• Food and Nutrition for Older Adults

Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)

Food and Nutrition for Older Adults

Introduction (2012)

Guideline Overview

Guideline Title

Food and Nutrition for Older Adults Promoting Health and Wellness (2012) Evidence-Based Nutrition Practice Guideline

Guideline Narrative Overview

The recommendations in this set focus on topics related to food and nutrition for older adults in promoting health and wellness.

These topics include:

- Weight management in the older adult
- United States Department of Agriculture (USDA) and Older Americans Act (OAA) programs for older adults
- Antioxidant consumption and age-related macular degeneration and cognitive function in older adults.

The topics chosen for evidence analysis and recommendation development provide essential information for registered dietitians (RDs) working with older adults, however it is acknowledged that the scope of the project was limited and many other issues are of importance to this population.

These recommendations and supporting analysis have been incorporated into the revision of an Academy of Nutrition and Dietetics position paper titled, Food and Nutrition for Older Adults Promoting Health and Wellness, which covers a broad spectrum of information on older adults.

Topic selection was guided by the intent to revise the above-noted position paper. Additional topics may be included in future revisions.

Guideline Development

This guideline is intended for use by registered dietitians (RDs) involved in providing Medical Nutrition Therapy (MNT) to older adults. The application of the guideline must be individualized to assist the RD to successfully integrate MNT into the overall medical management of older adults. The recommendations in the guideline were based on a systematic review of the literature.

The recommendations are based on the work performed by the Academy of Nutrition and Dietetics Expert Working Group on Food and Nutrition in Older Adults Promoting Health and Wellness. The number of supporting documents for these topics is below:

- Recommendations: Three
- Conclusion Statements: 12
- Evidence Summaries: 12
- Article Worksheets: 184.

Revision

All Academy guidelines are revised every five years. The literature search will begin for each guideline topic three years after publication to identify new research that has been published since the previous search was completed. An expert workgroup will convene to determine the need for new and revised recommendations. See <u>Revision</u> under Guideline Development for more information. The updated guideline will be developed using the Academy of Nutrition and Dietetics Evidence Analysis Process (see <u>Policy and Process</u> tab).

New research may warrant a revision to a specific question or recommendation prior to the full project or guideline revision. Once identified, information is gathered and the Evidence-Based Practice Committee will make a decision on the appropriate action.

Go to Scope of Guideline

Back to Main Menu of Food and Nutrition for Older Adults Promoting Health and Wellness

- Food and Nutrition for Older Adults
- Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)
- Introduction (2012)

Food and Nutrition for Older Adults

Scope of Guideline (2012)

Below, you will find a list of characteristics that describe the Scope of this Guideline.

Guideline Category

Counseling, Diagnosis, Evaluation, Management, Prevention, Screening, Treatment

Clinical Specialty

Geriatrics, Nursing, Nutrition, Ophthalmology, Optometry, Preventive Medicine, Psychiatry, Psychology

Intended Users

Registered Dietitians, Advanced Practice Nurses, Allied Health Personnel, Dentists, Health Care Providers, Hospitals, Managed Care Organizations, Nurses, Occupational Therapists, Optometrists, Pharmacists, Physical Therapists, Physician Assistants, Physicians, Psychologists/Non-physician Behavioral Health Clinicians, Public Health Departments, Social Workers

Guideline Objective(s)

Overall Objective

To provide evidence-based recommendations on three topics related to food and nutrition for older adults promoting health and wellness.

Specific Objectives

- To define evidence-based nutrition recommendations for RDs that are carried out in collaboration with other healthcare providers
- To guide practice decisions that integrate medical, nutritional and behavioral strategies
- To reduce variations in practice among RDs
- To provide the RD with data to make recommendations to adjust MNT or recommend other therapies to achieve desired outcomes
- To develop guidelines for interventions that have measurable clinical outcomes
- To define the highest quality of care within cost constraints of the current healthcare environment.

Target Population

Male, Female

Target Population Description

Older adults (aged 60 years and older).

Interventions and Practices Considered

This guideline is based on the Academy's Nutrition Care Process and Model, which involves the following steps:

- Nutrition assessment
- Nutrition diagnosis
- Nutrition intervention
- Nutrition monitoring and evaluation.
- Food and Nutrition for Older Adults
- Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)
- Introduction (2012)

Food and Nutrition for Older Adults

Statement of Intent (2012)

Statement of Intent

Evidence-based nutrition practice guidelines are developed to help dietetic practitioners, patients and consumers make shared decisions about health care choices in specific clinical circumstances. If properly developed, communicated and implemented, guidelines can improve care.

While they represent a statement of best practice based on the latest available evidence at the time of publishing, they are not intended to overrule professional judgment. Rather, they may be viewed as a relative constraint on individual clinician discretion in a particular clinical circumstance. The independent skill and judgment of the health care provider must always dictate treatment decisions. These nutrition practice guidelines are provided with the express understanding that they do not establish or specify particular standards of care, whether legal, medical or other.

The Role of Patient Preference

This guideline recognizes the role of patient preferences for possible outcomes of care, when the appropriateness of a clinical intervention involves a substantial element of personal choice or values. With regard to types of evidence that are associated with particular outcomes, Shaughnessy and Slawson (1-3) describe two major classes. Patient-oriented evidence that matters (POEM) deals with outcomes of importance to patients, such as changes in morbidity, mortality or guality of life. Disease-oriented evidence (DOE) deals with surrogate end-points, such as changes in laboratory values or other measures of response. Although the results of DOE sometimes parallel the results of POEM, they do not always correspond.

When possible, ADA recommends using POEM-type evidence rather than DOE. When DOE is the only guidance available, the guideline indicates that key clinical recommendations lack the support of outcomes evidence.

References

- 1. Slawson DC, Shaughnessy AF. Becoming an information master: using POEMs to change practice with confidence. Patient-Oriented Evidence that Matters. J Fam Pract. 2000 Jan; 49 (1): 63-67. Erratum in: J Fam Pract. 2000 Mar; 49 (3): 276.
- Slawson DC, Shaughnessy AF, Ebell MH, Barry HC. Mastering medical information and the role of POEMs--Patient-Oriented Evidence that Matters. J Fam Pract. 1997 Sep; 45 (3): 195-196.
 Shaughnessy AF, Slawson DC. POEMs: patient-oriented evidence that matters. Ann Intern Med. 1997 Apr 15; 126 (8): 667.
- Food and Nutrition for Older Adults
- Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)
- Introduction (2012)

Food and Nutrition for Older Adults

Guideline Methods (2012)

General and Specific Methods for Food and Nutrition for Older Adults to Promote Health and Wellness Recommendations

Below are links to both the general methods that the Academy of Nutrition and Dietetics has put in place for evidence analysis and creating the recommendations, as well as the specific search methods and criteria for each question.

General Methods

Click here to view a description of the Academy of Nutrition and Dietetics process of evidence analysis and guideline creation.

Methods for Specific Topics

Select Specific Methods from Introduction to view descriptions of search criteria and findings for each topic covered in these recommendations.

- Food and Nutrition for Older Adults
- Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)
- Introduction (2012)

Food and Nutrition for Older Adults

Specific Methods (2012)

Search Criteria and Results for Specific Topics

Each evidence analysis topic has a link to supporting evidence, where the **Search Plan and Results** can be found. Here, you can view when the search plan was performed, inclusion and exclusion criteria, search terms, databases that were searched and the excluded articles. Below are a list of the recommendations and the related evidence analysis questions, with the link to each search plan. Some recommendations are supported by multiple conclusion statements and therefore have multiple search plans listed..

Food and Nutrition for Older Adults (FNOA): USDA and OAA Programs for Older Adults

Search Plan and Results

Search Plan and Results

Search Plan and Results

Search Plan and Results

Food and Nutrition for Older Adults (FNOA): Antioxidant Consumption and Age-Related Macular Degeneration and Cognitive Function in Older Adults

Search Plan and Results

Search Plan and Results

Food and Nutrition for Older Adults (FNOA): Weight Management in the Older Adult

Search Plan and Results

- Food and Nutrition for Older Adults
- Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)
- Introduction (2012)

Food and Nutrition for Older Adults

Specific Methods (2012)

Search Criteria and Results for Specific Topics

Each evidence analysis topic has a link to supporting evidence, where the **Search Plan and Results** can be found. Here, you can view when the search plan was performed, inclusion and exclusion criteria, search terms, databases that were searched and the excluded articles. Below are a list of the recommendations and the related evidence analysis questions, with the link to each search plan. Some recommendations are supported by multiple conclusion statements and therefore have multiple search plans listed.

Food and Nutrition for Older Adults (FNOA): USDA and OAA Programs for Older Adults

- Search Plan and Results
- Search Plan and Results
- Search Plan and Results

Search Plan and Results

Food and Nutrition for Older Adults (FNOA): Antioxidant Consumption and Age-Related Macular Degeneration and Cognitive Function in Older Adults

Search Plan and Results

Search Plan and Results

Food and Nutrition for Older Adults (FNOA): Weight Management in the Older Adult

Search Plan and Results

- Food and Nutrition for Older Adults
- Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)
- Introduction (2012)

Food and Nutrition for Older Adults

Benefits and Risks/Harms of Implementation (2012)

Benefits and Risks/Harms of Implementing the Recommendations

- · Safety issues must be reviewed carefully for each individual
- General benefits and risks associated with implementation of the guideline are addressed for each recommendation (see "Risks/Harms of Implementing the Recommendation" for each recommendation).

Potential Benefits

- A primary goal of implementing these recommendations includes improving a person's ability to achieve optimal nutrition through healthful food choices and a physically=active lifestyle
- Although costs of MNT sessions and reimbursement vary, MNT is essential for improved outcomes
- MNT education can be considered cost-effective when considering the benefits of nutrition interventions on the onset and progression of comorbidities vs. the cost of the intervention.

Risk/Harm Considerations

When using these recommendations, please consider the following general risks and harms:

- · Review the patient's age, socio-economic status, cultural issues, health history and other health conditions
- Consider referral to a behavioral specialist if psycho-social issues are a concern
- Consider a referral to social services to assist patients with financial arrangements if economic issues are a concern
- Use clinical judgment in applying the guidelines.

In addition to the above, a variety of barriers may hinder the application of these recommendations.

Food and Nutrition for Older Adults

Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)

Food and Nutrition for Older Adults

Background Information (2012)

Food and Nutrition for Older Adults Promoting Health and Wellness Recommendations

Identifying Information and Availabity

Contributors

See the <u>Contributors</u> page for a list of all contributors to the project on Food and Nutrition in Older Adults Promoting Health and Wellness. Team members and any disclosures of potential conflicts of interest of workgroup members are listed.

Bibliographic Source

Academy of Nutrition and Dietetics. Academy of Nutrition and Dietetics Food and Nutrition for the Older Adult Promoting Health and Wellness Recommendations, Chicago (IL): Academy of Nutrition and Dietetics, 2012.

Date Released

April 2012

Guideline Developer

Professional Association

Guideline Status

This is the first publication of these recommendations.

Guideline Availability

These recommendations will be accompanied by the Academy of Nutrition and Dietetics position paper, Food and Nutrition for Older Adults Promoting Health and Wellness.

Availability of Companion Documents

These recommendations will be accompanied by the Academy of Nutrition and Dietetics position paper, Food and Nutrition for Older Adults Promoting Health and Wellness.

Patient Resources

Copyright Statement

The Academy of Nutrition and Dietetics encourages the free exchange of evidence in nutrition practice recommendations and promotes the adaptation of recommendations for local conditions. However, please note that recommendations are subject to copyright provisions. To replicate or reproduce this recommendation, in part or in full, please obtain agreement from the Academy of Nutrition and Dietetics. Contact eal@eatright.org for copyright permission.

When modifying the recommendations for local circumstances, significant departures from these recommendations should be fully documented and the reasons for the differences explicitly detailed.

Copyright 2012 © Academy of Nutrition and Dietetics. All rights reserved.

Back to Main Menu of Food and Nutrition for Older Adults Promoting Health and Wellness

- Food and Nutrition for Older Adults
- Food and Nutrition for Older Adults Promoting Health and Wellness Guideline (2012)

Food and Nutrition for Older Adults

References (2012)

References Used for Each Recommendation

Food and Nutrition for Older Adults (FNOA) Antioxidant Consumption and Age-Related Macular Degeneration and Cognitive Function in Older Adults

References

Chiu CJ, Milton RC, Klein R, Gensler G, Taylor A. Dietary compound score and risk of age-related macular degeneration in the Age-Related Eye Disease Study. Ophthalmology. 2009; 116: 939-946.

Christen WG, Glynn RJ, Chew EY, Albert CM, Manson JE. Folic acid, pyridoxine, and cyanocobalamin combination treatment and age-related macular degeneration in women: The Women's Antioxidant and Folic Acid Cardiovascular Study. Arch Intern Med. 2009 Feb 23; 169(4): 335-341.

Christen WG, Glynn RJ, Chew EY, Buring JE. Vitamin E and age-related macular degeneration in a randomized trial of women. Ophthalmology, 2010; 117: 1,163-1,168.

Erie JC, Good JA, Butz JA, Pulido JS. Reduced zinc and copper in the retinal pigment epithelium and choroid in age-related macular degeneration. Am J Ophthalmol. 2009 Feb; 147 (2): 276-282.e1.

Evans JR, Henshaw KS. Antioxidant vitamin and mineral supplements for preventing age-related macular degeneration. Cochrane Database of Systematic Reviews 2008; (1): CD000253.

Fletcher AE, Bentham GC, Agnew M, Young IS, Augood C, Chakravarthy U, deJong PTVM, Rahu M, Seland J, Soubrane G, Tomazzoli L, Topouzis F, Vingerling JR, Vioque J. Sunlight exposure, antioxidants and age-related macular degeneration. Arch Opthalmol. 2008; 125(10): 1,396-1,403.

Klein BEK, Knudtson MD, Lee KE, Reinke JO, Danforth LG, Wealti AM, Moore E, Klein R. Supplements and age-related eye conditions: The Beaver Dam Eye Study. *Ophthalmology*. 2008 Jul; 115 (7): 1,203-1,208. Epub 2007 Nov 12.

Moeller SM, Parekh N, Tinker L, Ritenbaugh C, Blodi B, Wallace RB, Mares JA; for the CAREDS Research Study Group. Associations between intermediate age-related macular degeneration and lutein and zeaxanthin in the Carotenoids in Age-Related Eye Disease Study (CAREDS): Ancillary study of the Women's Health Initiative. Arch Ophthalmol. 2006 Aug: 124(8): 1,151-1,162.

Tan JSL, Wang JJ, Flood V, Rochtchina R, Smith W, Mitchell P. Dietary antioxidants and the long-term incidence of age-related macular degeneration. Opthalmology 2008; 115: 334-341.

Age-Related Eye Disease Study Research Group, SanGiovanni JP, Chew EY, Clemons TE, Ferris FL 3rd, Gensler G, Lindblad AS, Milton RC, Seddon JM, Sperduto RD. The relationship of dietary carotenoid and vitamin A, E, and C intake with age-related macular degeneration in a case-control study: AREDS Report No. 22. Arch Ophthalmol. 2007 Sep; 125 (9): 1,225-1,232.

Cangemi FE. TOZAL study: An open case control study of an oral antioxidant and omega-3 supplement for dry AMD. BMC Ophthalmology 2007, 7: 3.

Evans JR. Antioxidant vitamin and mineral supplements for slowing the progression of age-related macular degeneration. Cochrane Database Syst Rev 2006; (2): CD000254.

Klein ML, Francis PJ, Rosner B, Reynolds R, Hamon SC, Schultz DW, Ott J, Seddon JM. CFH and LOC387715/ARMS2 genotypes and treatment with antioxidants and zinc for age-related macular degeneration. *Ophthalmology*. 2008 Jun; 115 (6): 1,019-1,025.

Montgomery MP, Kamel F, Pericak-Vance MA, Haines JL, Postel EA, Agarwal A, Richards M, Scott WK, Schmidt S. Overall diet quality and age-related macular degeneration. *Ophthalmic Epidemiol* 2010; 17 (1): 58-65.

Newsome DA. A randomized, prospective, placebo-controlled clinical trial of a novel zinc-monocysteine compound in age-related macular degeneration. Curr Eye Res. 2008 Jul; 33 (7): 591-598.

Obana A, Hiramitsu T, Gohto Y, Ohira A, Mizuno S, Hirano T, Bernstein PS, Fujii H, Iseki K, Tanito M, Hotta Y. Macular carotenoid levels of normal subjects and age-related maculopathy patients in a Japanese population. *Ophthalmology*. 2008 Jan; 115 (1): 147-157.

Owsley C, McGwin G, Jackson GR, Heimburger DC, Piyathilake CJ, Klein R, White MF, Kallies K. Effect of short-term, high-dose retinol on dark adaptation in aging and early age-related maculopathy. *Invest Ophthalmol Vis Sci*.2006 Apr; 47 (4): 1,310-1,318.

Parisi V, Tedeschi M, Gallinaro G, Varano M, Saviano S, Piermarocchi S, CARMIS Study Group. Carotenoids and antioxidants in age-related maculopathy Italian study: Multifocal electroretinogram modifications after one year. *Ophthalmology*. 2008 Feb; 115(2): 324-333.e2.

Richer S, Devenport J, Lang JC. LAST II: Differential temporal responses of macular pigment optical density in patients with atrophic age-related macular degeneration to dietary supplementation with xanthophylls. Optometry. 2007 May; 78(5): 213-219.

Robman L, Vu H, Hodge A, Tikellis G, Dimitrov P, McCarty C, Guymer R. Dietary lutein, zeaxanthin, and fats and the progression of age-related macular degeneration. Can J Opththalmol 2007; 42: 720-726.

Rosenthal JM, Kim J, de Monastario F, Thompson DJS, Bone RA, Landrum JT, de Moura FF, Khachik F, Chen H, Schleicher RL, Ferris FL, Chew EY. Dose-ranging study of lutein supplementation in persons aged 60 years or older. *Invest Opthalmol Vis Sci.* 2006; 47: 5,227-5,233.

Akbaraly NT, Faure H, Gourlet V, Favier A, Berr C. Plasma carotenoid levels and cognitive performance in an elderly population: Results of the EVA study. J Gerontol A Biol Sci Med Sci. 2007 Mar; 62(3): 308-316.

Akbaraly TN, Hininger-Favier I, Carriere I, Arnaud J, Gourlet V, Roussel AM, Berr C. Plasma selenium over time and cognitive decline in the elderly. Epidemiology. 2007; 18(1): 52-58.

Bjelakovic G, Nikolova D, Gluud LL, Simonetti RG, Gluud C (2008). Antioxidant supplements for prevention of mortality in healthy participants and patients with various diseases. Cochrane Database of Systematic Reviews. 2008; Issue 2. Art. No. CD 007176.

Chin AV, Robinson DJ, O'Connell H, Hamilton F, Bruce I, Coen R, Walsh B, Coakley D, Molloy A, Scott J, Lawlor BA, Cunningham CJ. Vascular biomarkers of cognitive performance in a community-based elderly population: The Dublin Healthy Aging study. *Aging*. 2008 Sep; 37(5): 559-564.

Crews WD Jr, Harrison DW, Wright JW. A double-blind, placebo-controlled, randomized trial of the effects of dark chocolate and cocoa on variables associated with neuropsychological functioning and cardiovascular health: Clinical findings from a sample of healthy, cognitively intact older adults. Am J Clin Nutr. 2008; 87(4): 872-880.

Dai Q, Borenstein AR, Wu Y, Jackson JC, Larson EB. Fruit and vegetable juices and Alzheimer's disease: The Kame Project. Am J Med. 2006 Sep; 119 (9): 751-759.

Fotuhi M, Zandi PP, Hayden KM, Khachaturian AS, Szekely CA, Wengreen H, Munger RG, Norton MC, Tschanz JT, Lyketsos CG, Breitner JCS, Welsh-Bohmer KA. Better cognitive performance in elderly taking antioxidant vitamins E and C supplements in combination with NSAIDs: The Cache County Study. *Alzheimers Dement.* 2008; 4 (3): 223-227.

Fournier LR, Ryan-Borchers TA, Robison LM, Wiediger M, Park J-S, Chew BP, McGuire MK, Sclar DA, Skaer TL, Beerman KA. The effects of soy milk and isoflavone supplements on cognitive performance in healthy, postmenopausal women. J Nutr Health Aging 2007; 11 (2): 155-164.

Gao S, Jin Y, Hall KS, Liang C, Unverzagt FW, Ji R, Murrell JR, Cao J, Shen J, Ma F, Matesan J, Ying B, Cheng Y, Bian J, Li P, Hendrie HC. Selenium level and cognitive function in rural elderly chinese. Am J Epidemiol. 2007 Apr 15; 165 (8): 955-965. Epub 2007 Jan 31.

Gao S, Jin Y, Unverzagt FW, Ma F, Hall KS, Murrell JR, Cheng Y, Shen J, Ying B, Ji R, Matesan J, Liang C, Hendrie HC. Trace element levels and cognitive function in rural elderly chinese. J Gerontol A Biol Sci Med Sci. 2008 Jun; 63 (6): 635-641.

Gleason CE, Carlsson CM, Barnet JH, Meade SA, Setchell KDR, Atwood CS, Johnson SC, Ries ML, Asthana S. A preliminary study of the safety, feasibility and cognitive efficacy of soy isoflavone supplements in older men and women. Age and Aging 2009; 38: 86-93.

Grodstein F, Kang JH, Glynn RJ, Cook NR, Gaziano M. A randomized trial of beta carotene supplementation and cognitive function in men: The Physicians' Health Study II. Arch Intern Med. 2007; 167 (20): 2,184-2,190.

Ho SC, Chan AS, Ho YP, So EKF, Sham A, Zee B, Woo JLF. Effects of soy isoflavone supplementation on cognitive function in Chinese postmenopausal women: A double-blind, randomized, controlled trial. *Menopause*. 2007 May-Jun; 14(3 Pt 1): 489-499.

Hogervorst E, Sadjimim T, Yesufu A, Kreager P, Rahardjo TB. High tofu intake is associated with worse memory in elderly Indonesian men and women. *Dement Geriatr Cogn Disord*. 2008; 26(1): 50-57.

Hu P, Bretsky P, Crimmins EM, Guralnik JM, Reuben DB, Seeman TE. Association between serum beta-carotene levels and decline of cognitive function in high-functioning older persons with or without apolipoprotein E4 alleles: MacArthur studies of successful aging. *J Gerontol A Biol Sci.* 2006 Jan; 61(6): 616-620.

Johnson EJ, McDonald K, Caldarella SM, Chung HY, Troen AM, Snodderly DM. Cognitive findings of an exploratory trial of docosahexaenoic acid and lutein supplementation in older women. Nutr Neurosci. 2008 Apr;11(2):75-83.

Kang JH, Grodstein F. Plasma carotenoids and tocopherols and cognitive function: A prospective study. Neurobiol Aging. 2008; 29(9): 1.394-1.403.

Kang JH, Cook N, Manson J, Buring JE, Grodstein F. A randomized trial of vitamin E supplementation and cognitive function in women. Arch Intern Med. 2006; 166(22): 2,462-2,468.

Kreijkamp-Kaspers S, Kok L, Grobbee DE, de Haan EH, Aleman A, van der Schouw YT. Dietary phytoestrogen intake and cognitive function in older women. J Gerontol A Biol Sci Med Sci. 2007; 62(5): 556-562.

Lam PK, Kritz-Silverstein D, Barrett-Connor E, Milne D, Nielsen F, Gamst A, Morton D, Wingard D. Plasma trace elements and cognitive function in older men and women: The Rancho Bernardo study. J Nutr Health Aging 2008; 12 (1): 22-27.

Lee Y, Kim J, Back JH. The influence of multiple lifestyle behaviors on cognitive function in older persons living in the community. Prev Med 2009; 48 (1): 86-90.

Letenneur L, Proust-Lima C, Le Gouge A, Dartiques JF, Barberger-Gateau P. Flavonoid intake and cognitive decline over a 10-year period. Am J Epidemiol 2007; 165 (12): 1,364-1,371.

Marcellini F, Giuli C, Papa R, Gagliardi C, Dedoussis H, Herbein G, Fulop T, Monti D, Rink L, Jajte J, Mocchegiani E. Zinc status, psychological and nutritional assessment in old people recruited in five European countries: Zincage study. *Biogerontology* 2006; 7 (5-6): 339-345.

Maylor EA, Simpson EEA, Secker DL, Meunier N, Andriollo-Sanchez M, Polito A, Stewart-Knox B, McConville C, O'Connor JM, Coudray C. Effects of zinc supplementation on cognitive function in healthy middle-aged and older adults: The ZENITH study. Br J Nutr. 2006 Oct; 96(4): 752-760.

McNeill G, Avenell A, Campbell MK, Cook JA, Hannaford PC, Kilonzo MM, Milne AC, Ramsay CR, Seymour DG, Stephen AI, Vale LD. Effect of multivitamin and multimineral supplementation on cognitive function in men and women aged 65 and over: A randomized controlled trial. Nutr J. 2007; 6: 10.

Morris MC, Evans DA, Tangney CC, Bienias JL, Schneider JA, Wilson RS, Scherr PA. Dietary copper and high saturated and trans fat intakes associated with cognitive decline. Arch Neurol. 2006; 63(8): 1,085-1,088.

Morris MC, Evans DA, Tangney CC, Bienias JL, Wilson RS. Associations of vegetable and fruit consumption with age-related cognitive change. Neurology. 2006; 67(8): 1,370-1,376.

Ng TP, Chiam PC, Lee T, Chua HC, Lim L, Kua EH. Curry consumption and cognitive function in the elderly. Am J Epidemiol. 2006; 164(9): 898-906.

Nurk E, Refsum H, Drevon CA, Tell GS, Nygaard HA, Engedal K, Smith AD. Intake of flavonoid-rich wine, tea and chocolate by elderly men and women is associated with better cognitive test performance. J Nutr 2009; 139 (1): 120-127.

Pipingas A, Silberstein RB, Vitetta L, Rooy CV, Harris EV, Young JM, Frampton CM, Sali A, Nastasi J. Improved cognitive performance after dietary supplementation with a Pinus radiata bark extract formulation. *Phytother Res.* 2008; 22(9): 1168-1,174.

Rahman A, Sawyer Baker P, Allman RM, Zamrini E. Dietary factors and cognitive impairment in community-dwelling elderly. J Nutr Health Aging 2007;11 (1): 49-54.

Ravaglia G, Forti P, Lucicesare A, Pisacane N, Rietti E, Mangialasche F, Cecchetti R, Patterson C, Mecocci P. Plasma tocopherols and risk of cognitive impairment in an elderly Italian cohort. Am J Clin Nutr 2008; 87 (5): 1.306-1.313.

Ryan J, Croft K, Mori T, Wesnes K, Spong J, Downey L, Kure C, Lloyd J, Stough C. An examination of the effects of the antioxidant Pycnogenol on cognitive performance, serum lipid profile, endocrinological and oxidative stress biomarkers in an elderly population. J Psychopharmacol 2008; 22 (5): 553-562.

Samieri C, Jutand MA, Feart C, Capuron L, Letenneur L, Barberger-Gateau P. Dietary patterns derived by hybrid clustering method in older people: Association with cognition, mood and self-rated health. J Am Diet Assoc 2008; 108 (9): 1,461-1,471.

Sato R, Helzlsouer KJ, Comstock GW, Hoffman SC, Norkus EP, Fried LP. A cross-sectional study of vitamin C and cognitive function in older adults: The differential effects of gender. J Nutr Health Aging 2006; 10 (1): 37-44.

Simpson EE, Maylor EA, Rae G, Meunier N, Andriollo-Sanchez M, Catasta G, McConville C, Ferry M, Polito A, Stewart-Knox BJ, Secker DL, Coudray C. Cognitive function in healthy older European adults: The ZENITH study. Eur J Clin Nutr 2005; 59 Suppl 2: S26-S30.

Wengreen HJ, Munger RG, Corcoran CD, Zandi P, Hayden KM, Fotuhi M, Skoog I, Norton MC, Tschanz J, Breitner JC, Welsh-Bohmer KA. Antioxidant intake and cognitive function of elderly men and women: The Cache County Study. J Nutr Health Aging 2007; 11 (3): 230-237.

Woo J, Lynn H, Lau WY, Leung J, Lau E, Wong SY, Kwok T. Nutrient intake and psychological health in an elderly Chinese population. Int J Geriatr Psychiatry 2006; 21 (11): 1,036-1,043.

Baldeiras I, Santana I, Proenca MT, Garrucho MH, Pascoal R, Rodrigues A, Duro D, Oliveira CR. Peripheral oxidative damage in mild cognitive impairment and mild Alzheimer's disease. J Alzheimers Dis. 2008; 15 (1): 117-128.

Dong J, Robertson JD, Markesbery WR, Lovell MA. Serum zinc in the progression of Alzheimer's disease. J Alzheimers Dis. 2008;15 (3): 443-450.

Dunn JE, Weintraub S, Stoddard AM, Banks S. Serum alpha-tocopherol, concurrent and past vitamin E intake, and mild cognitive impairment. Neurology. 2007 Feb 27; 68(9): 670-676.

Filenbaum GG, Kuchibhatla MN, Hanlon JT, Artz MB, Pieper CF, Schmader KE, Dysken MW, Gray SL. Dementia and Alzheimer's disease in community-dwelling elders taking vitamin C and/or vitamin E. Ann Pharmacother 2005; 39: 2,009-2,014.

Gerhardsson L, Lundh T, Minthon L, Londos E. Metal concentrations in plasma and cerebrospinal fluid in patients with Alzheimer's Disease. Dement Geriatr Cogn Disord. 2008; 25: 508-515.

Gray SL, Anderson ML, Crane PK, Breitner JC, McCormick W, Bowen JD, Teri L, Larson E. Antioxidant vitamin supplement use and risk of dementia or Alzheimer's disease in older adults. J Am Geriatr Soc. 2008 Feb; 56(2): 291-295.

Isaac MG, Quinn R, Tabet N. Vitamin E for Alzheimer's disease and mild cognitive impairment. Cochrane Database Syst Rev 2008; (3): CD002854.

Kessler H, Bayer TA, Bach D, Schneider-Axmann T, Supprian T, Herrmann W, Haber M, Multhaup G, Falkai P, Pajonk FG. Intake of copper has no effect on cognition in patients with mild Alzheimer's disease: a pilot phase 2 clinical trial. J Neural Transm. 2008; 115 (8): 1,181-1,187.

Kessler H, Pajonk FG, Meisser P, Schneider-Axmann T, Hoffmann KH, Supprian T, Herrmann W, Obeid R, Multhaup G, Falkai P, Bayer TA. Cerebrospinal fluid diagnostic markers correlate with lower plasma copper and ceruloplasmin in patients with Alzheimer's disease. J Neural Transm 2006; 113 (11): 1,763-1,769.

Shatenstein B, Kergoat MJ, Reid I. Poor nutrient intakes during one-year follow-up with community-dwelling older adults with early-stage Alzheimer dementia compared to cognitively intact matched controls. J Am Diet Assoc. 2007; 107(12): 2,091-2,099.

Squitti R, Bressi F, Pasqualetti P, Bonomini C, Ghidoni R, Binetti G, Cassetta E, Moffa F, Ventriglia M, Vernieri F, Rossini PM. Longitudinal prognostic value of serum "free" copper in patients with Alzheimer disease. *Neurology*, 2009; 72 (1): 50-55.

References not graded in ADA's Evidence Analysis Process

• American Dietetic Association. Position of the American Dietetic Association: Nutrient Supplementation. J Am Diet Assoc. 2009; 109 (12): 2, 073-2, 085.

- Institute of Medicine. Dietary Reference Intakes for Older Adults. Accessed at: http://fnic.nal.usda.gov/nal_display/index.php?
- info center=4&tax level=3&tax subject=256&topic id=1342&level3 id=5140
- NIH State-of-the-Science Conference Statement on multivitamin/mineral supplements and chronic disease prevention. NIH Consens State Sci Statements. 2006 May 15-17; 23 (2): 1-30. Accessed at: http://guidelines.gov/content.aspx?id=11827&search=nih+state+of+the+science.

Food and Nutrition for Older Adults (FNOA) Weight Management in the Older Adult

References

Diehr P, Bild DE, Harris TB, Duxbury A, Siscovick D, Rossi M. Body mass index and mortality in nonsmoking older adults: The Cardiovascular Health Study. Am J Public Health. 1998 Apr; 88(4): 623-629.

Fine JT, Colditz GA, Coakley EH, Moseley G, Manson JE, Willett WC, Kawachi I. A prospective study of weight change and health-related quality of life in women. JAMA. 1999; 282: 2.136-2.142.

Jensen GL, Friedmann JM. Obesity is associated with functional decline in community-dwelling rural older persons. J Am Geriatr Soc. 2002; 50: 918-923.

Newman AB, Yanez D, Harris T, Duxbury A, Enright PL, Fried LP; Cardiovascular Study Research Group. Weight change in old age and its association with mortality. J Am Geriatr Soc. 2001 Oct;49(10):1309-18.

Reynolds MW, Fredman L, Langenberg P, Magaziner J. Weight, weight change, mortality in a random sample of older community-dwelling women. J Am Geriatr Soc. 1999 Dec; 47 (12): 1,409-1,414.

Wannamethee SG, Shaper AG, Lennon L. Reasons for intentional weight loss, unintentional weight loss, and mortality in older men. Arch Intern Med. 2005; 165: 1,035-1,040.

Yaari S, Goldbourt U. Voluntary and involuntary weight loss: associations with long term mortality in 9,228 middle-aged and elderly men. Am J Epidemiol. 1998: 148: 546-555.

Bannerman E, Miller MD, Daniels LA, Cobiac L, Giles LC, Whitehead C, Andrews GR, Crotty M. Anthropometric indices predict physical function and mobility in older Australians: The Australian Longitudinal Study of Ageing. *Public Health Nutr* 2002; 5 (5): 655-662.

Burke GL, Arnold AM, Bild DE, Cushman M, Fried LP, Newman A, Nunn C, Robbins J, CHS Collaborative Research Group. Factors associated with healthy aging: The Cardiovascular Health Study. JAGS 2001; 49: 254-262.

Chen H, Guo X. Obesity and functional disability among elder Americans. J Am Geriatr Soc. 2008; 56(4): 689-694.

Folsom AR, Kushi LH, Anderson KE, Mink PJ, Olson JE, Hong CP, Sellers TA, Lazovich D, Prineas RJ. Associations of general and abdominal obesity with multiple health outcomes in older women: The Iowa Women's Health Study. Arch Intern Med 2000; 160: 2,117-2,128.

Guallar-Castillon P, Sagardui-Villamor J, Banegas JR, Graciani A, Fornes NS, Garcia EL, Rodriguez-Artalejo F. Waist circumference as a predictor of disability among older adults. Obesity. 2007; 15: 233-244.

Harris TB, Visser M, Everhart J, Cauley J, Tylavsky F, Fuerst T, Zamboni M, Taaffe, D, Resnick HE, Scherzinger A, Nevitt M. Waist circumference and sagittal diameter reflect total body fat better than visceral fat in older men and women: The Health, Aging and Body Composition Study. Ann NY Acad Sci. 2000; 904: 462-473.

Kalmijn S. Curb JD. Rodriguez BL. Yano K. Abbott RD. The association of body weight and anthropometry with mortality in elderly men: The Honolulu Heart Program. Int J Obes Relat Metab Disord. 1999 Apr; 23 (4): 395-402.

Koster A, Harris TB, Moore SC, Schatzkin A, Hollenbeck AR, van Eijk JT, Leitzmann MF. Joint associations of adiposity and physical activity with mortality: The National Institutes of Health-AARP Diet and Health Study. Am J Epidemiol. 2009 Jun 1; 169(11): 1,344-1,351.

Koster A, Leitzmann MF, Schatzkin A, Mouw T, Adams KF, van Eijk JT, Hollenbeck AR, Harris TB. Waist circumference and mortality. Am J Epidemiol 2008; 167: 1,465-1,475.

Pischon T, Boeing H, Hoffmann K, Bergmann M, Schulze MB, Overvad K, van der Schouw YT, Spencer E, Moons KG, Tjønneland A, Halkjaer J, Jensen MK, Stegger J, Clavel-Chapelon F, Boutron-Ruault MC, Chajes V, Linseisen J, Kaaks R, Trichopoulou A, Trichopoulou A, Bamia C, Sieri S, Palli D, Turnino R, Vineis P, Panico S, Peeters PH, May AM, Bueno-de-Mesguita HB, van Duijnhoven FJ, Hallmans G, Weinehall L, Manjer J, Hedblad B, Lund E, Agudo A, Arriola L, Barricarte A, Navarro C, Martinez C, Quirós JR, Key T, Bingham S, Khaw KT, Boffetta P, Jenab M, Ferrari P, Riboli E, General and abdominal adiposity and risk of death in Europe. *N Engl J Med*. 2008 Nov 13; 359(20): 2,105-2,120.

Price GM, Uauy R, Breeze E, Bulpitt CJ, Fletcher AE. Weight, shape, and mortality risk in older persons: Elevated waist-hip ratio, not high body mass index, is associated with a greater risk of death. Am J Clin Nutr. 2006 Aug; 84(2): 449-460.

Ramsay SH, Whincup PH, Shaper AG, Wannamethee SC. The relations of body composition and adiposity measures to ill health and physical disability in elderly men. Am J Epidemiol. 2006; 164: 459-469.

Reis J, Macera C, Araneta M, Lindsay S, Marshall S, Wingard D. Comparison of overall obesity and body fat distribution in predicting risk of mortality. *Obesity*. 2009: 17; 1.232-1,239.

Srikanthan P, Seeman TE, Karlamangla AS. Waist-hip-ratio as a predictor of all-cause mortality in high-functioning older adults. Ann Epidemiol. 2009; 19: 724-731.

Sui X, LaMonte MJ, Laditka JN, Hardin JW, Chase N, Hooker SP, Blair SN. Cardiorespiratory fitness and adiposity as mortality predictors in older adults. JAMA. 2007 Dec 5; 298 (21): 2,507-2,516.

Visscher TLS, Seidell JC, Molarius A, van der Kuip D, Hofman A, Witteman JCM. A comparison of body mass index, waist-hip ratio and waist circumference as predictors of all-cause mortality among the elderly: The Rotterdam study. Int J Obes Relat Metab Disord. 2001; 25(11): 1,730-1,735.

Wannamethee SG, Shaper AG, Lennon L, Whincup PH. Decreased muscle mass and increased central adiposity are independently related to mortality in older men. Am J Clin Nutr. 2007; 86: 1,339-1,346.

Woo J, Ho SC, Yu AL, Sham A. Is waist circumference a useful measure in predicting health outcomes in the elderly? Int J Obes Relat Metab Disord. 2002; 26: 1,349-1,355.

Baumgartner RN, Wayne SJ, Waters DL, Janssen I, Gallagher D, Morley JE. Sarcopenic obesity predicts instrumental activities of daily living disability in the elderly. Obesity Research 2004; 12 (12): 1,995-2,004.

Baumgartner RN, Stauber PM, McHugh D, Koehler KM, Garry PJ. Cross-sectional age differences in body composition in persons 60+ years of age. J Gerontol A Biol Sci Med Sci. 1995; 50A(6): M307-M316.

Cefalu WT, Wang ZQ, Werbel S, Bell-Farrow A, Crouse JR, Hinson WH, Terry JG, Anderson R. Contribution of visceral fat mass to the insulin resistance of aging. *Metabolism*, 1995; 44 (7): 954-959.

Cesari M. Pahor M, Lauretani F. Zamboni V, Bandinelli S, Bernabei R, Guralnik JM, Ferrucci L. Skeletal muscle and mortality results from the InCHIANTI Study. J Gerontol A Biol Sci Med Sci. 2009; 64 (3): 377-384.

Davison KK, Ford ES, Cogswell ME, Dietz WH. Percentage of body fat and body mass index are associated with mobility limitations in people aged 70 and older from NHANES III. J

Am Geriatr Soc. 2002; 50: 1,802-1,809.

Forbes G. Longitudinal changes in adult fat-free mass: Influence of body weight. Am J Clin Nutr. 1999; 70: 1,025-1,031.

Gallagher D, Ruts E, Visser M, Heshka S, Baumgartner RN, Wang J, Pierson RN, Pi-Sunyer X, Heymsfield SB. Weight stability masks sarcopenia in elderly men and women. Am J Physiol Metab. 2000; 279: E366-E375.

Guida B, Laccetti R, Gerardi C, Trio R, Perrino NR, Strazzullo P, Siani A, Farinaro E, Colantuoni A. Bioelectrical impedance analysis and age-related differences of body composition in the elderly. Nutr Metab Cardiovasc Dis. 2007 Mar; 17 (3): 175-180. Epub 2006 Mar 9.

Heitmann BL, Erikson H, Ellsinger BM, Mlkkelsen KL, Larsson B. Mortality associated with body fat, fat-free mass and body mass index among 60-year-old Swedish men: A 22-year follow-up. The study of men born in 1913. Int J Obes Relat Metab Disord. 2000 Jan; 24(1): 33-37.

Hughes VA, Roubenoff R, Wood M, Frontera WR, Evans WJ, Singh MAF. Anthropometric assessment of 10-year changes in body composition in the elderly. Am J Clin Nutr 2004; 80: 475-482.

Hughes VA, Frontera WR, Roubenoff R, Evans WJ, Singh MAF. Longitudinal changes in body composition in older men and women: role of body weight change and physical activity. *Am J Clin Nutr.* 2002; 76: 473-481.

Kalmijn S, Curb JD, Rodriguez BL, Yano K, Abbott RD. The association of body weight and anthropometry with mortality in elderly men: The Honolulu Heart Program. Int J Obes Relat Metab Disord. 1999 Apr; 23 (4): 395-402.

Krakauer JC, Franklin B, Kleerekoper M, Karlsson M, Levine JA. Body composition profiles derived from dual-energy x-ray absorptiometry, total body scan and mortality. Prev Cardiol. 2004; 7 (3): 109-115.

Marques-Vidal P, Pecoud A, Hayoz D, Paccaud F, Mooser V, Waeber G, Vollenweider P. Prevalence of normal weight obesity in Switzerland: effect of various definitions. *Eur J* Nutr. 2008; 47 (5): 251-257.

Newman AB, Lee JS, Visser M, Goodpaster BH, Kritchevsky SB, Tylavsky FA, Nevitt M, Harris TB. Weight change and the conservation of lean mass in old age: The Health, Aging and Body Composition Study. Am J Clin Nutr 2005; 82: 872-878.

Ramsay SH, Whincup PH, Shaper AG, Wannamethee SC. The relations of body composition and adiposity measures to ill health and physical disability in elderly men. Am J Epidemiol. 2006; 164: 459-469.

Song M, Ruts E, Kim J, Janumala I, Heymsfield S, Gallagher D. Sarcopenia and increased adipose tissue infiltration of muscle in elderly African American women. Am J Clin Nutr. 2004; 79: 874-880.

Stemfeld B, Ngo L, Satariano WA, Tager IB. Associations of body composition with physical performance and self-reported functional limitation in elderly men and women. Am J Epidemiol. 2002; 156: 110-121.

Villareal DT, Banks M, Siener C, Sinacore DR, Klein S. Physical frailty and body composition in obese elderly men and women. Obes Res. 2004; 12: 913-920.

Visser M, Harris TB, Langlois J, Hannan MT, Roubenoff R, Felson DT, Wilson PWF, Kiel DP. Body fat and skeletal muscle mass in relation to physical disability in very old men and women of the Framingham Heart Study. J Gerontol A Biol Sci Med Sci. 1998; 53 (3): M214-M221.

Visser M, Kritchevsky SB, Goodpaster BH, Newman AB, Nevitt M, Stamm E, Harris TB. Leg muscle mass and composition in relation to lower extremity performance in men and women aged 70 to 79: The Health, Aging and Body Composition Study. J Am Geriatr Soc. 2002; 50: 897-904.

Visser M, Langlois J, Guralnik JM, Cauley JA, Kronmal RA, Robbins J, Williamson JD, Harris TB. High body fatness, but not low fat-free mass, predicts disability in older men and women: the Cardiovascular Health Study. Am J Clin Nutr. 1998; 68: 584-590.

Woo J, Ho SC, Sham A. Longitudinal changes in body mass index and body composition over three years and relationship to health outcomes in Hong Kong Chinese age 70 and older. J Am Geriatric Soc. 2001; 49: 737-746.

Zamboni M, Turcato E, Santana H, Maggi S, Harris TB, Pietrobelli A, Heymsfield SB, Micciolo R, Bosello O. The relationship between body composition and physical performance in older women. J Am Geriatr Soc. 1999 Dec; 47 (12): 1,403-1,408.

Zamboni M, Zoico E, Scartezzini T, Mazzali G, Tosoni P, Zivelonghi A, Gallagher D, De Pergola G, Di Francesco V, Bosello O. Body composition changes in stable-weight elderly subjects: the effect of sex. Aging Clin Exp Res. 2003; 15 (4): 321-327.

Zoico E, Di Francesco V, Guralnik JM, Mazzali G, Bortolani A, Guariento S, Sergi G, Bosello O, Zamboni M. Physical disability and muscular strength in relation to obesity and different body composition indexes in a sample of healthy elderly women. Int J Obes Relat Metab Disord. 2004; 28 (2): 234-241.

Ajani UA, Lotufo PA, Gaziano JM, Lee IM, Spelsberg A, Buring JE, Willett WC, Manson JE. Body mass index and mortality among US male physicians. Ann Epidemiol. 2004; 14: 731-739.

Al Snih S, Ottenbacher KJ, Markides KS, Kuo YF, Eschbach K, Goodwin JS. The effect of obesity on disability vs. mortality in older Americans. Arch Intern Med. 2007 Apr 23; 167 (8): 774-780.

Allison DB, Gallagher D, Heo M, Pi-Sunyer FX, Heymsfield SB. Body mass index and all-cause mortality among people age 70 and over: The Longitudinal Study of Aging. Int J Obes Relat Metab Disord. 1997; 21(6): 424-431.

Apovian CM, Frey CM, Wood GC, Rogers JZ, Still CD, Jensen GL. Body mass index and physical function in older women. Obes Res. 2002; 10(8): 740-747.

Bannerman E, Miller MD, Daniels LA, Cobiac L, Giles LC, Whitehead C, Andrews GR, Crotty M. Anthropometric indices predict physical function and mobility in older Australians: The Australian Longitudinal Study of Ageing. *Public Health Nutr* 2002; 5 (5): 655-662.

Blaum CS, Xue QL, Michelon E, Semba RD, Fried LP. The association between obesity and the frailty syndrome in older women: The Women's Health and Aging Studies. J Am Geriatr Soc 2005; 53: 927-934.

Brill PA, Giles WH, Keenan NL, Croft JB, Davis DR, Jackson KL, Macera CA. Effect of body mass index on activity limitation and mortality among older women: The National Health Interview Survey, 1986-1990. J Womens Health. 1997; 6(4): 435-440.

Corrada MM, Kawas CH, Mozaffar F, Paganini-Hill A. Association of body mass index and weight change with all-cause mortality in the elderly. Am J Epidemiol. 2006 May 15;163(10):938-49.

Davison KK, Ford ES, Cogswell ME, Dietz WH. Percentage of body fat and body mass index are associated with mobility limitations in people aged 70 and older from NHANES III. J Am Geriatr Soc. 2002; 50: 1.802-1.809.

Dey DK, Rothenberg E, Sundh V, Bosaeus I, Steen B. Body mass index, weight change and mortality in the elderly. A 15 y longitudinal population study of 70 y olds. Eur J Clin Nutr. 2001;55(6):482-92.

Diehr P., Bild DE, Harris TB, Duxbury A, Siscovick D, Rossi M. Body mass index and mortality in nonsmoking older adults: The Cardiovascular Health Study. Am J Public Health. 1998 Apr; 88(4): 623-629.

Dolan CM, Kraemer H, Browner W, Ensrud K, Kelsey JL. Associations between body composition, anthropometry and mortality in women aged 65 years and older. Am J Public Health. 2007 May; 97 (5); 913-918. Epub 2007 Mar 29.

Fontaine KR, Redden DT, Wang C, Westfall AO, Allison DB. Years of life lost due to obesity. JAMA 2003; 289: 187-193.

Friedman JM, Elasy T, Jensen GL. The relationship between body mass index and self-reported functional limitations among older adults: A gender difference. J Am Geriatr Soc. 2001; 49: 398-403.

Grabowski DC, Ellis JE. High body mass index does not predict mortality in older people: Analysis of the Longitudinal Study of Aging. J Am Geriatr Soc. 2001 Jul; 49(7): 968-979.

Heitmann BL, Erikson H, Ellsinger BM, Mikkelsen KL, Larsson B. Mortality associated with body fat, fat-free mass and body mass index among 60-year-old Swedish men: A 22-year follow-up. The study of men born in 1913. Int J Obes Relat Metab Disord. 2000 Jan; 24(1): 33-37.

Houston DK, Ding J, Nicklas BJ, Harris TB, Lee JS, Nevitt MC, Rubin SM, Tylavsky FA, Kritchevsky SB. The association between weight history and physical performance in the Health, Aging and Body Composition study. Int J Obes (Lond). 2007 Nov; 31 (11): 1.680-1.687. Epub 2007 May 22.

Janssen I. Morbidity and mortality risk associated with an overweight BMI in older men and women. Obesity (Silver Spring). 2007 Jul; 15 (7): 1.827-1.840.

Jenkins KR. Obesity's effect on the onset of functional impairment among older adults. Gerontologist. 2004; 44(2): 206-216.

Jensen GL, Friedmann JM. Obesity is associated with functional decline in community-dwelling rural older persons. J Am Geriatr Soc. 2002; 50: 918-923.

Kalmijn S, Curb JD, Rodriguez BL, Yano K, Abbott RD. The association of body weight and anthropometry with mortality in elderly men: The Honolulu Heart Program. Int J Obes Relat Metab Disord. 1999 Apr; 23 (4): 395-402.

Koster A, Harris TB, Moore SC, Schatzkin A, Hollenbeck AR, van Eijk JT, Leitzmann MF. Joint associations of adiposity and physical activity with mortality: The National Institutes of Health-AARP Diet and Health Study. Am J Epidemiol. 2009 Jun 1; 169(11): 1,344-1,351.

Kulminski AM, Arbeev KG, Kulminskaya IV, Ukraintseva SV, Land K, Akushevich I, Yashin AI. Body mass index and nine-year mortality in disabled and nondisabled older U.S. individuals. J Am Geriatr Soc. 2008 Jan;56(1):105-10. Epub 2007 Nov 15.

Landi F, Onder G, Gambassi G, Pedone C, Carbonin P, Bernabei R. Body mass index and mortality among hospitalized patients. Arch Intern Med 2000; 160 (17): 2,641-2,644.

Lindsted KD, Singh PN. Body mass and 26-year risk of mortality among women who never smoked: Findings from the Adventist Mortality Study. Am J Epidemiol 1997; 1,46:1-1,411.

Locher JL, Roth DL, Ritchie CS, Cox K, Sawyer P, Bodner EV, Allman RM. Body mass index, weight loss, and mortality in community-dwelling older adults. J Gerontol A Biol Sci Med Sci. 2007; 62(12): 1,389-1,392.

Matsuo T, Sairenchi T, Iso H, Irie F, Tanaka K, Fukasawa N, Ota H, Muto T. Age- and gender-specific BMI in terms of the lowest mortality in Japanese general population. Obesity (2008); 16: 2.348-2.355.

McAuley P, Pittsley J, Myers J, Abella J, Froelicher VF. Fitness and fatness as mortality predictors in healthy older men: The Veterans Exercise Testing Study. J Gerontol A Biol Sci Med Sci. 2009; 64(6): 695-699.

Menotti A, Kromhout D, Nissinen A, Giampaoli S, Seccareccia F, Feskens E, Pekkanen J, Tervahauta M. Short-term all-cause mortality and its determinants in elderly male populations in Finland, the Netherlands and Italy: The FINE Study. *Prev Med.* 1996; 25(3): 319-326.

Newman AB, Yanez D, Harris T, Duxbury A, Enright PL, Fried LP; Cardiovascular Study Research Group. Weight change in old age and its association with mortality. J Am Geriatr Soc. 2001 Oct;49(10):1309-18.

Patterson RE, Frank LL, Kristal AR, White E. A comprehensive examination of health conditions associated with obesity in older adults. Am J Prev Med 2004; 27 (5): 385-390.

Pischon T, Boeing H, Hoffmann K, Bergmann M, Schulze MB, Overvad K, van der Schouw YT, Spencer E, Moons KG, Tjønneland A, Halkjaer J, Jensen MK, Stegger J, Clave-Chapelon F, Boutron-Ruault MC, Chajes V, Linseisen J, Kaaks R, Trichopoulou A, Trichopoulos D, Bamia C, Sieri S, Palli D, Tumino R, Vineis P, Panico S, Peeters PH, May AM, Bueno-de-Mesquita HB, van Duijnhoven FJ, Hallmans G, Weinehall L, Manjer J, Hedblad B, Lund E, Agudo A, Arriola L, Barricarte A, Navarro C, Martinez C, Quirós JR, Key T, Bingham S, Khaw KT, Boffetta P, Jenab M, Ferrari P, Riboli E. General and abdominal adiposity and risk of death in Europe. *N Engl J Med*. 2008 Nov 13; 359(20): 2,105-2,120.

Ramsay SH, Whincup PH, Shaper AG, Wannamethee SC. The relations of body composition and adiposity measures to ill health and physical disability in elderly men. Am J Epidemiol. 2006; 164: 459-469.

Reis J, Macera C, Araneta M, Lindsay S, Marshall S, Wingard D. Comparison of overall obesity and body fat distribution in predicting risk of mortality. Obesity. 2009: 17; 1,232-1,239.

Reynolds MW, Fredman L, Langenberg P, Magaziner J. Weight, weight change, mortality in a random sample of older community-dwelling women. J Am Geriatr Soc. 1999 Dec; 47 (12): 1,409-1,414.

Reynolds SL, Saito Y, Crimmins EM. The impact of obesity on active life expectancy in older American men and women. Gerontologist. 2005; 45(4): 438-444.

Sarkisian CA, Liu H, Gutierrez PR, Seeley DG, Cummings SR, Mangione CM. Modifiable risk factors predict functional decline among older women: A prospectively validated clinical prediction tool. JAGS 2000; 48: 170-178.

Sorkin JD, Muller DC, Andres R. Longitudinal change in height of men and women: Implications for interpretation of the body mass index: The Baltimore Longitudinal Study of Aging. Am J Epidemiol. 1999; 150: 969-977.

Sui X, LaMonte MJ, Laditka JN, Hardin JW, Chase N, Hooker SP, Blair SN. Cardiorespiratory fitness and adiposity as mortality predictors in older adults. JAMA. 2007 Dec 5; 298 (21): 2,507-2,516.

Visscher TLS, Seidell JC, Molarius A, van der Kuip D, Hofman A, Witteman JCM. A comparison of body mass index, waist-hip ratio and waist circumference as predictors of all-cause mortality among the elderly: The Rotterdam study. Int J Obes Relat Metab Disord. 2001; 25(11): 1,730-1,735.

Wannamethee SG, Shaper AG, Lennon L, Whincup PH. Decreased muscle mass and increased central adiposity are independently related to mortality in older men. Am J Clin Nutr. 2007; 86: 1,339-1,346.

Zamboni M, Turcato E, Santana H, Maggi S, Harris TB, Pietrobelli A, Heymsfield SB, Micciolo R, Bosello O. The relationship between body composition and physical performance in older women. J Am Geriatr Soc. 1999 Dec; 47 (12): 1,403-1,408.

Zoico E, Di Francesco V, Guralnik JM, Mazzali G, Bortolani A, Guariento S, Sergi G, Bosello O, Zamboni M. Physical disability and muscular strength in relation to obesity and different body composition indexes in a sample of healthy elderly women. *Int J Obes Relat Metab Disord*. 2004; 28 (2): 234-241.

References not graded in ADA's Evidence Analysis Process

The Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report, NIH Publication No. 98-4083, September 1998, produced by the National Heart, Lung, and Blood Institute in cooperation with the National Institute of Diabetes and Digestive and Kidney Diseases.

Available at: http://www.nhlbi.nih.gov/guidelines/obesity/e txtbk/txgd/40.htm

To access the pdf of the NHLBI Clinical Guidelines, click here: http://www.nhlbi.nih.gov/guidelines/obesity/e_txtbk/index.htm

Food and Nutrition for Older Adults (FNOA) USDA and OAA Programs for Older Adults

References

Choi NG. Determinants of frail elders' lengths of stay in Meals on Wheels. The Gerontologist 1999; 39 (4): 397-404.

Choi NG, Smith J. Reaching out to racial/ethnic minority older persons for elderly nutrition programs. J Nutr Elder 2004; 24 (1): 89-104.

Moran MB, Reed E. Are congregate meals meeting clients' needs for "Heart Healthy" menus? J Nutr Elder 1993; 13 (2): 3-10.

Mower MT. Designing and implementing ethnic congregate nutrition programs for older Americans. J Nutr Elder 2008; 27 (3-4): 417-430.

Prothro JW and Rosenbloom CA. Description of a mixed ethnic, elderly population. III Special diets, food preferences and medicinal intakes. J Gerontol A Biol Sci Med Sci. 1999; 54 (6): M329-M332.

Rosenzweig L. Kosher meal services in the community: Need, availability, and limitations. J Nutr Elder 2005; 24 (4): 73-82.

Johnson DB, Beaudoin S, Smith LT, Beresford SAA, LoGerfo JP. Increasing fruit and vegetable intake in homebound elders: The Seattle Senior Farmers' Market Nutrition Pilot Program. <u>Preventing Chronic Disease</u>. 2004: 1(1): A03.

Kunkel ME, Luccia B, Moore AC. Evaluation of the South Carolina Seniors Farmers' Market Nutrition Education Program. J Am Diet Assoc. 2003; 103(7): 880-883.

Smith LT, Johnson DB, Beaudoin S, Monsen ER, LoGerlo JP. Qualitative assessment of participant utilization and satisfaction with the Seattle Senior Farmers' Market Nutrition Pilot Program. Prev Chronic Dis. 2004; 1(1): A06.

Wang MC, Dixon LB. Socioeconomic influences on bone health in postmenopausal women: findings from NHANES III, 1988-1994. Osteoporosis Int. 2006; 17: 91-98.

Algert SJ, Reibel M, Renvall MJ. Barriers to participation in the food stamp program among food pantry clients in Los Angeles. American Journal of Public Health. 2006; 96(5): 807-809.

Fey-Yensan N, English C, Pacheco HE, Belyea M, Schuler D. Elderly food stamp participants are different from eligible non-participants by level of nutrition risk but not nutrient intake. Journal of the American Dietetic Association 2003; 103: 103-107.

Fuller-Thomson E, Redmond M. Falling through the social safety net: Food stamp use and non-use among older impoverished Americans. Gerontologist 2008; 48 (2): 235-244.

Kaiser L. Why do low-income women not use food stamps? Findings from the California Women's Health Survey. Public Health Nutr. 2008 Dec; 11 (12): 1,288-1,295.

Martin KS, Cook JT, Rogers BL, Joseph HM. Public vs. private food assistance: Barriers to participation differ by age and ethnicity. J Nutr Educ Behav 2003 Sep-Oct; 35 (5): 249-254.

Nam Y, Jung H. Welfare reform and older immigrants: Food stamp program participation and food insecurity. Gerontologist 2008: 48 (1): 42-50.

Rank MR, Hirschl TA. Likelihood of using food stamps during the adulthood years. J Nutr Educ Behav. 2005; 37 (3): 137-146.

Bobroff LB, Turner RE, Weddle DO, Brake JH, Lieberman LS, Allen TB. Interactive learning for congregate nutrition site nutrition education: A pilot study. J Nutr Elderly. 2003; 23(1): 81-93.

Estabrooks PA, Fox EH, Doerksen SE, Bradshaw MH, King AC. Participatory research to promote physical activity at congregate-meal sites. J Aging Phys Act. 2005 Apr; 13 (2): 121-144.

Gollub EA. Weddle DO. Improvements in nutritional intake and quality of life among frail homebound older adults receiving home-delivered breakfast and lunch. J Am Diet Assoc. 2004 Aug; 104 (8): 1,227-1,235.

Johnson DB, Beaudoin S, Smith LT, Beresford SAA, LoGerfo JP. Increasing fruit and vegetable intake in homebound elders: The Seattle Senior Farmers' Market Nutrition Pilot Program. <u>Preventing Chronic Disease</u>. 2004: 1(1): A03.

Johnson MA, Fischer JG, Park S. Vitamin D deficiency and insufficiency in the Georgia Older Americans Nutrition Program. Journal of Nutrition for the Elderly 2008; 27 (1/2): 29-46.

Johnson MA, Hawthorne NA, Brackett WR, Fischer JG, Gunter EW, Allen RH, Stabler SP. Hyperhomocysteinemia and vitamin B-12 deficiency in elderly using Title IIIc nutrition services. Am J Clin Nutr. 2003; 77: 211-220.

Millen BE, Ohls JC, Ponza M, McCool AC. The elderly nutrition program: An effective national framework for preventive nutrition interventions. J Am Diet Assoc. 2002 Feb; 102(2): 234-240.

Pluckebaum JM, Chavez N. Nutritional status of Northwest Indiana Hispanics in a congregate meal program. J Nutr Elder. 1994; 13(3): 1-22.

Prothro JW, Rosenbloom CA. Description of a mixed ethnic, elderly population. I. Demography, nutrient/energy intakes, and income status. J Gerontol A Biol Sci Med Sci. 1999 Jun; 54(6): M315-M324.

Sellers T, Andress E, Fischer JG, Johnson MA. Home food safety program for the Georgia Older Americans Act Nutrition Program. J Nutr Elder. 2006; 26(1-2): 103-122.

Shovic A, Geoghegan P. Assessment of meal portion, food temperature, and select nutrient content of the Hawaii Meals on Wheels program. J Am Diet Assoc. 1997; 97(5): 530-532.

Smith R, Mullins L, Mushel M, Roorda J, Colquitt R. An examination of demographic, socio-cultural, and health differences between congregate and home diners in a Senior Nutrition Program. Journal of Nutrition for the Elderly. 1994; 14(1): 1-21.

Wellman NS, Kamp B, Kirk-Sanchez NJ, Johnson PM. Eat better and move more: A community-based program designed to improve diets and increase physical activity among older Americans. Am J Pub Health. 2007; 97(4): 710-717.

References not graded in ADA's Evidence Analysis Process

USDA program eligibility criteria can be accessed at the following links

• Supplemental Nutrition Assistance Program (SNAP) Pre-Screening Eligibility Tool: http://www.snap-step1.usda.gov/fns/

Senior Farmer's Market Nutrition Program (SFMNP): <u>http://www.fns.usda.gov/wic/SeniorFMNP/SeniorFMNPoverview.htm</u>

- Child and Adult Care Food Program (CACFP): <u>http://www.fns.usda.gov/cnd/care/</u>
 Emergency Food Assistance Program: <u>http://www.fns.usda.gov/fdd/programs/tefap/tefap_eligibility.htm</u>
 Commodity Supplemental Food Program (CSFP): <u>http://www.fns.usda.gov/fdd/programs/csfp/csfp_eligibility.htm</u>.

OAA program eligibility criteria can be accessed at the following links

- OAA Congregate Nutrition Program: <u>http://www.aoa.gov/AoARoot/AoA Programs/HCLTC/Nutrition Services/index.aspx#congregate</u>
 OAA Home Delivered Nutrition Program: <u>http://www.aoa.gov/AoARoot/AoA Programs/HCLTC/Nutrition Services/index.aspx#home</u>