in blood-sugar regulation, which may be abnormal in some children with ADHD. A relatively large dose of L-carnitine was used in the present study. Additional research should focus on whether lower doses would be effective, when used as a component of a comprehensive dietary and nutritional-supplement regimen.


Successful treatment of recurrent miscarriages

Twenty-five women (aged 20-37 years) with elevated plasma homocysteine levels (frequently at least twice the upper limit of normal), no biological children, and a history of 3-5 episodes of unexplained early spontaneous abortion were studied. All 25 women were positive for the 5,10-methylenetetrahydrofolate reductase (MTHFR) 677G—>T allele. Six patients had low plasma folate concentrations and 13 had low RBC folate concentrations. Treatment with 15 mg/day of folic acid and 750 mg/day of vitamin B6 for one month normalized plasma homocysteine concentrations in all but one case; in these women, the same vitamin treatment was continued throughout the next pregnancy. Twenty-two women became pregnant within 3 months of normalizing their homocysteine levels. Of those, 20 had successful pregnancies, with no evidence of fetal malformation and no major maternal problems. Three months after delivery, vitamin B6 was discontinued and folic acid was reduced to 5 mg/day. Nine additional pregnancies with nine normal births occurred thereafter.

Comment: Hyperhomocysteinemia is associated with negative pregnancy outcome, possibly because homocysteine interferes with chionic vascularization. The results of the present study suggest that treatment with folic acid and vitamin B6 (both of which can lower homocysteine levels) can prevent spontaneous abortions in women with elevated plasma homocysteine levels who have a history or recurrent miscarriages. The data are also consistent with the possibility that folic acid alone would be effective, since nine successful pregnancies occurred after vitamin B6 was discontinued. All of the women studied had a common genetic variant that is known to increase folic acid requirements. It is not clear whether women without this genetic variant would benefit from taking folic acid. Although no serious adverse effects were seen, the dose of vitamin B6 used is potentially neurotoxic, and the dose of folic acid used could increase the requirement for zinc and possibly other nutrients. Additional research is needed to determine whether lower doses of vitamin B6 or folic acid would also be effective.


Vitamin E: the importance of gamma-tocopherol

These articles discuss the importance of gamma-tocopherol, one of the naturally occurring forms of vitamin E. Gamma-tocopherol represents approximately 70% of the vitamin E in a typical American diet. Although, in humans, plasma concentrations of alpha-tocopherol are generally 4-10 times higher than are those of gamma-tocopherol, as much as 30-50% of the total vitamin E in human skin, muscle, vein, and adipose tissue is in the form of gamma-tocopherol.

Gamma-tocopherol has certain biological actions that alpha-tocopherol does not, including natriuretic activity, and blocking the adverse effects of reactive nitrogen oxide species. In addition, gamma-tocopherol has a greater anti-inflammatory activity than does alpha-tocopherol, and it also inhibits platelet aggregation to a greater degree.

Thus, gamma-tocopherol may contribute to human health in ways not previously recognized. That possibility is important, considering that high doses of alpha-tocopherol (the most commonly used form of supplemental vitamin E) deplete plasma and tissue gamma-tocopherol, whereas...
supplementation with gamma-tocopherol increases the levels of both of these compounds.

Comment: Doctors and scientists have believed for many years that alpha-tocopherol is the main, or only, biologically active form of vitamin E. However, there is now substantial evidence that gamma-tocopherol, one of the major forms of vitamin E in food, has important functions. Epidemiological studies suggest that even small increases in the intake of food-derived vitamin E (which contains gamma-tocopherol) can help prevent cardiovascular disease. Because of the importance of gamma-tocopherol, at least a portion of one's supplemental vitamin E should be taken in the form of "mixed tocopherols." In addition, foods that are high in natural vitamin E (such as whole grains, nuts, seeds, and leafy green vegetables) should be a part of a healthful diet.


Vitamin E increases severity of respiratory infections

Six hundred fifty-two well-nourished non-institutionalized elderly individuals (mean age, 73 years) were randomly assigned to receive, in double-blind fashion, 1) a multivitamin-mineral preparation containing physiological doses of vitamins and minerals, 2) 200 mg/day of alpha-tocopherol, 3) both, or 4) neither for 15 months. During a median observation period of 441 days, there was no significant difference between groups in the incidence of acute respiratory tract infections. However, among those who did experience such an infection, the severity was greater in the groups receiving vitamin E than in those not receiving vitamin E: median for duration of illness, 19 vs. 14 days (p = 0.02); number of symptoms, 6 vs. 4 (p = 0.03); presence of fever, 36.7% vs. 25.2% (p = 0.009); and restriction of activity, 52.3% vs. 41.1% (p = 0.02). Supplementation with the multivitamin-mineral formula had no effect on illness severity.

Comment: These results indicate that supplementation with a modest dose of vitamin E increases the severity of respiratory tract infections in elderly individuals. That finding is surprising, considering previous research found that 200 mg/day of vitamin E has an immune-enhancing effect. Nevertheless, the results of the present study suggest that vitamin E supplementation of elderly people is not risk-free. It is possible that mixed-tocopherols would have a different effect on infection severity than alpha-tocopherol had in this study (see discussion above); additional research is needed to determine whether that is the case.


Not tonight, dear, I have scurvy

Forty-two healthy young adults (mean age, 24.4 years) with a current sexual partner were randomly assigned to receive, in double-blind fashion, 3,000 mg/day of vitamin C or placebo for 2 weeks. Among women, the frequency of sexual intercourse during the study was significantly greater in the vitamin C group than in the placebo group (mean, 10.3 vs. 3.7 per month; 178% increase; p = 0.03). The increase in intercourse frequency occurred only among non-cohabitants. Vitamin C had no significant effect in men. The vitamin C group also experienced a decrease (improvement) in Beck Depression scores from baseline, whereas no change was seen in the placebo group.

Comment: Vitamin C reportedly decreases reactions to stress, reduces approach anxiety, and improves vascular function. These effects may influence sexual behavior and mood. In the present study, the increase in intercourse frequency associated with vitamin C supplementation was limited to women who were not cohabiting with their sexual partner. The specificity of the effect to that subset of the study population suggests that a central activation or disinhibition, rather than a peripheral mechanism, may be involved.


Selenium effective against autoimmune thyroiditis

Seventy-seven patients with autoimmune thyroiditis received one of the following (blinding and randomization not specified) for 6 months: 1) 200 meg/day of selenomethionine plus L-thyroxine (T4) at a dose that normalized the TSH level, 2) selenomethionine plus placebo, or 3) T4 plus placebo. In group 1, of 31 patients, 16 had a decrease in anti-thyroid peroxidase antibody levels of approximately 73% at 3 months and 86% at 6 months; 11 had a decrease of 28%, and 4 showed no decrease. In group 2, of 17 patients, 13 had a decrease of 77-81% and 4 had no decrease. In group 3, of 29 patients, 23 had a decrease of 28% at 3 months and 44% at 6 months, and 6 patients had a 13% and 22% decrease, respectively. There were no effects on anti-thyroglobulin antibody levels in any group.

Comment: These results suggest that administration of 200 meg/day of selenomethionine, either alone or in combination with L-thyroxine, markedly decreases anti-thyroid peroxidase antibody levels in patients with autoimmune thyroiditis. The mechanism of action of selenium is not known, although this trace mineral is known to influence thyroid hormone metabolism, immune function, and inflammatory pathways. It is possible that larger doses of selenium would have been effective for the patients who did not respond to 200 meg/day; additional research is needed to assess that possibility.
