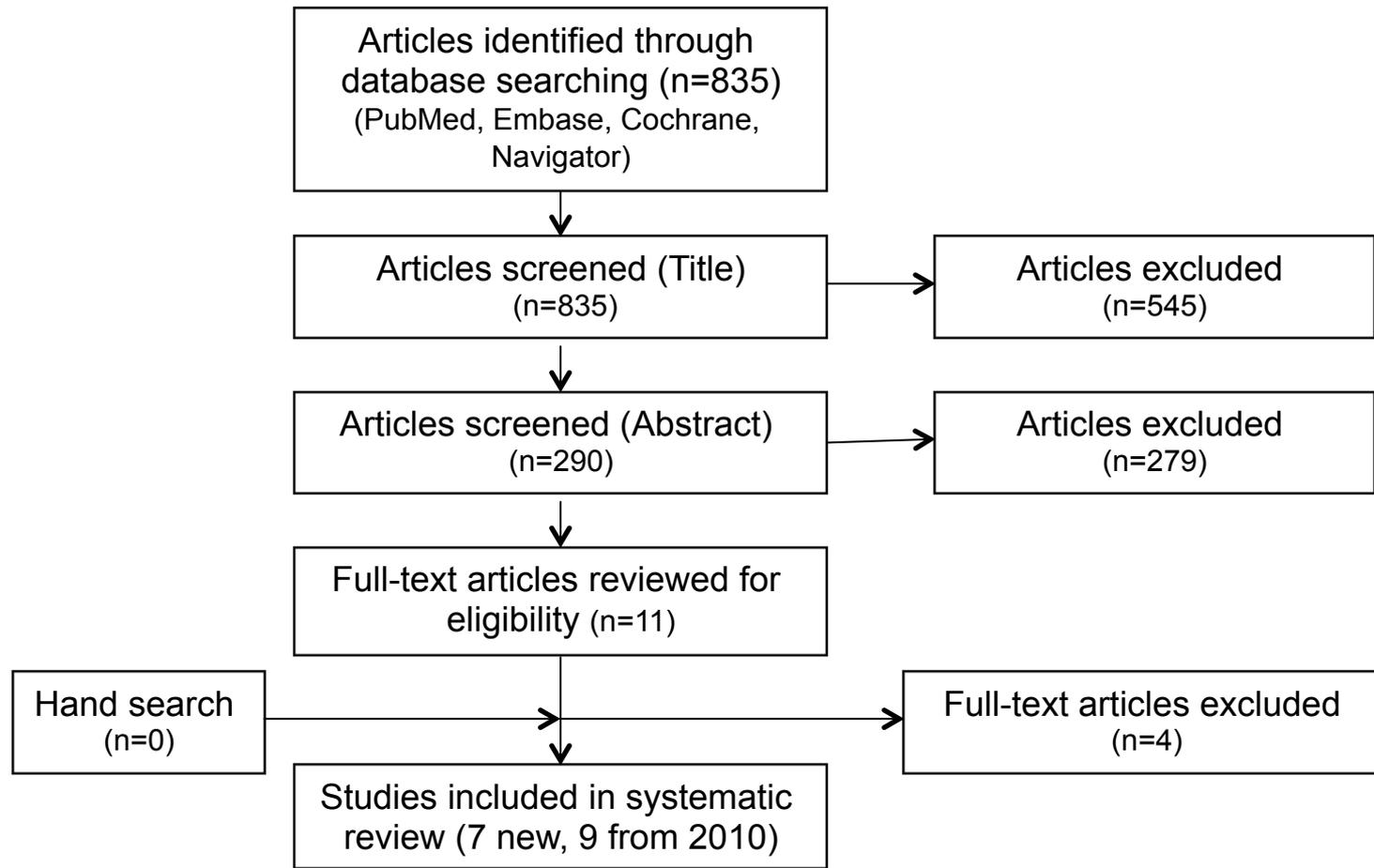
Eating Out

Literature Search: Inclusion/Exclusion Criteria

- English language peer-reviewed articles
 - 2010 DGAC; Jan 2000-Jan 2010
 - 2015 DGAC; Jan 2010-Apr 2014
- Human subjects > 2 y
- Healthy or with elevated chronic disease risk
- International population from high or very high HDI countries
- Prospective cohort, randomized controlled trials, crossover trials, non-randomized controlled trials
- Frequency and type of eating out/take away food meals
- Body weight intermediate and health outcomes

Eating Out Update

2014 Literature Search Results



2010 DGAC Eating Out Review (n=9 primary studies) search strategy/results available at www.NEL.gov

Eating Out

Description of the Evidence

- 16 prospective studies (14 cohorts) included in this review:
 - Children: 8 studies
 - 4 conducted in US, others in Canada, UK, Australia, China
 - Age: Primarily 9-16 y
 - Study duration: 2 to 6 y
 - Exposure: Fast food (6 studies), fried foods away from home (1 study), breakfast away from home (1 study), coffee / donut shops and restaurants (1 study)
 - Outcomes: BMI or BMI z-score, (6 studies), body fat (2 studies), weight status (4 studies)
 - Transition from adolescence to adulthood: 1 study
 - US study
 - Age: 16y
 - Study duration: 5 y
 - Exposure: Fast food consumption
 - Outcomes: BMI or BMI z-score
 - Adults: 7 studies (5 cohorts)
 - 6 conducted in the US and 1 in Spain
 - Age: primarily < 40y
 - Study duration: 1 to 14 y
 - Exposure: Fast food consumption (5 studies), restaurant meals consumed (2 studies), meal type categories (1 study)
 - Outcomes: Weight change, BMI (5 studies), waist circumference (2 studies), weight status (2 studies)

Eating Out

Draft Key Findings – Children

- In children, eight prospective cohort studies (six cohorts), examined the relationship between frequency of fast food meals or consumption of other types of meals and anthropometric outcomes and overall found mixed results and some variation in results by gender.
 - Six studies examined fast food meals: three studies indicated increased fast food intake, especially above twice per week, was associated with increased risk of obesity, BMI/BMI z-score, or body fat, one found no associations, and two found results varied by gender.
 - Three studies looked at a variety of non-fast-food meals away from home, using varying definitions of food establishments and meal-types and reported mixed findings for a relationship with weight-related outcomes.

Eating Out

Draft Key Findings – Adolescents

- In adolescents transitioning to adulthood, one study found high baseline frequency of fast food intake was associated with increased BMI z-scores at five-year follow-up.

Eating Out

Draft Key Findings – Adults

- In adults, evidence consistently demonstrated a relationship between increased frequency of fast food meal consumption and weight outcomes.
 - Five prospective cohort studies (three cohorts) reported an increased intake of meals from fast food locations or intake exceeding once per week was associated with higher weight gain, BMI, and risk for obesity compared to adults who consume fast food less frequently.
- Evidence related to the association between frequency of meals from other types of restaurants and intake of all takeout meals and weight is insufficient to support a conclusion.
 - Two studies examined total meals away from home or meal types eaten away from home, which came from both fast food and restaurant locations, and reported frequency was associated with increased weight outcomes for most meal types.
 - Two studies from the same cohort found no relationship between frequency of meals from restaurants (non-fast-food establishments), and weight related outcomes.

Eating Out

Draft Limitations

- Data are sparse regarding meal composition, studies in young children or older adults. Hispanic/Latino and Asian populations are poorly represented in this body of literature.

Eating Out

Draft Conclusion Statements

Moderate evidence from prospective cohort studies in populations 8 to 40 years of age at baseline indicates increased frequency of fast food consumption is associated with increased weight, BMI and risk for obesity.

GRADE: Moderate

Insufficient evidence is available to assess the relationship between frequency of other types of restaurant and takeout meals and weight outcomes.

GRADE: Not Assignable

Eating Out

Draft Implications

- Given that one-third of calories are consumed outside of the home, Americans should limit the frequency of eating at fast food establishments.
- When eating out, Americans should choose healthier foods to avoid increases in body weight.

Eating Out

What is the relationship between eating out and/or take away meals and body weight in children and adults?

Discussion

Sedentary Behavior Including Screen Time

Sedentary Behavior Including Screen Time Question

1. *What is the relationship between sedentary behavior and measures of dietary intake and body weight/BMI in adults?*

DRAFT DGAC Conclusions (presented at March meeting)

- Consistent evidence exists associating increased TV viewing with increased body weight/BMI/body fat as children transition from adolescence to adulthood.
- No prospective association between sedentary behavior in adulthood and body weight or body weight changes over a time period of approximately 4-7 years.
- Insufficient evidence exists to address the association between sedentary behavior and dietary intake in adults.

Sedentary Behavior Including Screen Time Community Guide (CG) Question

2. *How effective are behavioral interventions that focus equally on reducing recreational sedentary screen time and improving physical activity and/or diet for:*
- *reducing screen time?*
 - *improving weight-related outcomes?*
 - *increasing physical activity?*
 - *improving diet?*

Existing Report

Community Preventive Services Task Force Obesity Prevention and Control: Behavioral Interventions that Aim to Reduce Recreational Sedentary Screen Time

<http://www.thecommunityguide.org/obesity/RRbehavioral.html>

Sedentary Behavior Including Screen Time

CG Description of the Evidence

- Update from 2007 Community Guide systematic review
 - Search: 1966-June 2013
- 49 studies with 61 arms were included in this review:
 - Study design: intervention studies with one or more outcomes of interest
 - Study duration: 1.5 mo – 2 y
 - Population: most studies focused on children less than 13 years old; studies were racially and ethnically diverse
 - Location: all US
 - Settings: schools (20 studies), homes (8 studies), communities (6 studies), primary care clinics (4 studies), research institutes (5 studies), and in multiple settings (4 studies); mix of urban, suburban areas

Sedentary Behavior Including Screen Time CG Intervention Definitions

Behavioral screen time interventions are classified into two types:

- Screen-time-only interventions: focus on reducing recreational sedentary screen time.
- Screen-time-plus interventions: focus on reducing recreational sedentary screen time and increasing physical activity and/or improving diet.

Screen-time-only and screen-time-plus interventions teach behavioral self-management skills through one or more of the following components:

- Classroom-based education
- Tracking and monitoring
- Coaching or counseling sessions
- Family-based or peer social support
- Interventions may include one or more additional components: use of an electronic monitoring device to limit screen time; TV Turnoff Challenge; screen time contingent on physical activity; or small media.

Screen-time-only and screen-time-plus interventions are stratified by intensity:

- High-intensity interventions: use of an electronic monitoring device to limit screen time or at least 3 personal or computer-tailored interactions. Interactions must focus on screen time and may be in person or by phone or computer.
- Low-intensity interventions: two or fewer personal or computer-tailored interactions.

Sedentary Behavior Including Screen Time CG Review of the Evidence

Outcome	Measure	Evidence and Findings
Sedentary Screen Time	Absolute difference in hrs/d: <ul style="list-style-type: none"> Commercial TV viewing Composite Screen Time 	27 (34) studies <u>High Intensity</u> 18 (23): Favorable <u>Low Intensity</u> 10 (11): Favorable Overall: Favorable
Weight-related Outcomes	Absolute difference in: <ul style="list-style-type: none"> BMI (kg/m²)/BMIz Body Fat (%) 	21 (23) studies <u>High Intensity</u> 14 (16): Favorable <u>Low Intensity</u> 7: Favorable Overall: Favorable
Physical Activity	Absolute difference in: <ul style="list-style-type: none"> Counts/d Steps/d Score on fitness test 	12 (18) studies <u>High Intensity</u> 8 (14): Favorable <u>Low Intensity</u> 4: Favorable Overall: Favorable
Diet	Absolute difference in: <ul style="list-style-type: none"> Total Energy Intake (kcal/d) Meals or snacks with TV On 	6 studies <u>High Intensity</u> 6: Favorable

Sedentary Behavior Including Screen Time

CG Key Findings

- Evidence indicates that behavioral screen time interventions are effective in reducing recreational sedentary screen time (47 study arms), improving physical activity (42 study arms), improving diet (37 study arms), and improving or maintaining weight status (38 study arms).
 - Studies were found to be effective among children aged 13 years and younger.
 - All studies demonstrated effectiveness among both males and females.
 - Forty-five studies that reported racial distribution showed intervention effectiveness in all groups: white (20 studies), black (14 studies), Hispanic (11 studies), Asian/Pacific Islander (10 studies), American Indian or Alaska Native (3 studies), and other (7 studies).

Sedentary Behavior Including Screen Time

Conclusion Statement

2015 DGAC concurs with this conclusion statement and grade.

The Community Preventive Services Task Force recommends behavioral interventions to reduce recreational sedentary screen time among children aged 13 years and younger.

This finding is based on strong evidence of effectiveness in reducing recreational sedentary screen time, increasing physical activity, improving diet, and improving or maintaining weight-related outcomes.

Evidence includes studies of interventions that focus only on reducing recreational sedentary screen time (screen-time-only) and studies that focus on reducing recreational sedentary screen time and improving physical activity and/or diet (screen-time-plus).

Limited evidence was available to assess the effectiveness of these interventions among adults.

DGAC Grade: Strong

Sedentary Behavior Including Screen Time

Draft Implications

- There are effective interventions identified by the Community Preventative Services Task Force that should be implemented to reduce screen time and thus have beneficial effects on children's diet and weight status.

Sedentary Behavior Including Screen Time

How effective are behavioral interventions that focus equally on reducing recreational sedentary screen time and improving physical activity and/or diet for:

- reducing screen time?*
- improving weight-related outcomes?*
- increasing physical activity?*
- improving diet?*

Discussion

Self-monitoring

Self-monitoring

What is the relationship between use of self-monitoring strategies and body weight outcomes in adults and youth?

NEL Systematic Review

Analytical Framework: Self-monitoring

Target Population

Youth and adults healthy and at risk for chronic disease (lifespan approach if possible)

Intervention/Exposure

Self-monitoring strategies focused on weight loss (e.g., self-monitoring diet, self-weighing)

Comparator

Different types and/or levels of use of self-monitoring strategies

Examine by age, gender, ethnic/racial group

Intermediate Outcomes

- BMI
- Weight change
- % body fat
- Child growth indices

Endpoint Health Outcomes

- Incidence of healthy weight, overweight, obesity

Potential Confounders:

- Dietary intake
- SES
- Age
- Gender
- Ethnicity/race
- Physical activity

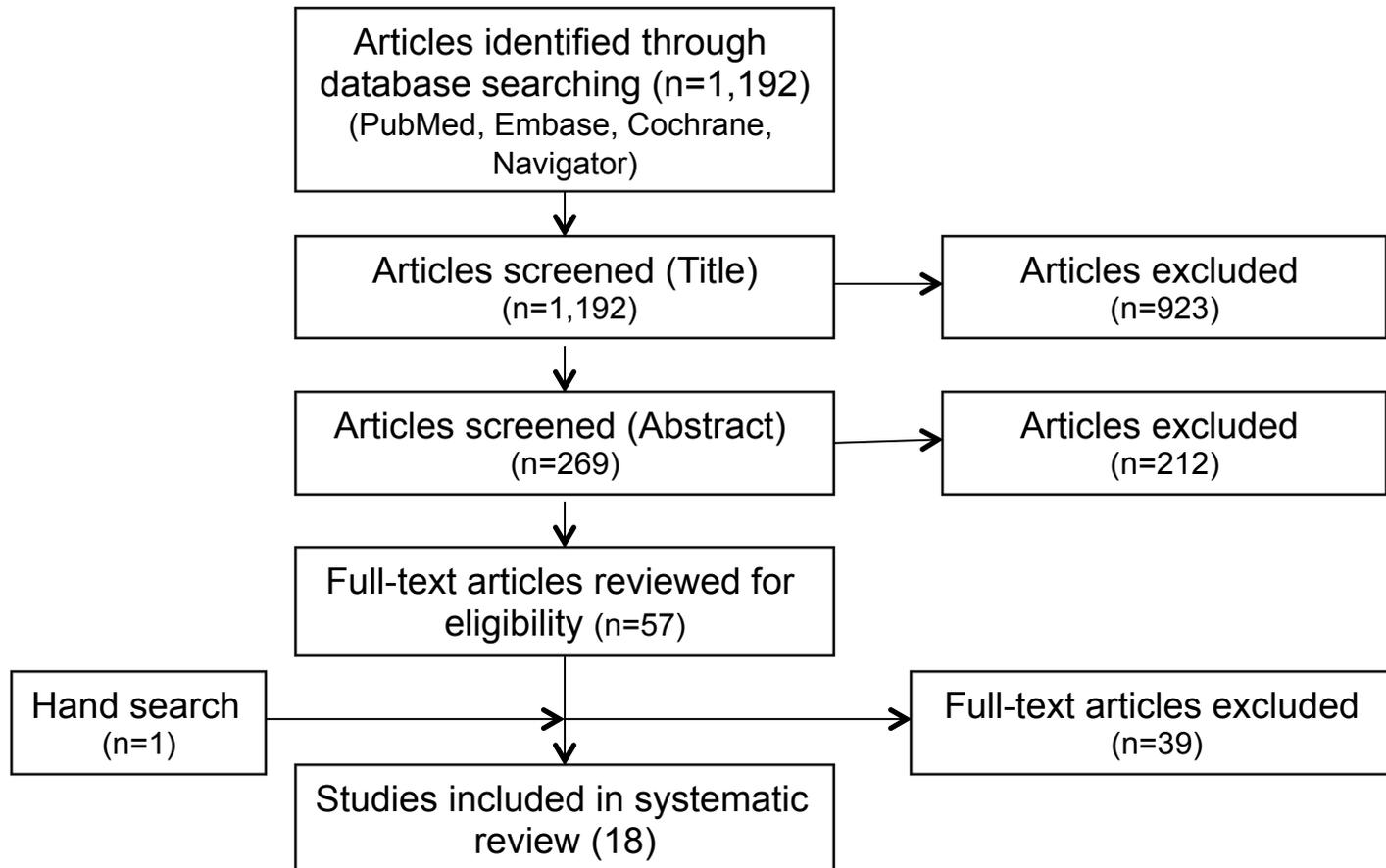
Key Definitions: Diet and weight self-monitoring: NEL will include study authors' definitions.

Self-monitoring

Literature Search: Inclusion/Exclusion Criteria

- Peer-reviewed articles published in English between Jan 2004 –2014
- Human subjects: Youth (school-age and older) and adults
- Healthy or with elevated chronic disease risk (excluded studies with all subjects diagnosed with disease)
- International population from countries with a high or very high HDI
- Randomized controlled trials, crossover trials, cohort and post hoc analysis of RCTs
 - Size of intervention groups: ≥ 30 subjects per study arm (15 subjects for crossover trials)
 - Study dropout rate: exclude studies with a dropout rate $>20\%$ within the first 6 months and $> 30\%$ after 6 months
- Self-monitoring strategies focused on diet and weight
- Outcome: Obesity, overweight, weight, growth, body composition indices

Self-monitoring Literature Search Results



Self-monitoring

Description of the Evidence

- 18 studies were included in this review:
 - Study design: 5 RCTs, 12 prospective cohort studies, and 1 retrospective cohort studies
 - Study duration: 3 mo – 3.25 y
 - Population: Predominantly women, 5 studies exclusively women; 1 study in pregnant women; 1 study in children
 - Location: US studies (14), UK (1), Australia (1), Netherlands (1), Japan (1)

Self-monitoring

Description of the Evidence

- Independent variable differed across studies:
 - Weight (5); Diet (2); Weight and diet (1); Weight and exercise (1); Diet and exercise (6); Weight, diet, and exercise (1); other target behaviors (2)
- Self-monitoring strategies varied: paper diary, website, phone app, phone interactive voice response
- Self-monitoring was part of a weight loss or weight maintenance intervention, of varying composition and intensity
- Outcomes assessed:
 - Weight change
 - % weight loss
 - BMI

Self-monitoring

Draft Key Findings – RCTs

- Four randomized control trials showed that weight management interventions that included self-monitoring of diet, weight, or both, coupled with behavioral change strategies, resulted in significantly greater weight loss than controls that did not emphasize self-monitoring.
 - One study with overweight pregnant women provided a four session behavior change program with a gestational weight gain chart and a recommendation for regular self-weighing. The women in the intervention arm lost more weight six weeks after delivery compared to a control group that received one brief education session.
 - One weight loss maintenance study in children found no effect for self-monitoring via Short Message Service (SMS) on BMI.

Self-monitoring

Draft Key Findings – Cohort Studies

- Thirteen cohort studies in adults found higher frequency or greater adherence to diet and weight self-monitoring was associated with favorable body weight outcomes.
- Four studies assessed different methods of self-monitoring, including paper diaries, internet-based or mobile applications, and found that no specific method was superior to others.

Self-monitoring

Draft Limitations

- Study participants were predominately overweight, educated, Caucasian, females between the ages of 30 to 60 years.

Self-monitoring

Draft Conclusion Statement

Moderate evidence, primarily in overweight adult women living in the US, indicates that self-monitoring of diet, weight, or both, in the context of a behavioral weight management intervention, generally improves weight-loss outcomes.

Grade: Moderate

Limited but consistent evidence suggests that higher frequency or greater adherence to self-monitoring of diet, weight, or both, in the context of a behavioral weight management program, is associated with better weight-loss outcomes.

Grade: Limited

Self-monitoring

Draft Implications

- Self-monitoring with individualized feedback should be incorporated into behavioral lifestyle programs for weight management.
- Self-monitoring coupled with personalized feedback can be used to enhance outcomes in weight management programs.

Self-monitoring

What is the relationship between use of self-monitoring strategies and body weight in adults and youth?

Discussion

Sleep Patterns

Sleep Patterns Questions

- 1. What is the relationship between sleep patterns and measures of appetite and dietary intake/dietary behavior in US population groups?*
- 2. What is the relationship between sleep patterns and body weight in US population groups?*

Sleep Patterns

NEL Approach

- Exploratory search
 - Studies focus on sleep duration and weight
 - Insufficient evidence on sleep and dietary intake
- Duplication assessment
 - No high quality reviews eligible to replace a NEL review
- Decision to address as an emerging topic

Sleep Patterns

- 1. What is the relationship between sleep patterns and measures of appetite and dietary intake/dietary behavior in US population groups?*
- 2. What is the relationship between sleep patterns and body weight in US population groups?*

Discussion

Next Steps: Questions to Address

Food/Menu Label Use

Subcommittee 3: Diet and Physical Activity Behavior Change

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