USANA Technical Bulletin

Vitamin B_2 (Riboflavin)

Technical Background

- Riboflavin (vitamin B_2) functions primarily as part of two coenzymes that participate in oxidation-reduction reactions and are needed for production of energy from glucose, amino acids, and fatty acids.[1]
- Signs of clinical deficiency include cheilosis (lips are reddened and fissured), stomatitis (mouth is inflammed), seborrheic dermatitis, anemia, glossitis (tongue is purple and swollen), and neuropathy. Subclinical deficiency may produce symptoms of increased sensitivity to light, loss of visual acuity, and burning or soreness of the lips, mouth, and tongue.[4] Athletes, alcoholics, and pregnant women are at higher risk for deficiency.
- Riboflavin deficiency is almost always accompanied by deficiencies in other B vitamins, particularly niacin and pyridoxine.[1,4]
- Several research studies have found that riboflavin may play a role in treating and reducing the incidence of migraines.[2,3]

Sources and Recommended Intake

- The RDA for riboflavin is 1.3 mg/day for men, 1.1 mg/day for women, and 0.5-1.3 mg/day for children.[1] Needs increase during pregnancy and lactation. Supplements generally contain 1-25 mg.[4]
- Rich dietary sources of riboflavin include enriched grain products, soybeans, eggs, green vegetables, mushrooms, and meat and dairy products.[4]
- Riboflavin has no known toxicity.[4]

Abstracts

Boehnke C, Reuter U, Flach U, Schuh-Hofer S, Einhaupl KM, Arnold G. High-dose riboflavin treatment is efficacious in migraine prophylaxis: an open study in a tertiary care centre. Eur J Neurol. 2004 Jul;11(7):475-7.
The aim of this study was to investigate the efficacy of riboflavin for the prevention of migraine. An open label study was performed in a specialized outpatient clinic. Patients received 400 mg riboflavin capsules per day. Headache frequency, duration, intensity and the use of abortive drugs were recorded at baseline and 3 and 6 months after treatment. Headache frequency was significantly reduced from 4 days/month at baseline to 2 days/month after 3 and 6 months ($P < 0.05$). The use of abortive drugs decreased from 7 units/month to 4.5 units/month after 3 and 6 months of treatment ($P < 0.05$). In contrast, headache hours and headache intensity did not change significantly. We could demonstrate a significant reduction of headache frequency following riboflavin treatment. In addition, the number of abortive anti-migraine tablets was reduced. In line with previous studies our findings show that riboflavin is a safe and well-tolerated alternative in migraine prophylaxis.

References

[1] Institute of Medicine. Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline (1998). National Academies Press: Washington, D.C.
[2] Boehnke C, Reuter U, Flach U, Schuh-Hofer S, Einhaupl KM, Arnold G. High-dose riboflavin treatment is efficacious in migraine prophylaxis: an open study in a tertiary care centre. Eur J Neurol. 2004 Jul;11(7):475-7.
[3] Balbisi EA, Ambizas EM. Riboflavin in Prophylactic Treatment of Migraine. 2005. US Pharm 5:32-38.
[4] Cohen RD, Braunstein NS. Vitasearch Reference Guide to Vitamins and Minerals. Newmarket (NH): Ranan D. Cohen. 1996. p 18-9.