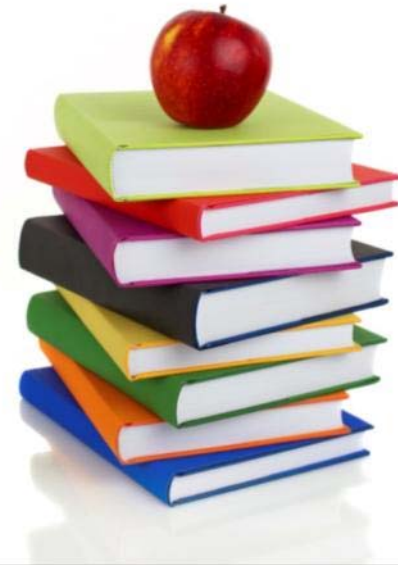


The Evidence

Analysis Process: Steps and Features



Presentation Objectives

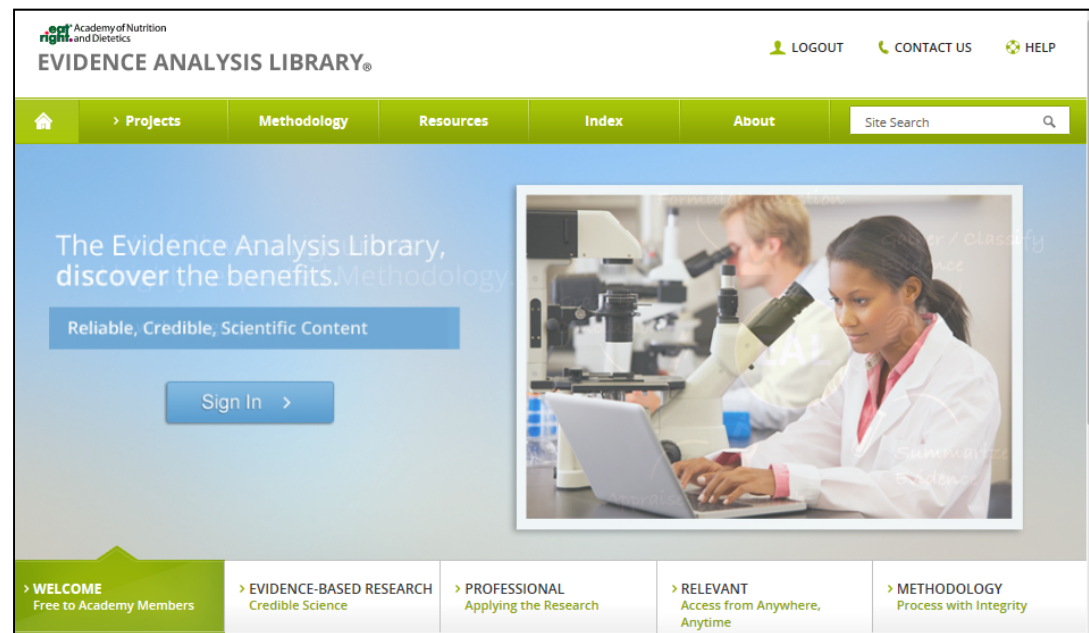
- Understand the Steps in the Academy of Nutrition and Dietetics' Evidence Analysis Process
- Identify topics and features in the Academy's Evidence Analysis Library



Evidence Analysis Library

FREE to Academy Members!

Online resource with the best available research on important dietetics topics in a practitioner-friendly format



Definition

“Evidence-Based *Dietetics* Practice”

is the use of systematically reviewed scientific evidence in making food and nutrition practice decisions

by integrating best available evidence with professional expertise and client values to improve outcomes.”

Definition developed by A.N.D. Evidence-based Practice Committee with input from Research Committee, Quality Management Committee, and Scope of Dietetics Practice Task Force. Approved by A.N.D. House of Delegates Leadership Team

Why Evidence-Based?

- ✓ Improve quality of healthcare
- ✓ Decrease wide variations in practice



- ✓ Reduce the gap between what is known from research...and what happens in real life
- ✓ Take advantage of biomedical knowledge

Academy's Evidence Analysis Process

A rigorous and *systematic* process for searching, analyzing and summarizing research on a specific nutrition topic.



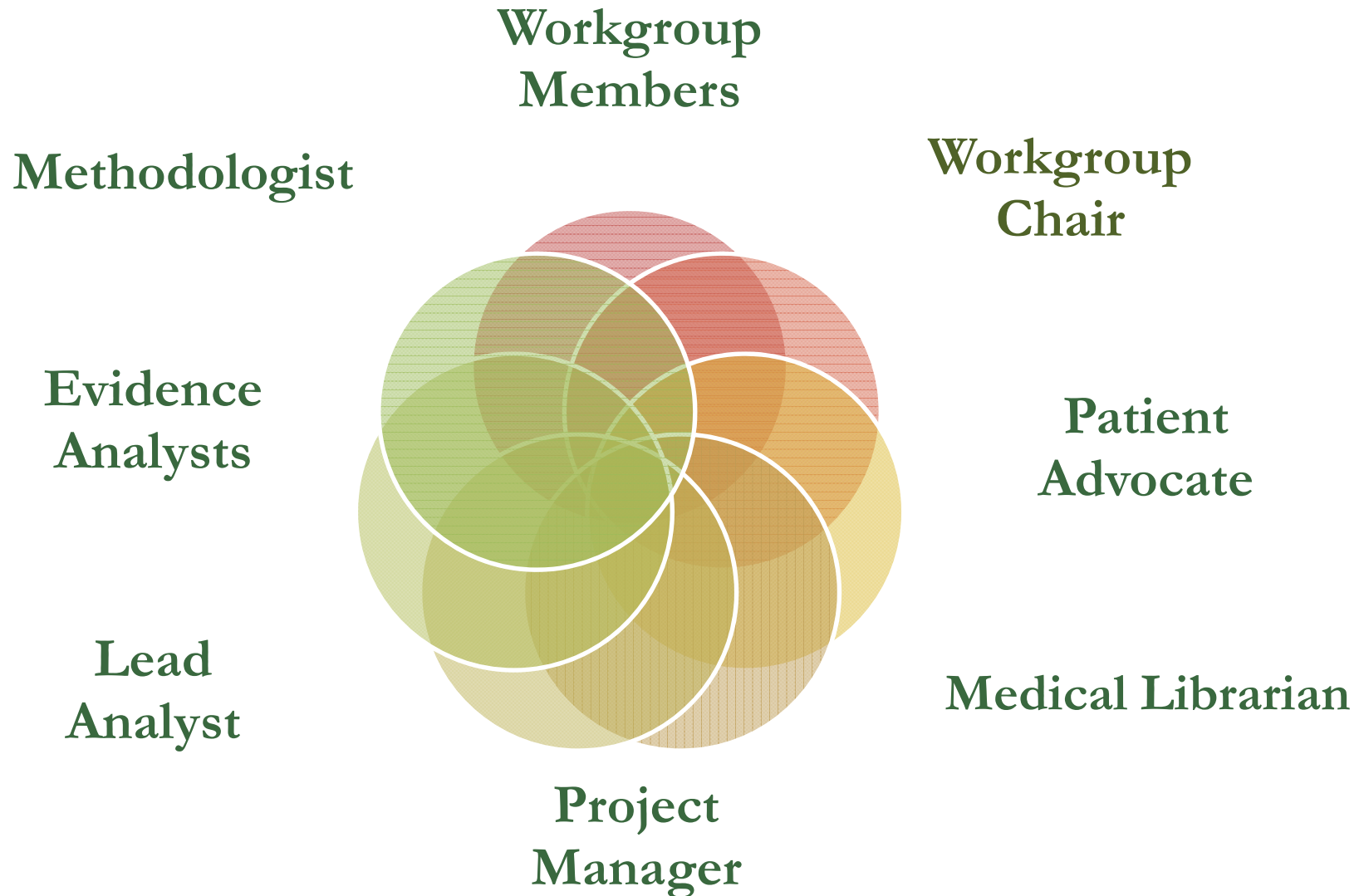
EAL Process

- State-of-the-art method for evaluating food and nutrition questions.
- Conducted by a team consisting of content experts in the field and evidence analysts trained in research analysis
- Meticulous methods and web-based templates are used throughout the process to ensure objectivity, transparency and reproducibility of the process

EAL Process



Members of the Team



Scoping Review

Why do a scoping review?

1. To examine the extent, range and nature of available research on a topic or question
2. To determine the value of undertaking a full systematic review.
3. To summarize and disseminate research findings across a body of research evidence (e.g. that is heterogeneous and/or complex)
4. To identify research gaps in the literature to aid planning and commissioning of future research.

Characteristics of different reviews

Table 1 Defining characteristics of traditional literature reviews, scoping reviews and systematic reviews

	Traditional Literature Reviews	Scoping reviews	Systematic reviews
A priori review protocol	No	Yes (some)	Yes
PROSPERO registration of the review protocol	No	No ^a	Yes
Explicit, transparent, peer reviewed search strategy	No	Yes	Yes
Standardized data extraction forms	No	Yes	Yes
Mandatory Critical Appraisal (Risk of Bias Assessment)	No	No ^b	Yes
Synthesis of findings from individual studies and the generation of 'summary' findings ^c	No	No	Yes

^aCurrent situation; this may change in time. ^bCritical appraisal is not mandatory, however, reviewers may decide to assess and report the risk of bias in scoping reviews. ^cBy using statistical meta-analysis (for quantitative effectiveness, or prevalence or incidence, diagnostic accuracy, aetiology or risk, prognostic or psychometric data), or meta-synthesis (experiential or expert opinion data) or both in mixed methods reviews

Step 1:

Formulate the Question

Formulate the Question

We ask questions to...

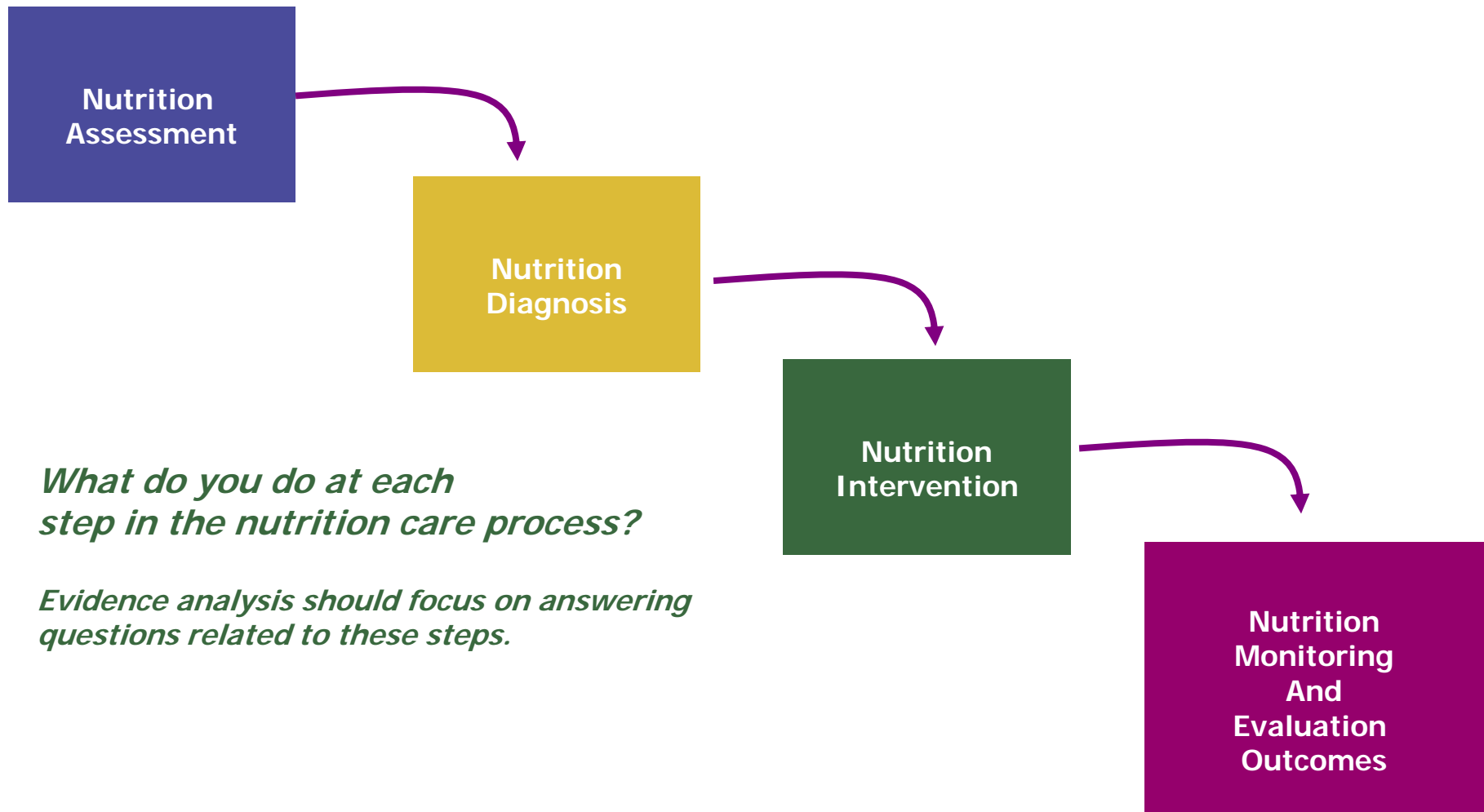
Identify relevant research

Identify areas where knowledge for practice is needed

Connect scientific research knowledge to practice

Focus the Approach to the Research

Nutrition Care Process



Example Question

Home
> Projects
Methodology
Resources
Index
About

Site Search
🔍

📄
📄
📄
A'
A'
📄

Celiac Disease

Grade Chart

Effectiveness of a Gluten-Free Dietary Pattern >

BONE DENSITY

IRON DEFICIENCY ANEMIA

VILLOUS ATROPHY

PREGNANCY OUTCOMES

NEUROLOGICAL OUTCOMES

GASTROINTESTINAL OUTCOMES

QUALITY OF LIFE

Foods and Gluten Intolerance

OATS AND GLUTEN INTOLERANCE >

WHEAT STARCH

Introduction

Topics and Questions

OATS AND GLUTEN INTOLERANCE

▼ **Intervention**

❓ How does the inclusion of oats in a dietary pattern for people with celiac disease impact effectiveness and acceptability of the dietary pattern?

📄 **CONCLUSION**

Studies have shown that incorporating oats uncontaminated with wheat, barley or rye, into a gluten-free dietary pattern for people with celiac disease, at intake levels of approximately 50 g dry oats per day, is generally safe and improves compliance. However, many studies report that the introduction of oats may result in gastrointestinal symptoms such as diarrhea and abdominal discomfort. These symptoms tend to be the primary reason for study subject withdrawal. Additional adverse effects that have been reported include dermatitis herpetiformis, villous atrophy and an increased density of intraepithelial lymphocytes, indicating that some persons with celiac disease may be unable to tolerate oats. Since limited research has been conducted on the similarities among those with adverse reactions to oats, further research is needed in this area. Further research is also needed regarding the contamination of oats by wheat, barley and rye.

+ **GRADE: II**

+ **EVIDENCE SUMMARY:** How does the inclusion of oats in a dietary pattern for people with celiac disease impact effectiveness and acceptability of the dietary pattern?

+ **SEARCH PLAN AND RESULTS:** Inclusion of Oats 2007

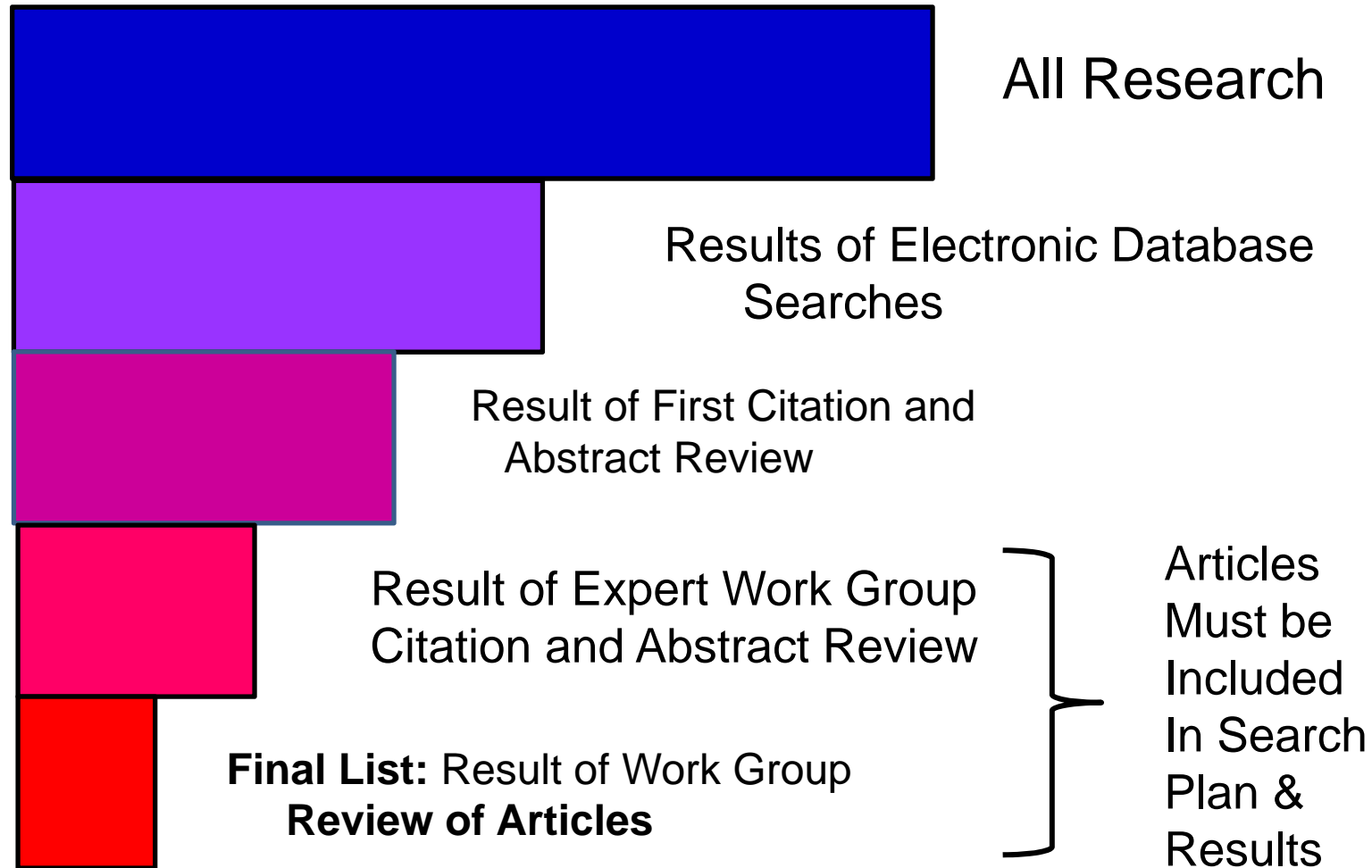
Step 2:

Gather and Classify the Research

The Search Strategy

- Develop a search plan
 - Inclusion and exclusion criteria
 - Conduct search
 - Appropriate search and MeSH terms
 - Use multiple databases
 - Review titles and abstracts
 - Rationale for excluding articles documented
 - Sort list of articles is created
 - Reviewed by workgroup
 - Alteration in search strategy may occur
 - Search strategy is documented
-

Steps in Identifying Research



Search Plan & Results for Each Question



Search Plan and Results

Evidence Analysis Question

[How does the inclusion of oats in a dietary pattern for people with celiac disease impact effectiveness and acceptability of th dietary pattern?](#)

Date of Literature Review

January 2007

Inclusion Criteria

Age

Adults (20 years and older) as well as young adults, adolescents, children and infants.

Setting

Outpatient and ambulatory care.

Health Status

Any.

Nutrition-Related Problem or Condition

Celiac disease, gluten intolerance, celiac sprue, dermatitis herpetiformis.

Study Design Preferences

- RCT or clinical controlled studies
- Large non-randomized observational studies
- Cohort, case-control studies.

Size of Study Groups

The sample size must equal 10 individuals for each study group. For example, this would include 10 patients in the intervention group and 10 patients in the control or comparison group.

Study Drop-Out Rate

Under 20%.

Year Range

1995 to 2007.

[Note: Original search was 1995 to 2004; updated search was completed from 2004 to January 2007.]

Reports Inclusion & Exclusion Criteria

Date of Search
Inclusion Criteria:
-Age
-Setting
(outpatient)
-Sample Size
-Acceptable
dropout rate
-Year Range
-English
Language
Databases
Searched
Search Terms
List of Articles

Search Plan & Results

Included articles *and* Excluded articles (with reason)

Inclusion List:

List of Included Articles

Hannum SM, Carson L, Evans EM, Caslene KA, Petr EL, Bui L, Erdman JW Jr. Use of portion-controlled entrees enhances weight loss in women. *Obes Res* 2004;12(3):538-546.

Kral TVE, Roe LS, Rolls BJ. Combined effects of energy density and portion size on energy intake in women. *Am J Clin Nutr* 2004;79:962-8.

Levitsky DA, Youn T. The more food young adults are served, the more they overeat. *J Nutr* 2004;134(10):2546-9.

Rolls BJ, Morris EL, Roe LS. Portion size of food affects energy intake in normal-weight and overweight men and women. *Am J Clin Nutr* 2002;76:1207-1213.

Rolls BJ, Roe LS, Kral TVE, Meengs JS, Wall DE. Increasing the portion size of a packaged snack increases energy intake in men and women. *Appetite* 2004;42(1):63-69.

Rolls BJ, Roe LS, Meengs JS, Wall DE. Increasing the portion size of a sandwich increases energy intake. *J Am Diet Assoc* 2004;104(3):367-372.

Waller SM, Vander Wal JS, Klurfeld DM, McBurney MI, Cho S, Bijlani S, Dhurandhar NV. Evening ready-to-eat cereal consumption contributes to weight management. *J Am Coll Nutr* 2004;23(4):316-321.

Wansink B, Kim J. Bad popcorn in big buckets: portion size can influence intake as much as taste. *J Nutr Educ Behav* 2005;37:242-245.

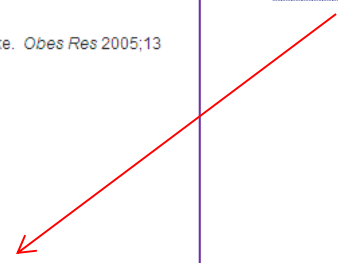
Wansink B, Painter JE, North J. Bottomless bowls: why visual cues of portion size may influence intake. *Obes Res* 2005;13(1):93-100.

Articles Considered, but Excluded

List of Excluded Articles with Reason

Reference	Reason Excluded
Diliberti N, Bordi PL, Conklin MT, Roe LS, Rolls BJ. Increased portion size leads to increased energy intake in a restaurant meal. <i>Obes Res</i> 2004;12(3):562-568.	Restaurant patrons in uncontrolled setting
Matthiessen J, Fagt S, Biltoft-Jensen A, Beck AM, Ovesen L. Size makes a difference. <i>Public Health Nutr</i> 2003;6(1):65-72.	Article focused on energy density more than portion size

List reason for exclusion for each article not included in the analysis; e.g. Sample size too small



Step 3:

Critically Appraise Each Article

Worksheet

Evidence Analysis Library > Diseases & Conditions > Adult Weight Management > Dietary Interventions > Meal Replacements

Citation:

Heber D, Ashley JM, Wang HJ, Elashoff RM. Clinical evaluation of a minimal intervention meal replacement regimen for weight reduction. J Am Coll Nutr 1994; 13(6): 608-614.


Study Design:

Nonrandomized Clinical Trial

Class:

C - [Click here](#) for explanation of classification scheme.

Quality Rating:

 NEUTRAL: See Quality Criteria Checklist below.

Research Purpose:

To evaluate the hypothesis that continued use of a meal replacement drink as part of a low-fat diet will result in long-term maintenance following an initial active weight loss period, and to assess the degree of weight loss, to assess changes in plasma lipids, and to evaluate patient adherence to the weight loss regimen through drop-out rates and weight loss following the initial 12-week treatment.

Inclusion Criteria:

Mildly obese subjects.

Exclusion Criteria:

Not mentioned.

Description of Study Protocol:

Recruitment

Citation / PubMed ID
Date
Study Design
Class
Rating (+/0/-)
Research Purpose
Inclusion Criteria
Exclusion Criteria
Description of Study
Protocol
Data Collection Summary
Description of Actual Data
Sample
Summary of Results
Author Conclusion
Reviewer Comments

Critical Appraisal of Each Article

- Completed worksheet
- Completed quality criteria checklist
- Most detailed information on EAL

Work of analysts:

- Reviewed by lead analyst
- Approved by workgroup



Critical Appraisal of Each Article

- Completed worksheet
- Completed quality criteria checklist
- Most detailed information on EAL

Work of analysts:

- Reviewed by lead analyst
- Approved by workgroup



Quality Criteria Checklist

Quality Criteria Checklist: Primary Research

Relevance Questions

1.	Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies)	Yes
2.	Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about?	Yes
3.	Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to dietetics practice?	Yes
4.	Is the intervention or procedure feasible? (NA for some epidemiological studies)	Yes

Validity Questions

1.	Was the research question clearly stated?	Yes
1.1.	Was the specific intervention(s) or procedure (independent variable(s)) identified?	Yes
1.2.	Was the outcome(s) (dependent variable(s)) clearly indicated?	Yes
1.3.	Were the target population and setting specified?	Yes
2.	Was the selection of study subjects/patients free from bias?	Yes
2.1.	Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study?	Yes
2.2.	Were criteria applied equally to all study groups?	Yes
2.3.	Were health, demographics, and other characteristics of subjects described?	Yes
2.4.	Were the subjects/patients a representative sample of the relevant population?	Yes
3.	Were study groups comparable?	Yes
3.1.	Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT)	N/A
3.2.	Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline?	N/A
3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	N/A
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	Yes
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	Yes
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
4.	Was method of handling withdrawals described?	Yes
4.1.	Were follow-up methods described and the same for all groups?	Yes
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or	Yes

Questions related to relevance and validity

Determines if article is rated as:

Positive Quality
Negative Quality
Neutral Quality

Step 4:

**Summarize the Evidence in an
Overview table and Evidence
Summary**

Evidence Summary

- Summarize articles into Summary Table
- Information synthesized from articles into narrative evidence summary



- Responsibility of Analyst
- Reviewed by Lead Analyst
- Reviewed and Approved by Workgroup

Narrative Evidence Summary

— **EVIDENCE SUMMARY:** How does the inclusion of oats in a dietary pattern for people with celiac disease impact effectiveness and acceptability of the dietary pattern?

✓ Detail

Purpose

There is a need for consensus regarding the inclusion of oats in a gluten-free dietary pattern. In a neutral-quality cross-sectional study by **Thompson (2000)** of 37 celiac organizations and medical professionals, 15% of respondents (40% of US physicians, 6% of foreign organizations and 0% of US organizations) reported that oats were acceptable to include in the dietary pattern. Concerns mentioned by respondents finding oats unacceptable included insufficient research and lack of information about amounts of oats that may be safely consumed, as well as possible toxicity due to gluten contamination. However, compliance with the gluten-free dietary pattern may be increased with the addition of oats. A positive-quality cross-sectional study of 710 Finnish Celiac Society members reported that 94% of the 494 members consuming oats felt that oats diversified the dietary pattern, 80% appreciated the taste, 91% appreciated the ease of using the oat products and 82% appreciated the low costs (**Peraaho et al, 2004**).

In-vitro studies

In a neutral-quality nonrandomized trial involving 13 duodenal biopsy specimens from Italian adult celiac disease patients, no antiendomysial antibodies were detected in any of the specimens cultured with peptic-tryptic digest of avenin and its C fraction (**Picarelli et al, 2001**).

Short-term studies (six months or less) with 50 g/day oat consumption or less

One neutral-quality randomized controlled trial and four neutral-quality nonrandomized trials have shown that low levels of oat consumption for short periods of time are generally safe for most people with celiac disease. In Finland, **Janatuinen et al (1995, 2000)** studied 52 adults with celiac disease in remission, who consumed an average of 50 g oats/day for six months. Oat purity was confirmed through the National Food Administration in Sweden. The oat and control groups did not differ significantly in nutritional status, symptoms or laboratory measures, and did not have worsening architecture of

Example:
Summary of
evidence for
Oats and Gluten
Intolerance
question


Evidence Summary - Bibliography


Quality Rating Summary


For a summary of the Quality Rating results, [click here](#).


Worksheets


 [Alfenas RCG, Mattes RD. Influence of glycemic index/load on glycemic response, appetite, and food intake in healthy humans. Diabetes Care 2005; 28: 2123 - 2129.](#)


 [Bouche C, Rizkalla SW, Luo J, Vidal H, Veronese A, Pacher N, Fouquet C, Lang V, Slama G. Five-week, low-glycemic index diet decreases total fat mass and improves plasma lipid profile in moderately overweight nondiabetic men. Diabetes Care 2002; 25: 822-828.](#)


 [Carels RA, Darby LA, Douglass OM, Cacciapaglia HM, Rvdin S. Education on the glycemic index of foods fails to improve treatment outcomes in a behavioral weight loss program. Eating Behaviors 2005; 6\(2\): 145-150.](#)


 [Ebbeling CB, Leidig MM, Sinclair KB, Seger-Shippe LG, Feldman HA, Ludwig DS. Effects of an ad libitum low-glycemic load diet on cardiovascular disease risk factors in obese young adults. Am J Clin Nutr 2005; 81: 976-982.](#)

 [Frost GS, Brynes AE, Bovill-Taylor C, Dornhorst A. A prospective randomised trial to determine the efficacy of a low glycaemic index diet given in addition to healthy eating and weight loss advice in patients with coronary heart disease. Eur J Clin Nutr 2004; 58: 121-127.](#)

 [LaHave SA, Hollett PM, Vyselaar JR, Shalchi M, Lahey KA, Day AG. Comparison between a low glycemic load diet and a Canada Food Guide diet in cardiac rehabilitation patients in Ontario. Can J Cardiol 2005; 21\(6\): 489-494.](#)

 [Pereira MA, Swain J, Goldfine AB, Rifai N, Ludwig DS. Effects of a low-glycemic load diet on resting energy expenditure and heart disease risk factors during weight loss. JAMA 2004; 292: 2482 - 2490.](#)

 [Sloth B, Krogh-Mikkelsen I, Flint A, Tetens I, Bjorck I, Vinoy S, Elmstahl H, Astrup A, Lang V, Raben A. No difference in body weight decrease between a low-glycemic-index and a high-glycemic-index diet but reduced LDL cholesterol after 10-wk ad libitum intake of the low-glycemic-index diet. Am J Clin Nutr 2004; 80: 337-347.](#)

 [Thompson WG, Rostad Holdman N, Janzow DJ, Slezak JM, Morris KL, Zemel MB. Effect of energy-reduced diets high in dairy products and fiber on weight loss in obese adults. Obesity Research 2005; 13\(8\): 1344-1353.](#)

Citations linked to
worksheets at the
bottom of the
Evidence Summary

Step 5:

**Develop Conclusion Statement and
Grade the Strength of the Supporting
Evidence**

Conclusion Statement

- **Bottom Line** – Answer to question based on the science
- Determined after research analyzed
- Graded based on quality of supporting evidence



Conclusion Statement

OATS AND GLUTEN INTOLERANCE

▼ Intervention

❓ How does the inclusion of oats in a dietary pattern for people with celiac disease impact effectiveness and acceptability of the dietary pattern?

▬ CONCLUSION

Studies have shown that incorporating oats uncontaminated with wheat, barley or rye, into a gluten-free dietary pattern for people with celiac disease, at intake levels of approximately 50 g dry oats per day, is generally safe and improves compliance. However, many studies report that the introduction of oats may result in gastrointestinal symptoms such as diarrhea and abdominal discomfort. These symptoms tend to be the primary reason for study subject withdrawal. Additional adverse effects that have been reported include dermatitis herpetiformis, villous atrophy and an increased density of intraepithelial lymphocytes, indicating that some persons with celiac disease may be unable to tolerate oats. Since limited research has been conducted on the similarities among those with adverse reactions to oats, further research is needed in this area. Further research is also needed regarding the contamination of oats by wheat, barley and rye.

+ **GRADE: II**

+ **EVIDENCE SUMMARY:** How does the inclusion of oats in a dietary pattern for people with celiac disease impact effectiveness and acceptability of the dietary pattern?

+ **SEARCH PLAN AND RESULTS:** Inclusion of Oats 2007

Explanation of Grades

Grade Definitions

Grade Definitions: Strength of the Evidence for a Conclusion/Recommendation

The information on this page will help you understand how the ADA assigns grades to conclusion state this page (click on the section title to jump to that section):

[A Narrative Explanation of Grades](#)

[A Table of Grading Criteria](#)

[A Graph of the Grades of All Evidence Analysis Conclusion Statements](#)

Narrative Explanation of Grades

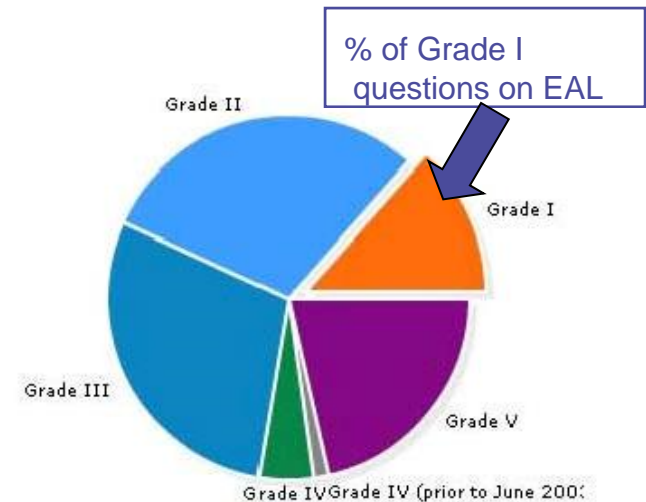
Grade I: Good—The evidence consists of results from studies of strong design for answering the question addressed. The results are both clinically important and consistent with minor exceptions at most. The results are free of serious doubts about generalizability, bias, and flaws in research design. Studies with negative results have sufficiently large sample sizes to have adequate statistical power.

Grade II: Fair—The evidence consists of results from studies of strong design answering the question addressed, but there is uncertainty attached to the conclusion because of inconsistencies among the results from different studies or because of doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from weaker designs for the questions addressed, but the results have been confirmed in separate studies and are consistent with minor exceptions at most.

Grade III: —The evidence consists of results from a limited number of studies of weak design for answering the questions addressed. Evidence from studies of strong design is either unavailable because no studies of strong design have been done or because the studies that have been done are inconclusive due to lack of generalizability, bias, design flaws, or inadequate sample sizes.

Grade IV: Expert Opinion Only—The support of the conclusion consists solely of the statement of informed medical commentators based on their clinical experience, unsubstantiated by the results of any research studies.

Grade V: Not Assignable—There is no evidence available that directly supports or refutes the conclusion.



Guideline Development

Evidence-Based Nutrition Practice Guidelines

Evidence-Based Guidelines...

- A series of **guiding** statements and treatment algorithms
 - Developed using a **systematic** process
 - Assist the practitioner in decision making for **appropriate** nutrition care
-

What is an Evidence-Based Nutrition Practice Guideline?

Evidence-Based Nutrition Practice Guidelines (EBNPG) are a series of guiding statements which are developed using a systematic process for identifying, analyzing and synthesizing scientific evidence. They are designed to assist practitioner and patient decisions about appropriate nutrition care for specific disease states or conditions in typical settings.

Key elements include scope, interventions and practices considered, major recommendations and corresponding rating of evidence strength and areas of agreement and disagreement.



Evidence-Based Research



Evidence Summaries &
Conclusion Statements =
what the evidence says

Guideline = course of action
for the practitioner based
on the evidence

NutriGuides – EAL on the *GO!*

This mobile application is designed for the busy healthcare professional by providing easy access to all EAL recommendations right at your fingertips!

NutriGuides is available from the Apple iTunes store for the iPhone and iPad; and from GooglePlay for Android devices

\$1.99 Buy



Published on the EAL®

Available free to All Academy Members

- Research Question
- Conclusion
- Grade
- Evidence Summary Narrative
- Summary Table
- Worksheets and Quality Checklists for each article
- Search Plan & Results

Individual EAL Subscriptions are available from
www.anddeal.org/ealsubscription

For Institutional EAL subscriptions, contact eal@eatright.org

Evidence Analysis Library Projects

> Projects	> Policy and Process	Resources	Index	About	<input type="text" value="Site Search"/>
-------------------------------	---	---------------------------	-----------------------	-----------------------	--

- > Adult Weight Management
- > Advanced Technology in Food Production
- > Athletic Performance
- > Bariatric Surgery
- > Breastfeeding
- > Celiac Disease
- > Chronic Kidney Disease
- > Chronic Obstructive Pulmonary Disease
- > Critical Illness
- > Diabetes 1 and 2
- > Diabetes (Type 2) Prevention
- > Dietary Fatty Acids
- > Disorders of Lipid Metabolism
- > Energy Expenditure
- > Fiber
- > Fluoride
- > Food and Nutrition for Older Adults
- > Fruit Juice
- > Gestational Diabetes
- > Health Disparities
- > Heart Failure
- > HIV/AIDS
- > Hydration
- > Hypertension
- > Medical Nutrition Therapy
- > Microwave and Home Food Safety
- > Nutrient Supplementation
- > Nutrition Counseling
- > Nutrition Guidance in Healthy Children
- > Nutrition Screening
- > Nutritive and Non-Nutritive Sweetener
- > Obesity, Reproduction and Pregnancy
- > Oncology
- > Pediatric Weight Management
- > Single Serving Portion Sized Meals and Weight Management
- > Sodium
- > Spinal Cord Injury
- > Telenutrition
- > Umami
- > Unintended Weight Loss in Older Adults
- > Vegetarian Nutrition
- > Wound Care

Summary

Academy's Evidence Analysis Library can be found at: www.andeal.org

Questions contact: eal@eatright.org

