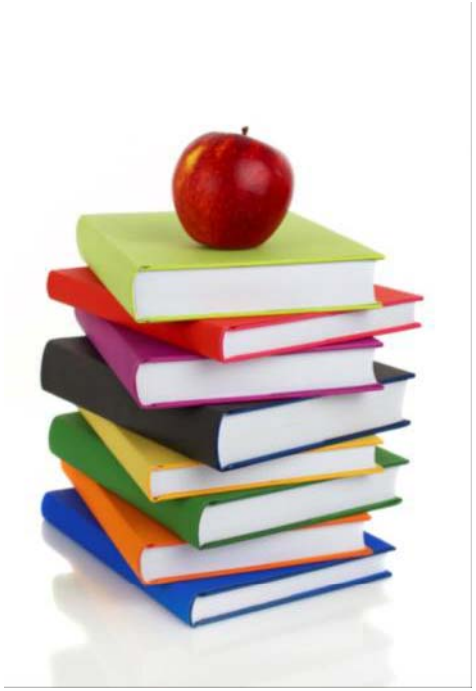
Academy of Nutrition and Dietetics

The Evidence Analysis Process: Steps and Features



Presentation Objectives

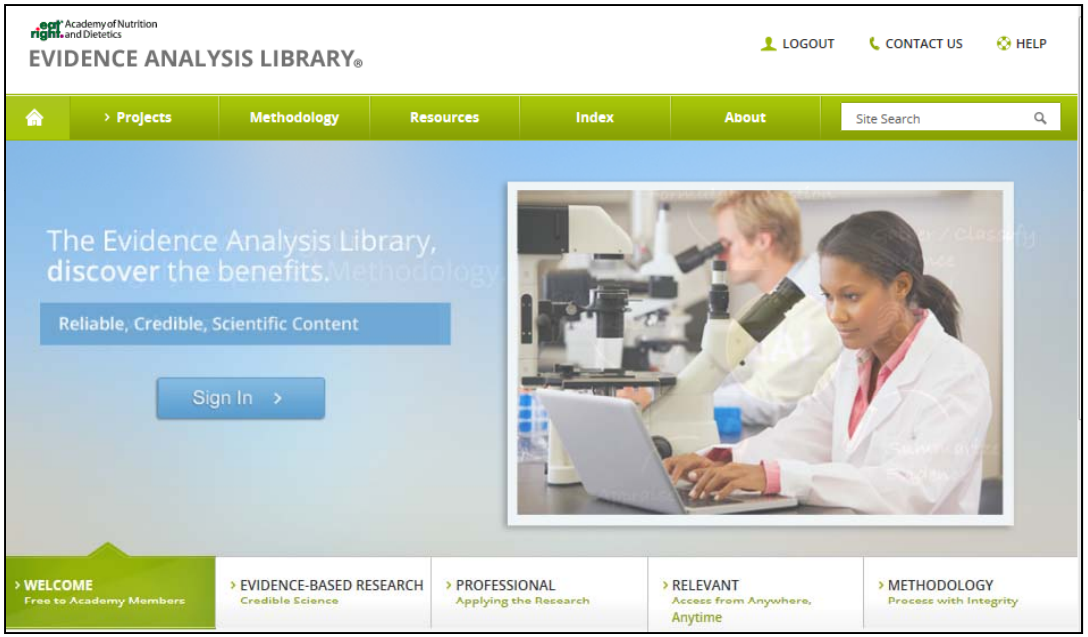
- Understand the Steps in the Academy of Nutrition and Dietetics' Evidence Analysis Process

- 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

Evidence-Based Practice Committee

Oversight

- Evidence Analysis Process
- Evidence Analysis Library®
- Evidence Based Products (e.g., Guidelines, Toolkits, Educator Modules)

Promotion

- Promote the implementation of evidence-based dietetic practice
- Develop strategies for dissemination

Functions

- Appoint Expert Workgroup members
- Prioritize Evidence Analysis projects
- Determine format and content of products
- Evaluate Evidence Analysis process

Structure of EBP Committee

Academy of Nutrition and Dietetics

Joint Academy House of Delegates & Board of Directors appointed committee

Academy's Evidence Analysis Process

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

Evidence Analysis Workgroup

Experts

- Experts in the field or Project Topic

Appointed

- Appointed by the Evidence-Based Practice Committee

Key Functions

- Formulate Questions
- Set Inclusion/Exclusion Criteria
- Review materials
- Grade conclusion statements
- Provide Final approval

Project Managers/Lead Analysts

Manage Project

- Facilitate work of team
- Schedule & assign work
- Manage online information

Lead Teleconferences and Meetings

- Assist workgroup chair in leading teleconferences
- Prepare agendas
- Help Group to reach consensus

Mentor Analysts and Review their Work

- Worksheets
- Quality Criteria Checklists
- Overview Tables
- Evidence Summaries
- Draft Conclusion statements

Steps in the Evidence Analysis Process

Step 1: Formulate Question	• Develop the Question
Step 2: Gather Research	• Gather and Classify the Research
Step 3: Appraise Articles	• Critically Appraise Each Article
Step 4: Summarize	• Summarize the evidence in an Overview Table and Evidence Summary
Step 5: Grade	• Develop Conclusion Statement and Grade the Strength of the Supporting Evidence

Step 1:

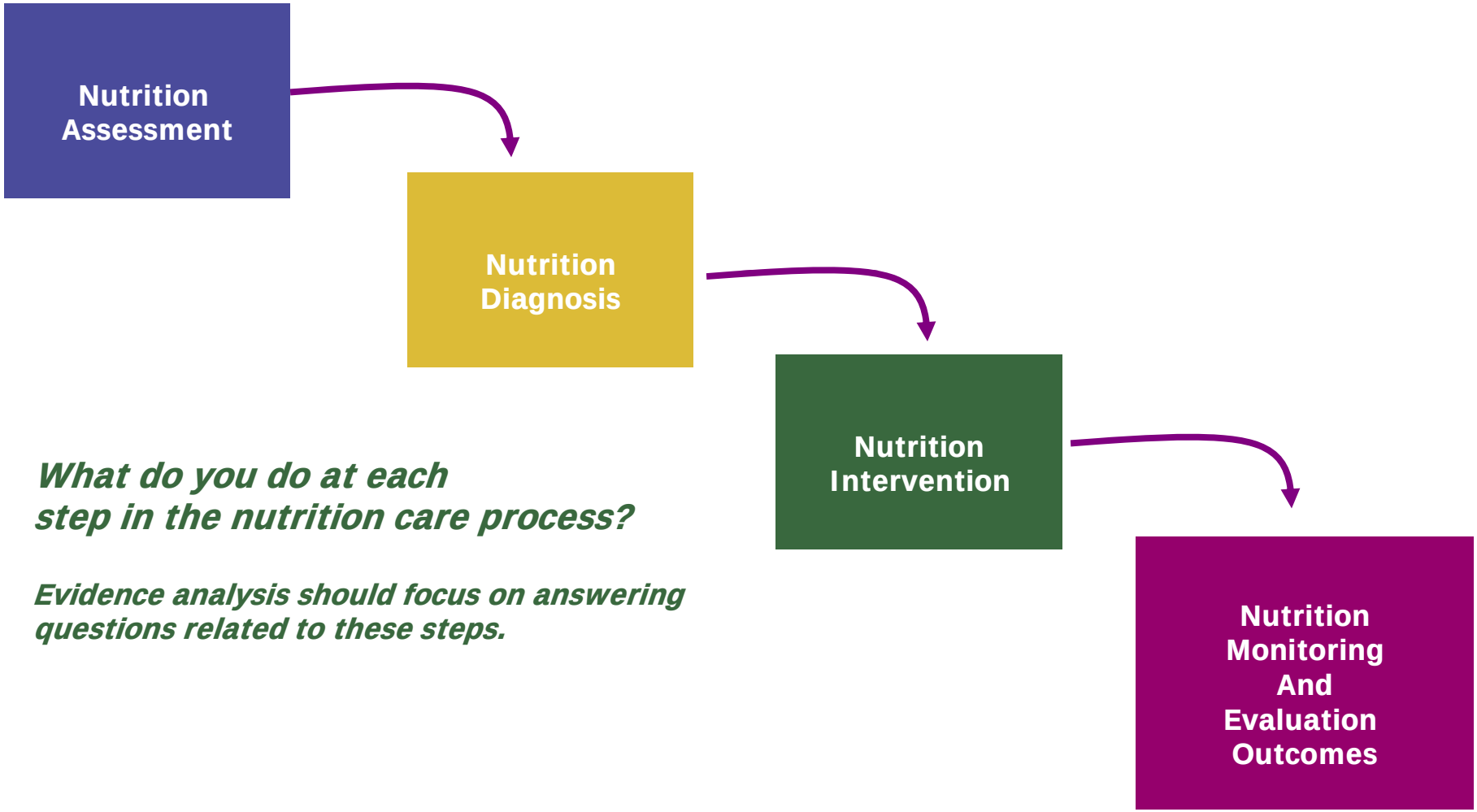
Formulate the Question

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

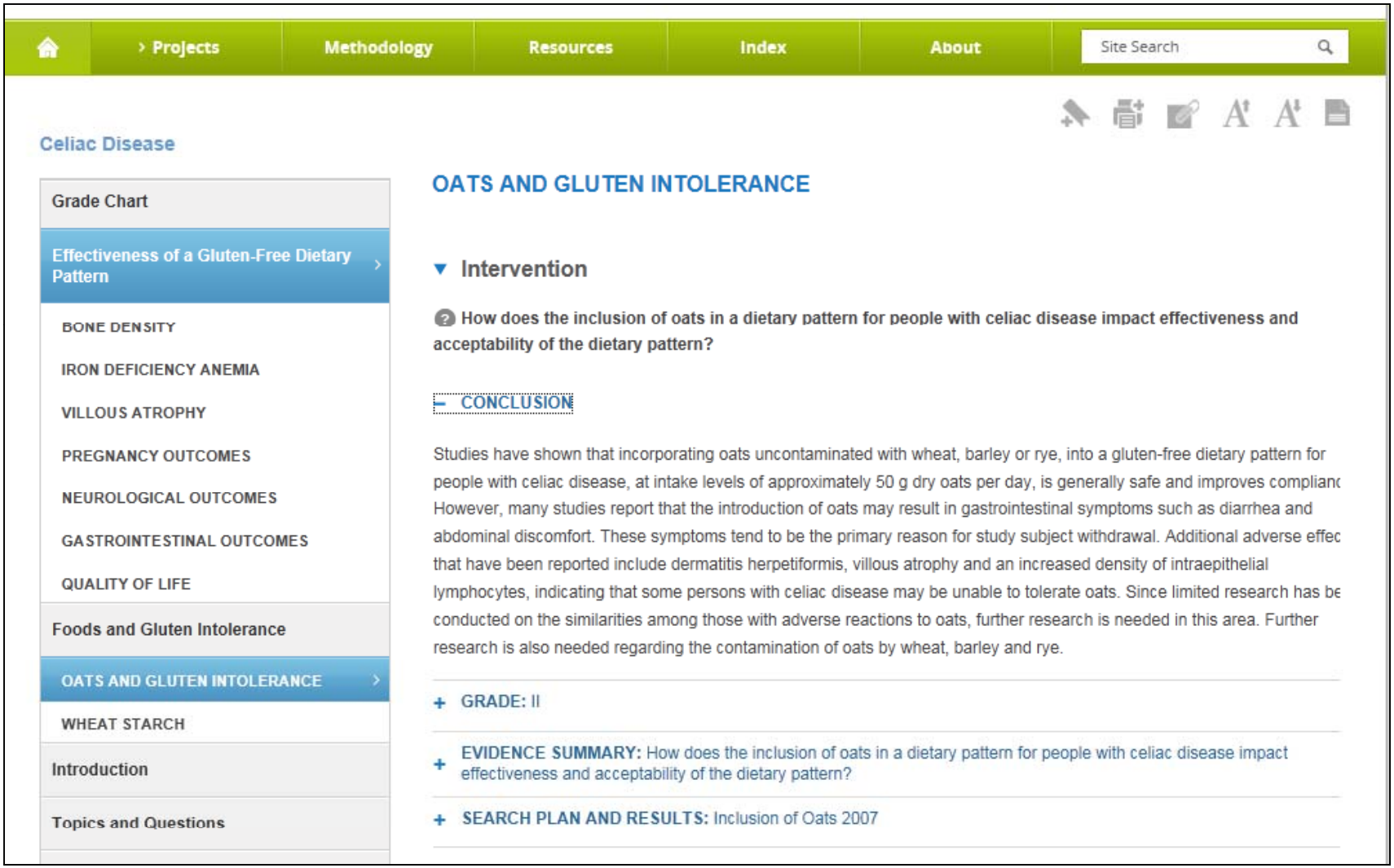
Nutrition Care Process



What do you do at each step in the nutrition care process?

Evidence analysis should focus on answering questions related to these steps.

Example Question



Step 2:

Gather and Classify the 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, Carlene 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. Obes Res 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. Public Health Nutr 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

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 dieteticspractice?	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

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

Overview Table

Overview Table

View table in new window

Article (worksheet)	Study Design	Quality Rating of Article	Sample Size	Sex of Population Studied	Race	Intervention / Association Description	Prescribed Caloric Intake	Ac int
Alfenas RC, Mattes RD 2005	Class A	Plus	39	Males, Females	Not Specified	Healthy normal-weight subjects consuming only low- or high-glycemic index foods, ad libitum, in a laboratory for two experimental eight-day sessions	NA	No
Frost GS, Brynes AE et al 2004	Class A	Plus	55	Males, Females	Not Specified	Adults with coronary heart disease followed a healthy eating diet plan either with or without an emphasis on low glycemic index carbohydrates for 12 weeks	Not reported	Re gr
Pereira MA,	Class A	Plus	39	Males,	African	Overweight or	60% of	No

Internet

List :

Citation
Study Design
Quality Rating
Sample Size
Interventions & Outcomes

Table format to enable user to compare studies side by side.

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, Rydin 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-Shippee 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.

LaHaye 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, Krog-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

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 compliand 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 effec 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 be 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.

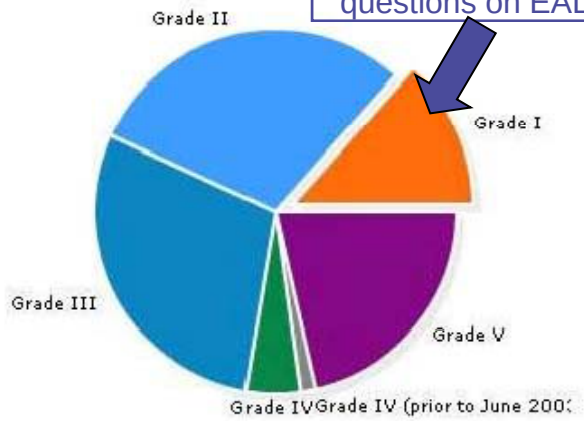
+ **GRADE:** II

+ **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

% of Grade I questions on EAL



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.

Published on the EAL®

Available free to All Academy Members

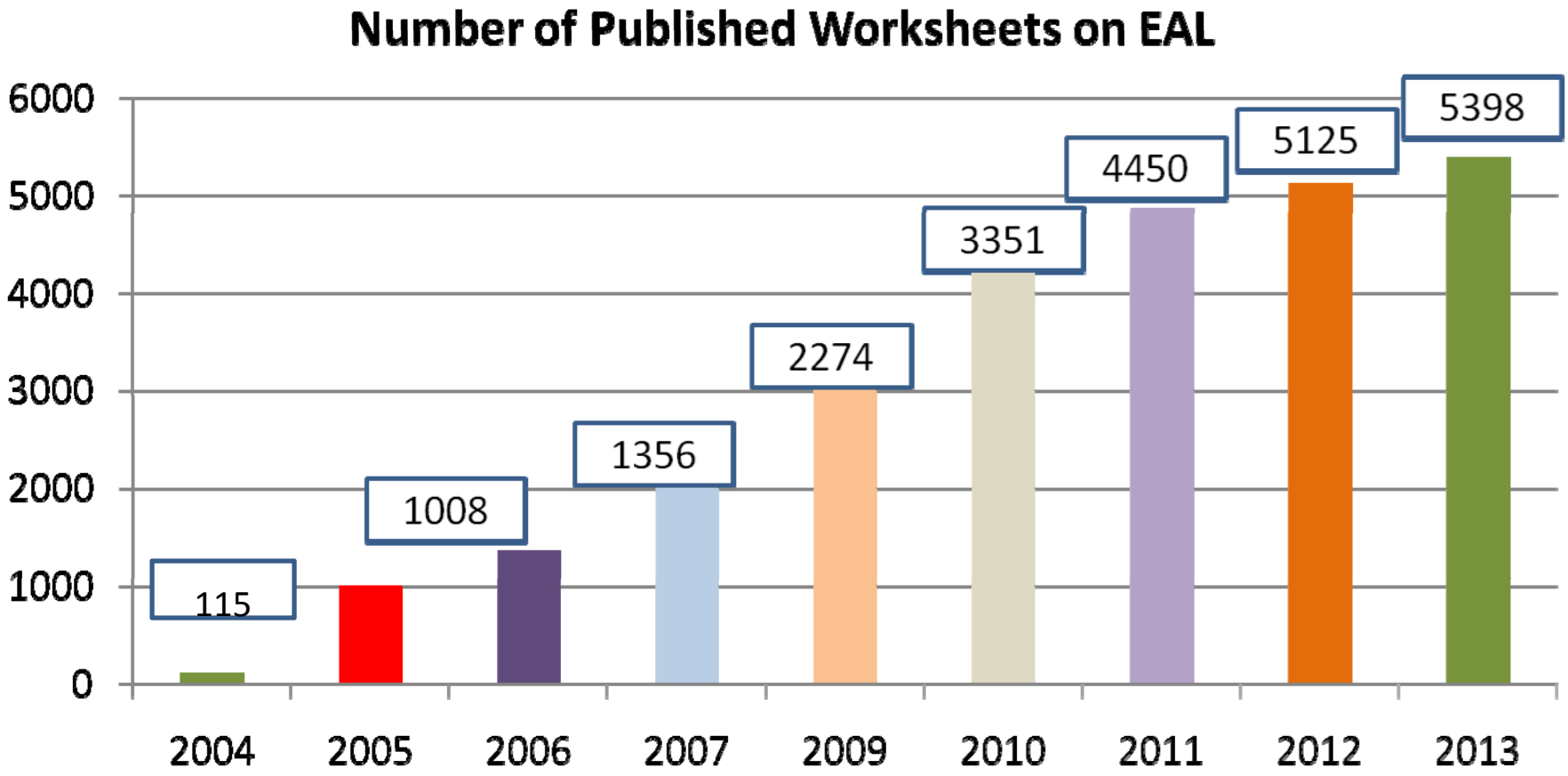
- Question
- Conclusion
- Grade
- Evidence Summary
- Overview Table
- Worksheets and Quality Checklists for each article
- Search Plan & Results

Individual EAL Subscriptions are available from www.andevidencelibrary.com / Store

For Institutional EAL subscriptions, contact aacosta@eatright.org

How Much Content is on the EAL®?

Abstracted Articles / Worksheets



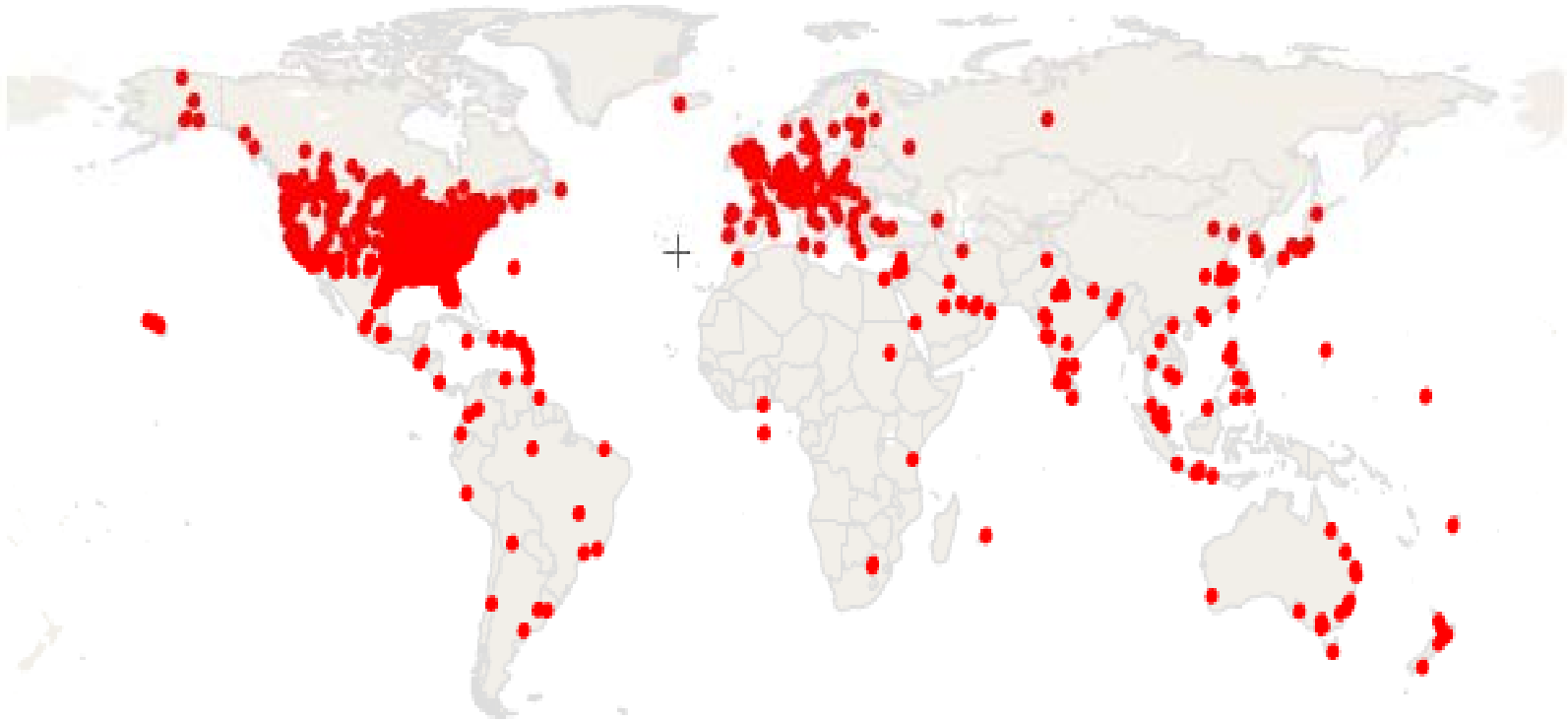
EAL® Page Views by Calendar Year

Calendar Year	Total	Avg per Month
2004	41,332	4,592
2005	378,026	31,502
2006	1,068,758	89,063
2007	1,544,119	128,677
2008	1,795,645	171,014
2009	2,321,594	193.466
2010	2,457,410	204,784
2011	3,009,230	250,645
2012	3,804,122	317,518
2013 *(thru 9/30)	*2,580,540	*286,700

Overall Total
Sept 2004 – Oct 2013
Over 17,914,000 page views

EAL ® Usage Worldwide

Users from 206 different countries

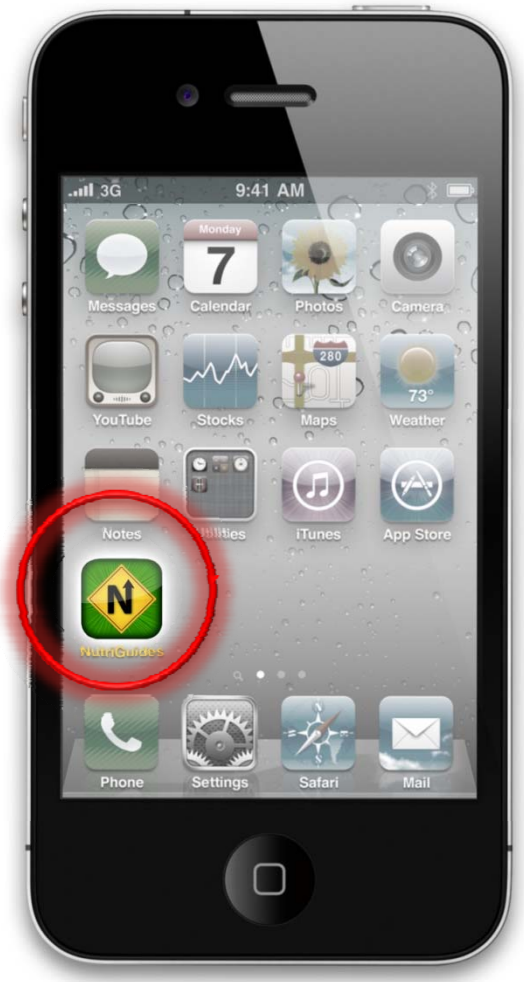


NutriGuides

On the Go with NutriGuides Mobile Application

- Now available for use on your iPhone, iPad, and Android devices.
- Users can access over 300 nutrition recommendations at their fingertips.
- Ability to search for recommendation by topic, disease/condition, nutrition care process step
- Topics include: Diabetes, Critical Illness, Celiac Disease, DLM, and more!

Debuted in March 2012. Now nearly 5,000 apps sold from the iTunes Store and Google Play.



Guideline Development

After Analysis is Completed

Develop algorithms based on Nutrition Care Process

Draft guideline recommendations

In-person, 2-day meeting to finalize entire guideline

Internal/external review and revise

Publish guideline on EAL®

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

Evidence-Based Practice Resources

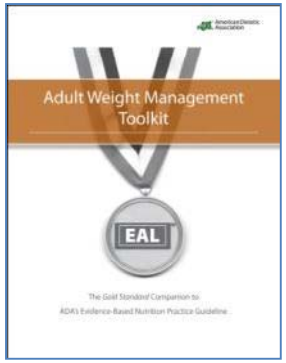
What are Evidence-Based Toolkits?

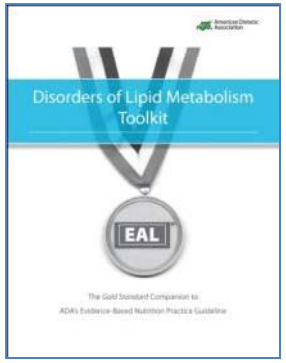
Toolkits are disease specific and include

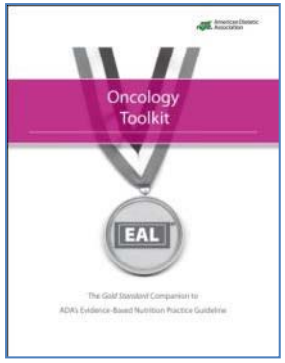
- Protocol forms
- Case Studies
- Patient progress forms
- Outcomes management forms
- Client education resources

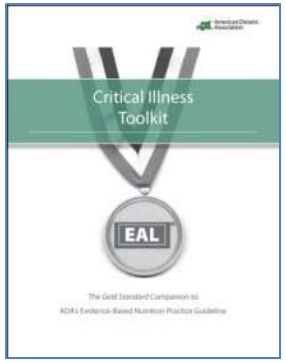
Incorporate the Nutrition Care Process

Electronic downloadable purchase item









Toolkit Development

Develop toolkits to apply guidelines

Conduct 60-day usability test of toolkit and revise

EBPC Review and Approval

Make toolkits available for purchase

Steps in the EA Process

Annual review of Evidence Analysis Guideline Projects

Review

- Re-run searches for each question
- Determine if revision is needed
- Document date of review

Revise

- “Revise” using EA Process
- Update rating of conclusion statements/recommendations as needed

Summary

Academy's Evidence Analysis Library can be found at: www.andaevidencelibrary.com

Questions contact: eal@andevidencelibrary.com