Search Plan and Results

Question

What is the relationship between alcohol intake and weight gain? (DGAC 2010)

Date Searched

5/11/09

Inclusion Criteria

- November 1, 1994 to May 11, 2009
- Human subjects
- English language
- International
- *Sample size:* Minimum of 10 subjects per study arm; preference for larger sizes, if available
- *Dropout rate*: Less than 20%; preference for smaller dropout rates
- *Ages:* Adults of legal drinking age (21 years and older)
- *Populations:* Healthy, those with elevated chronic disease risk, those diagnosed with the highly prevalent chronic diseases (CHD/CVD, hypertension, type 2 diabetes, osteoporosis, osteopenia and obesity) and those with breast cancer, colon cancer or prostate cancer.

Exclusion Criteria

- Medical treatment or therapy
- Diseased subjects (exceptions noted)
- Hospitalized patients
- Malnourished or third-world populations or disease incidence not relative to US population (e.g., malaria)
- Animal studies
- In vitro studies
- Articles not peer reviewed (websites, magazine articles, Federal reports, etc.)
- Cross-sectional study design.

Search Terms: Search Vocabulary

("Ethanol"[Mesh] OR “Alcohol Drinking”[mesh] OR "Alcoholic Beverages"[Mesh]) AND ("Body Mass Index"[Mesh] OR "Waist-Hip Ratio"[Mesh] OR "Body Fat Distribution"[Mesh] OR Obesity[mesh] OR overweight[mesh] OR "Weight Gain"[Mesh] OR lipogenesis[mesh]) AND "english and humans"[Filter] AND "Cohort Studies"[Mesh]

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Electronic Databases

Total hits from all electronic database searches: 518

Total articles identified to review from electronic databases: 54

Articles Identified Via Handsearch or Other Means

Hand-searched: Two.

Summary of Articles Identified to Review

Number of Primary Articles Identified: 8

Number of Review Articles Identified: 0

Total Number of Articles Identified: 8

Number of Articles Reviewed but Excluded: 46

List of Articles Included for Evidence Analysis

Flechtner-Mors M, Biesalski HK, Jenkinson CP, Adler G, Ditschuneit HH. Effects of moderate consumption of white wine on weight loss in overweight and obese subjects. *Int J Obes Relat Metab Disord.* 2004 Nov; 28(11): 1, 420-1, 426. PMID: 15356671.

Koh-Banerjee P, Chu NF, Spiegelman D, Rosner B, Colditz G, Willett W, Rimm E. Prospective study of the association of changes in dietary intake, physical activity, alcohol consumption, and smoking with a nine-year gain in waist circumference among 16, 587 US men. *Am J Clin Nutr.* 2003 Oct; 78(4): 719-727. PMID:14522729.

Liu S, Serdula MK, Williamson DF, Mokdad AH, Byers T. A prospective study of alcohol intake and change in body weight among US adults. *Am J Epidemiol.* 1994 Nov 15; 140(10): 912-920. PMID: 7977278.

Sammel MD, Grisso JA, Freeman EW, Hollander L, Liu L, Liu S, Nelson DB, Battistini M. Weight gain among women in the late reproductive years. *Fam Pract.* 2003 Aug; 20(4): 401-409. PMID: 12876110.

Sherwood NE, Jeffery RW, French SA, Hannan PJ, Murray DM. Predictors of weight gain in the Pound of Prevention study. *Int J Obes Relat Metab Disord.* 2000 Apr; 24(4): 395-403. PMID: 10805494.

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Tolstrup JS, Halkjaer J, Heitmann BL, Tjønneland AM, Overvad K, Sørensen TI, Grønbaek MN. Alcohol drinking frequency in relation to subsequent changes in waist circumference. *Am J Clin Nutr*. 2008 Apr; 87(4): 957-963. PMID: 18400719.

Wannamethee SG, Field AE, Colditz GA, Rimm EB. Alcohol intake and eight-year weight gain in women: A prospective study. *Obes Res.* 2004 Sep; 12(9): 1, 386-1, 396. PMID: 15483203.

Wannamethee SG, Shaper AG. Alcohol, body weight, and weight gain in middle-aged men. *Am J Clin Nutr.* 2003 May; 77(5): 1, 312-1, 317. PMID: 12716687.

List of Excluded Articles with Reason

Article (A-L)	Reason for Exclusion
Alatalo PI, Koivisto HM, Hietala JP, Puukka KS, Bloigu R, Niemelä OJ. Effect of moderate alcohol consumption on liver enzymes increases with increasing body mass index. *Am J Clin Nutr.* 2008 Oct; 88(4): 1, 097-1, 103. PMID: 18842799.	Study focused on effect of alcohol on liver enzymes; does not address the question.
Arif AA, Rohrer JE. Patterns of alcohol drinking and its association with obesity: Data from the Third National Healthand Nutrition Examination Survey, 1988-1994. *BMC Public Health.* 2005 Dec 5; 5: 126. PMID: 16329757; PMCID: PMC1318457.	Cross-sectional study.
Barry D, Petry NM. Associations between body mass index and substance use disorders differ by gender: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Addict Behav.* 2009 Jan; 34(1): 51-60. Epub 2008 Aug 27. PMID: 18819756; PMCID: PMC2645714.	Study focused on substance use disorders by gender and body mass index; does not answer the question.
Berkey CS, Rockett HR, Colditz GA. Weight gain in older adolescent females: The Internet, sleep, coffee, and alcohol. *J Pediatr.* 2008 Nov; 153(5): 9, 635e-9, 639.e1. Epub 2008 Jul 9. PMID: 18614178; PMCID: PMC2631208.	Population studied age 14 to 21 years.
Beulens JW, de Zoete EC, Kok FJ, Schaafsma G, Hendriks HF. Effect of moderate alcohol consumption on adipokines and insulin sensitivity in lean and overweight men: A diet intervention study. *Eur J Clin Nutr.* 2008 Sep; 62(9): 1, 098-1, 105. Epub 2007 Jun 6. PMID: 17554246.	One sample group had less than 10 subjects; does not answer the question.
Beulens JW, van Beers RM, Stolk RP, Schaafsma G, Hendriks HF. The effect of moderate alcohol consumption on fat distribution and adipocytokines. *Obesity (Silver Spring)*. 2006 Jan; 14(1): 60-66. PMID: 16493123.	Study focused on effect of alcohol on fat distribution; does not answer the question.

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Bobak M, Skodova Z, Marmot M. Beer and obesity: a cross-sectional study. *Eur J Clin Nutr.* 2003 Oct; 57(10): 1, 250-1, 253. PMID: 14506485.	Cross-sectional study.
Breslow RA, Smothers BA. Drinking patterns and body mass index in never smokers: National Health Interview Survey, 1997-2001. *Am J Epidemiol.* 2005 Feb 15; 161(4): 368-376. PMID: 15692081.	Cross-sectional data.
Carels RA, Young KM, Coit C, Clayton AM, Spencer A, Wagner M. Skipping meals and alcohol consumption. The regulation of energy intake and expenditure among weight loss participants. *Appetite.* 2008 Nov; 51(3): 538-545. Epub 2008 Apr 15. PMID: 18511146.	Study focused on meal skipping; does not answer the question.
Chaix B, Chauvin P. Tobacco and alcohol consumption, sedentary lifestyle and overweightness in France: A multilevel analysis of individual and area-level determinants. *Eur J Epidemiol.* 2003; 18(6): 531-538. PMID: 12908718.	Study focused on tobacco consumption; does not answer the question.
Chyou PH, Burchfiel CM, Yano K, Sharp DS, Rodriguez BL, Curb JD, Nomura AM. Obesity, alcohol consumption, smoking, and mortality. *Ann Epidemiol.* 1997 May; 7(4): 311-317. PMID: 9177115.	Study outcome related to mortality; does not address the question.
Croezen S, Visscher TL, Ter Bogt NC, Veling ML, Haveman-Nies A. Skipping breakfast, alcohol consumption and physical inactivity as risk factors for overweight and obesity in adolescents: Results of the E-MOVO project. *Eur J Clin Nutr.* 2009 Mar; 63(3): 405-412. Epub 2007 Nov 28. PMID: 18043703.	Population studied age 13 to 16 years.
Dall TM, Zhang Y, Chen YJ, Wagner RC, Hogan PF, Fagan NK, Olaiya ST, Tornberg DN. Cost associated with being overweight and with obesity, high alcohol consumption, and tobacco use within the military health system's TRICARE prime-enrolled population. *Am J Health Promot.* 2007 Nov-Dec; 22(2): 120-139. PMID: 18019889.	Study addressed cost; does not answer the question.
Dixon JB, Dixon ME, O'Brien PE. Alcohol consumption in the severely obese: Relationship with the metabolic syndrome. *Obes Res.* 2002 Apr; 10(4): 245-252. PMID: 11943832.	Cross-sectional study.
Dorn JM, Hovey K, Muti P, Freudenheim JL, Russell M, Nochajski TH, Trevisan M. Alcohol drinking patterns differentially affect central adiposity as measured by abdominal height in women and men. *J Nutr.* 2003 Aug; 133(8): 2, 655-2, 662. PMID: 12888654.	Study focused on coronary heart disease; does not answer the question.

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Duncan AE, Grant JD, Bucholz KK, Madden PA, Heath AC. Relationship between body mass index, alcohol use, and alcohol misuse in a young adult female twin sample. *J Stud Alcohol Drugs.* 2009 May; 70(3): 458-466. PMID: 19371498; PMCID: PMC2670751.	Study focused on alcohol misuse; does not answer the question.
Fueki Y, Miida T, Wardaningsih E, Ito M, Nakamura A, Takahashi A, Hanyu O, Tsuda A, Saito H, Hama H, Okada M. Regular alcohol consumption improves insulin resistance in healthy Japanese men independent of obesity. *Clin Chim Acta.* 2007 Jul; 382(1-2): 71-76. Epub 2007 Apr 13. PMID: 17482151.	Study focused on insulin resistance; does not answer the question.
Greenfield JR, Samaras K, Jenkins AB, Kelly PJ, Spector TD, Campbell LV. Moderate alcohol consumption, dietary fat composition, and abdominal obesity in women: Evidence for gene-environment interaction. *J Clin Endocrinol Metab.* 2003 Nov; 88(11): 5, 381-5, 386. PMID: 14602777.	Study focused on gene-environment interaction; does not answer the question.
Gutiérrez-Fisac JL, Rodríguez-Artalejo F, Rodríguez-Blas C, del Rey-Calero J. Alcohol consumption and obesity in the adult population of Spain. J Epidemiol Community Health. 1995 Feb; 49(1): 108-109. PMID: 7706996; PMCID: PMC1060086.	Cross-sectional study.
Haenle MM, Brockmann SO, Kron M, Bertling U, Mason RA, Steinbach G, Boehm BO, Koenig W, Kern P, Piechotowski I, Kratzer W; EMIL-Study group. Overweight, physical activity, tobacco and alcohol consumption in a cross-sectional random sample of German adults. *BMC Public Health.* 2006 Sep 18; 6: 233. PMID:16981990; PMCID: PMC1586017.	Cross-sectional study.
Hill SY, Shen S, Locke Wellman J, Rickin E, Lowers L. Offspring from families at high risk for alcohol dependence: increased body mass index in association with prenatal exposure to cigarettes but not alcohol. *Psychiatry Res.* 2005 Jun 30; 135(3): 203-216. PMID: 16000226.	Study focused on offspring from high risk families; does not answer the question.
Hong J, Smith RR, Harvey AE, Núñez NP. Alcohol consumption promotes insulin sensitivity without affecting body fat levels. *Int J Obes (Lond).* 2009 Feb; 33(2): 197-203. Epub 2009 Jan 6. PMID: 19125162.	Study focused on insulin sensitivity; does not answer the question.
Kageyama T, Nishikido N, Honda Y, Kurokawa Y, Imai H, Kobayashi T, Kaneko T, Kabuto M. Effects of obesity, current smoking status, and alcohol consumption on heart rate variability in male white-collar workers. *Int Arch Occup Environ Health.* 1997; 69(6): 447-454. PMID: 9215932.	Study focused on heart rate variability; does not answer the question.

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Katsika D, Tuvblad C, Einarsson C, Lichtenstein P, Marschall HU. Body mass index, alcohol, tobacco and symptomatic gallstone disease: A Swedish twin study. *J Intern Med.* 2007 Nov; 262(5): 581-587. Epub 2007 Oct 1. PMID: 17908165.	Study focused on gallstone disease; does not answer the question.
Kleiner KD, Gold MS, Frost-Pineda K, Lenz-Brunsman B, Perri MG, Jacobs WS. Body mass index and alcohol use. *J Addict Dis.* 2004; 23(3): 105-118. PMID: 15256347.	Cross-sectional study.
Lee DH, Ha MH, Christiani DC. Body weight, alcohol consumption and liver enzyme activity: A four-year follow-up study. *Int J Epidemiol.* 2001 Aug; 30(4): 766-770. PMID: 11511600.	Study focused on liver enzyme activity; does not answer the question.
Li Y, Wang JG, Gao PJ, Wang GL, Qian YS, Zhu DL, Staessen JA. Interaction between body mass index and alcohol intake in relation to blood pressure in HAN and SHE Chinese. *Am J Hypertens.* 2006 May; 19(5): 448-453. PMID: 16647612.	Study focused on blood pressure; does not answer the question.
Lukasiewicz E, Mennen LI, Bertrais S, Arnault N, Preziosi P, Galan P, Hercberg S. Alcohol intake in relation to body mass index and waist-to-hip ratio: the importance of type of alcoholic beverage. *Public Health Nutr.* 2005 May; 8(3): 315-320. PMID: 15918929.	Cross-sectional study.

Article (M - Z)	Reason for Exclusion
Männistö S, Uusitalo K, Roos E, Fogelholm M, Pietinen P. Alcohol beverage drinking, diet and body mass index in a cross-sectional survey. *Eur J Clin Nutr.* 1997 May; 51(5): 326-332. PMID: 9152684.	Cross-sectional study.
Männistö S, Pietinen P, Haukka J, Ovaskainen ML, Albanes D, Virtamo J. Reported alcohol intake, diet and body mass index in male smokers. *Eur J Clin Nutr.* 1996 Apr; 50(4): 239-245. PMID: 8730611.	Cross-sectional study.
Oh HS, Seo WS. The compound relationship of smoking and alcohol consumption with obesity. *Yonsei Med J.* 2001 Oct; 42(5): 480-487. PMID: 11675675.	Cross-sectional data.
Powers JR, Young AF. Longitudinal analysis of alcohol consumption and health of middle-aged women in Australia. *Addiction.* 2008 Mar; 103(3): 424-432. PMID: 18269363.	Study focused on self-rated health; does not answer the question.

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Risérus U, Ingelsson E. Alcohol intake, insulin resistance, and abdominal obesity in elderly men. *Obesity (Silver Spring).* 2007 Jul;15(7):1766-73. PubMed PMID: 17636095.	Study focused on insulin resistance; does not answer the question
Rosenberg M, Knaan T, Cohen D. Association among bad breath, body mass index, and alcohol intake. *J Dent Res.* 2007 Oct; 86(10): 997-1, 000. PMID: 17890678.	Study focused on effect of bad breath on body mass index and alcohol intake; does not answer the question.
Sakurai Y, Umeda T, Shinchi K, Honjo S, Wakabayashi K, Todoroki I, Nishikawa H, Ogawa S, Katsurada M. Relation of total and beverage-specific alcohol intake to body mass index and waist-to-hip ratio: A study of self-defense officials in Japan. *Eur J Epidemiol.* 1997 Dec; 13(8): 893-898. PMID: 9476818.	Cross-sectional study.
Sasaki A, Kurisu A, Ohno M, Ikeda Y. Overweight/obesity, smoking, and heavy alcohol consumption are important determinants of plasma PAI-1 levels in healthy men. *Am J Med Sci.* 2001 Jul; 322(1): 19-23. PMID: 11465242.	Study focused on plasma PAI-1 levels; does not answer the question.
Sasaki A, Kurisu A, Ohno M, Ikeda Y. Overweight/obesity, smoking, and heavy alcohol consumption are important determinants of plasma PAI-1 levels in healthy men. *Am J Med Sci.* 2001 Jul; 322(1): 19-23. PMID: 11465242.	Cross-sectional study.
Schröder H, Morales-Molina JA, Bermejo S, Barral D, Mándoli ES, Grau M, Guxens M, de Jaime Gil E, Alvarez MD, Marrugat J. Relationship of abdominal obesity with alcohol consumption at population scale. *Eur J Nutr.* 2007 Oct; 46(7): 369-376. Epub 2007 Sep 20. PMID: 17885722.	Cross-sectional study.
Skrzypczak M, Szwed A, Pawlinska-Chmara R, Skrzypulec V. Body mass index, waist to hip ratio and waist/height in adult Polish women in relation to their education, place of residence, smoking and alcohol consumption. *Homo.* 2008; 59(4): 329-342. Epub 2008 Aug 3. PMID: 18675976.	Cross-sectional study.
Stamler J, Caggiula AW, Grandits GA. Relation of body mass and alcohol, nutrient, fiber, and caffeine intakes to blood pressure in the special intervention and usual care groups in the Multiple Risk Factor Intervention Trial. *Am J Clin Nutr.* 1997 Jan; 65(1 Suppl): 338S-365S. PMID: 8988947.	Study focused on blood pressure; does not answer the question.

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Suter PM. Is alcohol consumption a risk factor for weight gain and obesity? *Crit Rev Clin Lab Sci.* 2005; 42(3): 197-227. Review. PMID: 16047538.	Narrative review.
Suter PM, Häsler E, Vetter W. Effects of alcohol on energy metabolism and body weight regulation: Is alcohol a risk factor for obesity? *Nutr Rev.* 1997 May; 55(5): 157-171. Review. PMID: 9212692.	Narrative review.
Tolstrup JS, Heitmann BL, Tjønneland AM, Overvad OK, Sørensen TI, GrønbaekMN. The relation between drinking pattern and body mass index and waist and hip circumference. *Int J Obes (Lond).* 2005 May; 29(5): 490-497. PMID: 15672114.	Cross-sectional study.
Tremblay A, Buemann B, Thériault G, Bouchard C. Body fatness in active individuals reporting low lipid and alcohol intake. *Eur J Clin Nutr.* 1995 Nov; 49(11): 824-831. PMID: 8557020.	Study focused on effect of low lipid and alcohol intake related to body fatness; does not answer the question.
Wannamethee SG, Shaper AG, Whincup PH. Alcohol and adiposity: Effects of quantity and type of drink and time relation with meals. *Int J Obes (Lond).* 2005 Dec; 29(12): 1, 436-1, 444. PMID: 16077718.	Cross-sectional study.
Watanabe M, Barzi F, Neal B, Ueshima H, Miyoshi Y, Okayama A, Choudhury SR. Alcohol consumption and the risk of diabetes by body mass index levels in a cohort of 5, 636 Japanese. *Diabetes Res Clin Pract.* 2002 Sep; 57(3): 191-197. PMID: 12126769.	Study focused on diabetes; does not answer the question.
Williams PT, Krauss RM. Associations of age, adiposity, menopause, and alcohol intake with low-density lipoprotein subclasses. *Arterioscler Thromb Vasc Biol.* 1997 Jun; 17(6): 1, 082-1, 090. PMID: 9194758.	Study does not answer the question.

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