Nutritional Medicine Update

By Alan R. Gaby, M.D.

Do vitamins kill people?

22-year prospective study of 38,772 women (mean age, 62 years). In a multivariate analysis, the death rate was 6% higher in women who took a multivitamin than in women who did not ($p = 0.05$).

Arch Intern Med 2011;171:1625-1633

Do vitamins kill people?

In an analysis that adjusted only for age and energy intake, there was no significant difference in mortality rate between supplement users and nonusers. Crude (unadjusted) mortality data were not presented.

Arch Intern Med 2011;171:1625-1633

Do vitamins kill people?

The multivariate analysis adjusted for education, diabetes, hypertension, BMI, use of HRT, smoking, physical activity, and energy intake. For each of these variables, supplement users were in the “healthier” category (e.g., less diabetes, lower BMI, more physical activity, fewer smokers). Did the multivariate analysis “over-adjust?”

Arch Intern Med 2011;171:1625-1633

Do vitamins kill people?

In addition, the possibility of “confounding by indication” was not taken into account in the analysis (i.e., why were people taking nutritional supplements?).

Arch Intern Med 2011;171:1625-1633

Does vitamin E cause prostate cancer?

Randomized controlled trial: 400 IU/day of alpha-tocopherol for 5.5 years, with a total follow-up period of 7 years. The incidence of prostate cancer was 17% higher with vitamin E than with placebo ($p = 0.008$).

JAMA 2011;306:1549-1556

Does vitamin E cause prostate cancer?

Likely explanation: alpha-tocopherol-induced depletion of gamma-tocopherol.
J Nutr 2003;133:3137-3140

Alpha- and gamma-tocopherol each inhibited the growth of human prostate cancer cells *in vitro*, but gamma-tocopherol was the more potent of the two. Nutr Res 25:877-889

Does vitamin E cause prostate cancer?

In a 7-year nested case-control study, higher blood levels of alpha- and gamma-tocopherol were each associated with a lower risk of developing prostate cancer, but the risk reduction was greater with gamma- than with alpha-tocopherol.

J Natl Cancer Inst 2000;92:2018-2023

Does vitamin E cause prostate cancer?

Dose-response relationship with alpha-tocopherol in randomized controlled trials:

- 50 IU/day: protective effect
- 400 IU every other day: no effect
- 400 IU/day: adverse effect

J Natl Cancer Inst 1998;90:440-446; JAMA 2009;301:52-62; JAMA 2011;306:1549-1556

Does vitamin E cause prostate cancer?

It would be reasonable to postulate that mixed tocopherols (which contain both alpha- and gamma-tocopherol) would not increase the risk of prostate cancer, and might even have a protective effect.

Prostate Cancer Risk and Vitamin E

To the Editor: The observation by Dr Klein and colleagues[1] that treatment with 400 IU/d of α-tocopherol increased the incidence of prostate cancer might be explained by α-tocopherol inducing the depletion of γ-tocopherol. α-Tocopherol is 1 of the 4 forms of vitamin E that occur naturally in food (α-, β-, γ-, and δ-tocopherol). Treatment with large doses of α-tocopherol reduces serum concentrations of γ-tocopherol, thereby upsetting the natural balance of vitamin E isomers in the body.[2] Both α- and γ-tocopherol have been found to inhibit the growth of human prostate cancer cells in vitro, but γ-tocopherol was more potent.[3] In a case-control study of 10 456 men, higher blood levels of α-tocopherol and γ-tocopherol were each associated with a lower risk of developing prostate cancer, but the association with γ-tocopherol was stronger than that of α-tocopherol.[4] In a randomized controlled trial, treatment with a relatively small dose of α-tocopherol (50 IU/d) significantly decreased the incidence of prostate cancer in a group of cigarette smokers.[5]

These observations raise the possibility that both α- and γ-tocopherol have a protective effect against prostate cancer. However, when α-tocopherol is given by itself in large doses (such as ≥400 IU/d), depleting γ-tocopherol, the beneficial effect of α-tocopherol might be negated. Taking vitamin E as mixed tocopherols (containing all 4 forms of vitamin E) might not increase prostate cancer risk, and further research is needed to examine that possibility.

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1. Klein EA, Thompson IM Jr, Tangen CM, et al. Vitamin E and the risk of prostate cancer: the Selenium and Vitamin E Cancer Prevention Trial (SELECT). *JAMA*. 2011;306(14):1549-1556.
2. Huang HY, Appel LJ. Supplementation of diets with alpha-tocopherol reduces serum concentrations of gamma- and delta-tocopherol in humans. *J Nutr*. 2003; 133(10):3137-3140.
3. Saldeen K, Saldeen T. Importance of tocopherols beyond alpha-tocopherol: evidence from animal and human studies. *Nutr Res*. 2005;25(10):877-889.
4. Helzlsouer KJ, Huang HY, Alberg AJ, et al. Association between alpha-

High-dose vitamin D:

Is it safe

and effective?

Potential benefits of supplementation

Strong evidence: Fewer falls and fractures, better bone density, prevention of influenza and possibly asthma attacks

Weak evidence: Increased insulin sensitivity, improvement of hypertension, prevention of some cancers, autoimmune diseases, and tooth decay

Vitamin D: effective dosages

- 800-1,200 IU/day generally effective

- 400 IU/day generally ineffective

New RDA (2010):

- 600 IU/day for ages 1-70;
- 800 IU/day for ages ≥ 71

Vitamin D: new definition of deficiency

Traditional definition:

deficiency = serum 25(OH) < 10-15 ng/ml
(< 25-37.5 nmol/L)

New definition:

deficiency = serum 25(OH)D < 20 ng/ml
(< 50 nmol/L)

insufficiency = < 30 ng/ml
(< 75 nmol/L)

Vitamin D: new definition of “optimal”

A review article concluded that a protective effect with respect to various outcomes (i.e., bone health, falls, fractures, dental health, and cancer) began at a serum 25(OH)D level of 30 ng/ml (75 nmol/L) and that the best outcomes were seen in people with levels of 36-40 ng/ml (90-100 nmol/L).

Am J Clin Nutr 2006;84:18-28

Dosage requirements for new “adequate” and “optimal”

Only 50% of people will achieve “adequacy” (≥ 30 ng/ml) with 1,000 IU/day.

1,600-3,400 IU/day (depending on the study) will achieve “adequacy” in nearly all healthy adults.

Even larger doses (4,000-10,000 IU/day?) may be needed to achieve “optimal” levels.

Tolerable Upper Intake Level = 4,000 IU/day (recently increased from 2,000 IU/day)

Examining the evidence

Is routine use of vitamin D in dosages greater than 2,000 IU per day beneficial?

Is it safe?

My conclusions

Serum 25(OH)D appears to be an unreliable indicator of vitamin D status.

The new definitions of vitamin D deficiency and insufficiency may not be valid.

Evidence supporting the benefit of pushing 25(OH)D to an “optimal” level is weak.

My conclusions

Evidence supporting the long-term safety of dosages > 2,000/day is weak.

The safety and efficacy of vitamin D supplementation cannot be inferred from data regarding the safety and efficacy of sunlight exposure.

Vitamin D and cancer: controlled trial

Women's Health Initiative, double-blind trial: 36,282 postmenopausal women received vitamin D (400 IU/day) and calcium (1 g/day) or placebo for 7 years.

Overall, vitamin D/calcium had no effect on incidence of colorectal or breast cancer.

Am J Clin Nutr 2011;94:1144-1149

Vitamin D and cancer: controlled trial

Among women not taking personal calcium or vitamin D supplements at randomization, vitamin D/calcium treatment significantly decreased the incidence of breast cancer and total cancer, and nonsignificantly decreased colorectal cancer incidence.

Am J Clin Nutr 2011;94:1144-1149

Vitamin D and cancer: controlled trial

Among women taking personal calcium or vitamin D supplements at randomization (maximum permitted personal vitamin D dose, 600-1,000 IU/day), vitamin D/calcium treatment nonsignificantly increased total cancer, breast cancer, and colorectal cancer incidence by 6-26%.

Am J Clin Nutr 2011;94:1144-1149

Vitamin D and cancer: controlled trial

These data are consistent with the possibility that modest doses of vitamin D reduce the risk of cancer, but that slightly higher than modest doses provide no additional benefit and could even negate the benefit of lower doses or increase the risk of cancer.

Am J Clin Nutr 2011;94:1144-1149

Vitamin D and bone: controlled trial

Postmenopausal women received 6,500 IU (high dose) or 800 IU (standard dose) of vitamin D daily for 1 year. Mean increases in BMD of the total hip, femoral neck, lumbar spine, and total body were each nonsignificantly greater with the standard dose than with the high dose.

Osteoporos Int 2012;23:201-211

Vitamin D and influenza: controlled trial

Double-blind trial among Japanese children (mean age, 10 years): 1,200 IU/day of vitamin D for 4 months in the winter. Compared with placebo, 42% reduction in incidence of influenza A with vitamin D.

Am J Clin Nutr 2010;91:1255-1260

Vitamin D and influenza: controlled trial

Among children not taking other vitamin D supplements, vitamin D treatment reduced flu incidence by 64% compared with placebo.

Among children taking other vitamin D supplements (average, 1,000-1,200 IU/week), vitamin D treatment nonsignificantly increased flu incidence by 11% compared with placebo.

Am J Clin Nutr 2010;91:1255-1260

Vitamin D and COPD: controlled trial

Double-blind trial: COPD patients; 100,000 IU of vitamin D_3 every 4 weeks for 1 year

Among patients with severe vitamin D deficiency (< 10 ng/ml; 16% of all patients) vitamin D supplementation decreased the exacerbation rate by 43% compared with placebo ($p < 0.05$).

Ann Intern Med 2012;156:105-114

Vitamin D and COPD: controlled trial

Among patients who did not have severe vitamin D deficiency at baseline (≥ 10 ng/ml; 84% of all patients) vitamin D supplementation increased the exacerbation rate by 8% compared with placebo (p value not stated).

Ann Intern Med 2012;156:105-114

Vitamin D and COPD: controlled trial

Among patients who were not taking vitamin D supplements at baseline, the exacerbation rate was nonsignificantly lower by 10% in those assigned to receive vitamin D than in those assigned to receive placebo ($p = 0.3$).

Ann Intern Med 2012;156:105-114

Vitamin D and COPD: controlled trial

Among patients who were taking 400-880 IU/day of vitamin D at baseline for osteoporosis, the exacerbation rate was 41% higher in those assigned to receive vitamin D than in those assigned to receive placebo (p value not stated).

Ann Intern Med 2012;156:105-114

Vitamin D: what to make of it all

The RDAs of 400-600 IU/day may not be sufficient to promote optimal health. 800-1,200 IU/day is more effective than 400 IU/day.

Preliminary evidence suggests that, for the average person, dosages substantially above 800-1,200 IU/day may be less effective than 800-1,200 IU/day.

Vitamin D: what to make of it all

Doses > 800-1,200 IU/day may be considered for patients with risk factors for deficiency, such as obesity, advanced age, malabsorption, dark skin, lack of sun exposure, or distance from the equator.

The safety and efficacy of using high doses (such as > 2,000 IU/day) for the sole purpose of achieving a target 25(OH)D level have not been established.

Vitamin D: what to make of it all

Sunlight exposure of 5-15 minutes 2-3 times a week between 10 a.m. and 3 p.m. in spring, summer, and autumn is frequently sufficient for skin types II and III.

Am J Clin Nutr 2004;80(Suppl):1678S-88S

Green tea prevents influenza

Double-blind trial: Japanese healthcare workers received 378 mg/day of green tea catechins and 210 mg/day of theanine for 5 months (November to April). Incidence of clinically defined influenza was 69% lower with active treatment than with placebo (4.1% vs. 13%; $p = 0.02$).

BMC Complement Altern Med 2011;11:15

Omega-3 fatty acids for cardiomyopathy

Double-blind trial: 133 patients with non-ischemic dilated cardiomyopathy who had minimal symptoms while on conventional therapy received EPA/DHA (5 g/day for 1 month, then 2 g/day) or placebo for 12 months.

J Am Coll Cardiol 2011;57:870-879

Omega-3 fatty acids for cardiomyopathy

Mean left ventricular ejection fraction increased by 10.4% with EPA/DHA and decreased by 5% with placebo ($p < 0.001$). Compared with placebo, EPA/DHA improved exercise capacity ($p < 0.002$) and NYHA functional class ($p < 0.001$) and reduced hospitalization rate by 81% (5.9% vs. 30.3%; $p = 0.0002$).

J Am Coll Cardiol 2011;57:870-879

Fish oil: no increased bleeding risk

Retrospective chart review of 95 patients who underwent spinal surgery. No significant increase in blood loss between patients (n = 16) who took omega-3 fatty acid supplements within 14 days of surgery (stopping an average of 2 days before surgery) and patients who did not take omega-3 fatty acids within 14 days of surgery.

J Spinal Disord Tech 2011;Mar 16 [Epub ahead of print]

Fish oil: no increased bleeding risk

The authors cited 5 other studies in which the use of omega-3 fatty acids preoperatively was not associated with increased risk of bleeding complications, blood loss, or transfusion requirements in patients undergoing abdominal surgery or coronary bypass surgery.

J Spinal Disord Tech 2011;Mar 16 [Epub ahead of print]

Ginkgo: no increased bleeding risk?

Meta-analysis of 18 randomized controlled trials, total of 1,985 subjects with dementia, peripheral artery disease, or diabetes (13% were healthy): Ginkgo had no significant effect on ADP-induced platelet aggregation, fibrinogen concentration, prothrombin time, or activated partial thromboplastin time.

Pharmacotherapy 2011;31:490-502

Ginkgo: no increased bleeding risk?

Subgroup analysis revealed a significant reduction in activated partial thromboplastin time with high-dose ginkgo (≥ 240 mg/day) and in studies that excluded healthy people, but the findings were not considered clinically relevant.

Pharmacotherapy 2011;31:490-502

Probiotic for aspirin-induced GI damage

Randomized trial: Elderly patients taking 100 mg/day of aspirin who had unexplained iron-deficiency anemia received *L. casei* (4.5×10^9 to 6.3×10^{10} cfu/day for 3 months). Compared with a control group that did not receive probiotics, the *L. casei* group had significantly fewer small-intestinal mucosal breaks and significant improvement in intestinal mucosal appearance.

J Gastroenterol 2011;46:894-905

Probiotic before colonoscopy

Double-blind trial: Constipated patients scheduled for colonoscopy received probiotics (*Bacillus subtilis* and *Streptococcus faecium*) or placebo 3 times a day for 2 weeks prior to the colonoscopy. Compared with placebo, the probiotics increased the proportion of patients who had a satisfactory bowel preparation (54.9% vs. 20.8%; $p < 0.001$).

Dig Dis Sci 2010;55:2344-2351

Probiotic before colonoscopy

Bowel prep-related adverse events and post-colonoscopy symptoms were less frequent and less severe in the probiotics group than in the placebo group.

Probiotics were of no benefit for colonoscopy patients who did not have constipation.

Dig Dis Sci 2010;55:2344-2351

Lactobacillus GR-1/RC-14 for urogenital health

Lactobacillus rhamnosus GR-1 and *L. reuteri* RC-14, when administered intravaginally to healthy women, were more effective than other strains of lactobacilli (such as *L. rhamnosus* GG) at colonizing the vaginal mucosa.

Clin Diagn Lab Immunol 2002;9:92-96

Lactobacillus GR-1/RC-14 for urogenital health

L. rhamnosus GR-1 and *L. reuteri* RC-14 were also found to be preferable to other probiotic strains with respect to certain predictors of urogenital health (e.g., adhesion to uroepithelial cells, competitive exclusion of pathogens, and production of growth inhibitors against pathogenic organisms, including *Candida albicans*.

J Infect Dis 2001;183(Suppl 1):S77-S80; Am J Clin Nutr 2001;73(Suppl):437S-443S.

Lactobacillus GR-1/RC-14 for urogenital health

After oral administration, these organisms survive in the gastrointestinal tract and apparently migrate to and colonize the vaginal mucosa. In 10 women with recurrent genitourinary infections who received *L. rhamnosus* GR-1 and *L. reuteri* RC-14 orally twice a day for 14 days, both organisms were recovered from the vagina in all 10 patients. In some cases, the organisms persisted at least 10 weeks after treatment was discontinued.

FEMS Immunol Med Microbiol. 2001;30:49-52

Lactobacillus GR-1/RC-14 for *Candida* vaginitis

55 women with vulvovaginal candidiasis were given a single dose of 150 mg of fluconazole and were randomly assigned to receive, in double-blind fashion, 2 oral capsules each morning containing *L. rhamnosus* GR-1 and *L. reuteri* RC-14 (2 billion viable cells per day of each strain) or placebo for 4 weeks, starting on the day of fluconazole use.

Lett Appl Microbiol 2009;48:269-274.

Lactobacillus GR-1/RC-14 for *Candida* vaginitis

At day 28, the proportion of women who had vaginal discharge associated with itching, burning, dyspareunia, and/or dysuria (10.3% vs. 38.5%; p = 0.014) and the proportion of women from whom *Candida* could be cultured (10.3% vs. 38.5%; p = 0.014) was significantly lower in the probiotics group than in the placebo group.

Lett Appl Microbiol 2009;48:269-274.

Lactobacillus GR-1/RC-14 for BV

125 women with bacterial vaginosis were treated with oral metronidazole for 7 days and were randomly assigned to receive, in double-blind fashion, GR-1/RC-14 orally (1 capsule twice a day) or placebo for 30 days.

Microbes Infect 2006;8:1450-1454.

Lactobacillus GR-1/RC-14 for BV

Cure of bacterial vaginosis was defined as a normal Nugent score, a negative sialidase test, and no symptoms or signs at day 30. The cure rate was 88% with GR-1/RC-14 and 40% with placebo ($p < 0.001$).

Microbes Infect 2006;8:1450-1454.

Lactobacillus GR-1/RC-14 for UTI prophylaxis

Double-blind trial: 252 postmenopausal women (mean age, 64 years) with recurrent UTIs received trimethoprim-sulfamethoxazole once a day or oral capsules containing *L. rhamnosus* GR-1 and *L. reuteri* RC-14 twice a day for 12 months.

Arch Intern Med 2012;172:704-712

Lactobacillus GR-1/RC-14 for UTI prophylaxis

Mean number of UTIs fell by 58.5% with TMP/SMX and by 51.4% with GR-1/RC-14 (difference not significant). Antibiotic resistance of *E. coli* isolates increased from 20-40% at baseline to 80-95% in the TMP/SMX group. Antibiotic resistance did not increase during probiotic therapy.

Arch Intern Med 2012;172:704-712

L. GR-1/RC-14 for postmenopausal women

In premenopausal women, estrogen encourages vaginal colonization with lactobacilli. The decline in estrogen levels that results from menopause is associated with increased colonization with enterobacteria and an increased prevalence of recurrent urinary tract infections.

L. GR-1/RC-14 for postmenopausal women

72 postmenopausal women (mean age, 57.6 years) with Nugent scores of 4-6 (intermediate flora) were randomly assigned to receive, in double-blind fashion, capsules containing 2.5 billion CFU each of *Lactobacillus rhamnosus* GR-1 and *L. reuteri* RC-14 once a day or placebo for 14 days.

Eur J Obstet Gynecol Reprod Biol 2008;141:54-57

L. GR-1/RC-14 for postmenopausal women

The proportion of women who showed a reduction (improvement) in the Nugent score of at least 2 grades was greater in the probiotics group than in the placebo group (60% vs. 16%; p = 0.0001). The median Nugent score decreased by 3 grades in the probiotics group and did not change in the placebo group (p = 0.0001).

Eur J Obstet Gynecol Reprod Biol 2008;141:54-57

Soy isoflavones trigger hypothyroidism

Double-blind crossover trial: 60 patients with subclinical hypothyroidism (TSH between 5 and 15 mU/L and normal free T4) received 30 g/day of soy protein, providing daily either 2 mg (representative of a Western diet) or 16 mg (representative of a vegetarian diet) of isoflavones, for 8 weeks each.

J Clin Endocrinol Metab 2011;96:1442-1449

Soy isoflavones trigger hypothyroidism

6 of the 52 patients in the study progressed to overt hypothyroidism while receiving the higher dose of isoflavones, whereas no patient progressed to overt hypothyroidism while receiving the lower dose ($p < 0.05$).

J Clin Endocrinol Metab 2011;96:1442-1449

NAC for *H. pylori* eradication

Bacteria that are capable of producing a biofilm, such as *Helicobacter pylori*, may be more resistant than other bacteria to antibiotics, presumably because the protective matrix of the biofilm blocks the penetration of antibiotics.

Clin Gastroenterol Hepatol 2010;8:817-820.e3

NAC for *H. pylori* eradication

In vitro, N-acetylcysteine (NAC) has been found to prevent biofilm formation and to promote the degradation of existing biofilm.

Clin Gastroenterol Hepatol 2010;8:817-820.e3

NAC for *H. pylori* eradication

40 patients with at least 4 unsuccessful attempts at *H. pylori* eradication were randomly assigned to receive NAC (600 mg once a day) or no NAC (controls) for 1 week, followed by 1 week of conventional eradication therapy.

Clin Gastroenterol Hepatol 2010;8:817-820.e3

NAC for *H. pylori* eradication

The eradication rate was higher in the NAC group than in the control group (65% vs. 20%; $p < 0.01$).

Biofilm disappeared in all patients in whom eradication was successful, but persisted in patients in whom eradication was unsuccessful.

Clin Gastroenterol Hepatol 2010;8:817-820.e3

Low-FODMAPs diet for IBS

“FODMAPS” is an acronym for fermentable oligosaccharides, disaccharides, monosaccharides, and polyols. FODMAPS include fructose, lactose, sorbitol, fructooligosaccharides (fructans, including inulin), and galactooligosaccharides (such as raffinose).

Low-FODMAPs diet for IBS

Foods restricted on a low-FODMAPs diet include fruits that contain fructose in excess of glucose (e.g., apples, pears), fructan-containing foods (e.g., wheat, onions, leeks, artichokes), sorbitol-containing foods (e.g., stone fruits), raffinose-containing foods (e.g., legumes, lentils, cabbage, and brussels sprouts), and lactose- and fructose-containing foods, if lactose and fructose malabsorption, respectively, are demonstrated.

Low-FODMAPs diet for IBS

43 IBS patients consumed a low-FODMAPs diet, while 39 other patients received standard dietary advice (control). Significantly more patients on the low-FODMAPs diet than on the control diet were satisfied with their symptom response (76% vs. 54%; $p < 0.04$).

J Hum Nutr 2011;24:487-495

Low-FODMAPs diet for IBS

More patients in the low-FODMAPs group had improvements in bloating (82% vs. 49%; $p = 0.002$), abdominal pain (85% vs. 61%; $p < 0.03$), and flatulence (87% vs. 50%; $p = 0.001$).

Median time until improvement occurred was 2 weeks (range, 2-8 weeks).

J Hum Nutr 2011;24:487-495;

Low-FODMAPs diet for IBS

Detailed FODMAPs diet information available for $12.95 at:

http://www.myfoodmyhealth.com/FODMAP/index.php

Melatonin for tinnitus

Double-blind trial: 61 patients with tinnitus for a mean of 11.3 years received 3 mg of melatonin or placebo each night for 30 days. One-month washout, then the other treatment for 30 days.

Mean tinnitus severity improved significantly more with melatonin than with placebo.

Ann Otol Rhinol Laryngol 2011;120:433-440

Melatonin for tinnitus

Factors that predicted a positive response to melatonin included no prior tinnitus treatment, male gender, bilateral tinnitus, more severe tinnitus, history of noise exposure, and absence of depression and/or anxiety.

Ann Otol Rhinol Laryngol 2011;120:433-440

DASH diet: not just for hypertension

Dietary Approaches to Stop Hypertension (DASH) diet: rich in fruits, vegetables, and low-fat dairy products; contains moderate amounts of nuts, seeds, and legumes; relatively low in refined sugar, saturated fat, and total fat; does not restrict salt intake. Has been shown to have an antihypertensive effect.

DASH diet: not just for hypertension

Crossover trial: 31 patients with type 2 diabetes consumed a DASH diet or a control diet for 8 weeks, then the other diet for 8 weeks. On the DASH diet, compared with baseline, the mean C-reactive protein level fell by 27% ($p = 0.001$ for the difference in the change between diet periods).

J Nutr 2011;141:1083-1088

DASH diet: not just for hypertension

On the DASH diet, compared with baseline, the mean serum fibrinogen level fell by 11% ($p = 0.03$ for the difference in the change between diet periods).

J Nutr 2011;141:1083-1088

Selenium lowers cholesterol levels

Double-blind trial: 501 individuals (aged 60-74 years) with mean serum cholesterol of 231 mg/dl received selenium (100, 200, or 300 µg/day, as high-selenium yeast) or placebo for 6 months.

Ann Intern Med 2011;154:656-665

Selenium lowers cholesterol levels

Compared with placebo, the mean serum cholesterol level fell by fell by 8.5 mg/dl with 100 µg/day of selenium ($p = 0.02$), by 9.7 mg/dl with 200 µg/day ($p < 0.01$), and by 2.7 mg/dl with 300 µg/day ($p = 0.46$).

Ann Intern Med 2011;154:656-665

Selenium lowers cholesterol levels

Compared with placebo, mean HDL-C increased by 2.3 mg/dl with 300 µg/day ($p < 0.05$), and did not change with the lower doses. The total- to HDL-C ratio decreased progressively with increasing selenium doses ($p = 0.01$).

Ann Intern Med 2011;154:656-665

Hesperidin lowers blood pressure

Randomized, crossover trial: 24 overweight men received each of the following for 4 weeks each: 250 ml of orange juice twice a day (providing 292 mg/day of hesperidin); a control drink plus 146 mg twice a day of hesperidin in capsule form; or the control drink plus 1 capsule twice a day of placebo.

Am J Clin Nutr 2011;93:73-80

Hesperidin lowers blood pressure

Compared with the control drink, mean diastolic blood pressure was significantly lower by 3.2 mm Hg with the control drink plus hesperidin, and by 5.5 mm Hg with orange juice. Systolic blood pressure did not differ between treatment periods.

Am J Clin Nutr 2011;93:73-80

Magnesium for menopausal hot flashes

25 women (mean age, 53.5 years) with hot flashes after treatment for breast cancer received 250 mg/day of magnesium for 4 weeks. Dosage was increased to 250 mg twice a day after the first 2 weeks if the response was not adequate.

Support Care Cancer 2011;19:859-863

Magnesium for menopausal hot flashes

17 women increased the Mg dose. The mean frequency of hot flashes per week fell by 47% ($p < 0.01$), from 52.2 at baseline to 27.7. The mean hot flash score (the product of hot flash frequency and average severity) improved by 56% ($p = 0.02$).

Support Care Cancer 2011;19:859-863

Tomato paste prevents sun damage

Single-blind trial: 55 g/day of tomato paste (providing 16 mg/day of lycopene) in olive oil for 12 weeks protected against UV-induced erythema, as well as against indicators of acute tissue photodamage.

Br J Dermatol 2011;164:154-162

ADHD and food allergies

100 children with ADHD followed an elimination diet or a control diet for 5 weeks. Responders to the elimination diet then underwent double-blind food challenges. During the first 5 weeks, the mean improvement on the ADHD rating scale was significantly greater with the elimination diet than with the control diet (53.4% vs. 2.9%; $p < 0.0001$).

Lancet 2011;377:494-503

AHDH and food allergies

Symptoms worsened to nearly baseline values after food challenges. Serum IgG antibody levels against specific foods were of no value for identifying food sensitivities.

Lancet 2011;377:494-503

NAC for bipolar disorder

Randomized controlled trial: 14 patients with bipolar disorder II. N-Acetylcysteine (NAC; 500 mg twice a day) or placebo for 24 weeks. All patients received conventional therapy. Full remission of manic and depressive symptoms was seen in 6 of 7 patients with NAC, and in 2 of 7 with placebo ($p = 0.03$).

J Affect Disord 2011;129:317-320

Lavender oil for anxiety

Double-blind trial: 221 patients with mild anxiety disorder received 80 mg/day of lavender oil (Silexan) or placebo orally for 6 weeks.

Mean percent improvement on the Hamilton Anxiety Scale was greater with active treatment than with placebo (59.7% vs. 35%; p = 0.001).

Int Clin Psychopharmacol 2010;25:277-287

Lavender oil for anxiety

Proportion of responders (HAMA decrease of ≥ 50%) was greater with lavender than with placebo (77% vs. 49%; $p < 0.001$).

Remission rate (HAMA score < 10 or Pittsburgh Sleep Quality Index < 6) greater with lavender than with placebo (61% vs. 43%; $p < 0.01$).

Int Clin Psychopharmacol 2010;25:277-287

Lavender oil for anxiety

Adverse effects (mainly gastrointestinal, such as dyspepsia or belching) occurred in about 10% of patients receiving lavender oil.

Int Clin Psychopharmacol 2010;25:277-287

Ubiquinone vs. ubiquinol

7 patients with worsening heart failure (NYHA class IV) who had sub-therapeutic plasma CoQ_{10} levels on an average ubiquinone dosage of 450 mg/day were switched to ubiquinol (average dosage, 580 mg/day).

Biofactors 2008;32:119-128

Ubiquinone vs. ubiquinol

The mean plasma CoQ_{10} concentration increased from 1.6 µg/ml to 6.5 µg/ml. Mean left ventricular ejection fraction improved from 22% to 39%. NYHA class improved from a mean of IV to a mean of II.

Biofactors 2008;32:119-128

Probiotic for infant regurgitation

Randomized controlled trial: Formula-fed infants (mean age, 6 weeks) received *Lactobacillus reuteri* DSM 17938 or placebo for 4 weeks. Median number of regurgitation episodes during the last 7 days was lower with active treatment than with placebo (1 vs. 4; $p < 0.001$).

Eur J Clin Invest 2011;41:417-422

Milk and childhood constipation

69 children (mean age, 5 years) with chronic constipation avoided cow's milk for 3 weeks. 27 children (39%) had a resolution of constipation within 1-5 days and a return of symptoms on rechallenge with cow's milk.

J Pediatr Gastroenterol Nutr 2010;51:171-176

Milk and childhood constipation

Another 8 children (11.6%) had a slow improvement over 1-3 weeks and no recurrence when cow's milk was reintroduced for 3 weeks. Thus, a total of 51% showed a positive response to cow's milk avoidance.

J Pediatr Gastroenterol Nutr 2010;51:171-176

Cherry juice for gout

100 patients with a history of gout received 1 tbsp. of Brownswood Acres tart cherry juice concentrate twice a day for an unspecified period of time. 92% of the patients had ≥ 50% reduction in the number of gout attacks. Uric acid levels did not change.

Fam Pract News 1010(September 1):38

Folate/B_{12} prevents cognitive decline

Double-blind trial: 900 men (mean age, 66 years) with increased psychological distress received daily folic acid (400 µg) and B_{12} (100 µg) for 2 years. Significantly greater improvement in the vitamin group than in the placebo group for total cognitive functioning and for immediate and delayed memory function.

Am J Clin Nutr 2012;95:194-203

Vit D requirement: racial differences?

Nested case-control study within the Women's Health Initiative Observational Study: Among white women, compared with 25(OH)D levels < 20 ng/ml, 25(OH)D levels of 20 to < 30 ng/ml were associated with an 18% reduction in fracture risk, and levels ≥ 30 ng/ml were associated with a 44% reduction in fracture risk (p for trend = 0.02).

J Bone Miner Res 2011;26:2378-2388

Vit D requirement: racial differences?

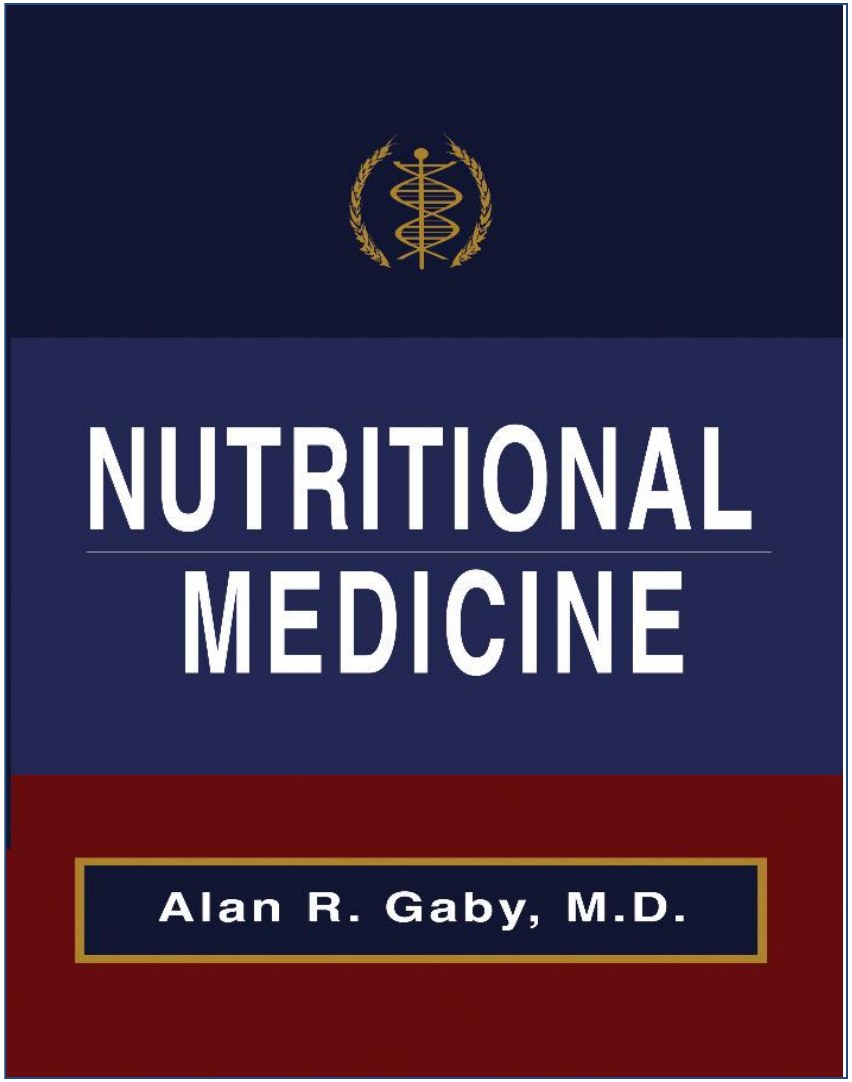
In black women, 25(OH)D levels ≥ 20 ng/ml, as compared with levels < 20 ng/ml, were associated with a 45% higher risk of fracture (p for trend < 0.05).

J Bone Miner Res 2011;26:2378-2388

Vit D requirement: racial differences?

In Asian women, 25(OH)D levels ≥ 30 ng/ml, as compared with levels < 20 ng/ml, were associated with a 178% higher fracture risk, after adjusting for vitamin D-binding protein (p for trend = 0.04).

J Bone Miner Res 2011;26:2378-2388



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Nutritional Medicine Update

By Alan R. Gaby, M.D.

THANK YOU