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Optimizing Micronutrition for Athletes

Matthew CRESS
Dietitian Nutritionist, Lyon France.

Statement of the problem:

While athletes are generally very studious about their protein, fat, and carbohydrate nutrition, micronutrition can sometimes be overlooked or misinterpreted.

Presentation Goal:

The goal of this presentation is to help all kinds of athletes optimize their micronutrition through food and supplements. An analysis of energy metabolism and how micronutrients make up certain metabolic proteins will be detailed in appropriate depth, the "Micronutrient Kreb's Cycle" will be a highlight of this section. Afterwards, erythrocyte proliferation and function through micronutrition and it's influence on muscular health will be explored. To finish, lesser-known sports nutritional therapies will be presented for the concerning athlete to explore.

Relevant Studies

1. Gropper SAS, Smith JL, Carr TP. Advanced Nutrition and Human Metabolism. Seventh edition. Cengage Learning; 2018.

2. Webb RC. SMOOTH MUSCLE CONTRACTION AND RELAXATION. Adv Physiol Educ. 2003;27(4):201-206. doi:10.1152/advan.00025.2003

3. Bilbey DL, Prabhakaran VM. Muscle cramps and magnesium deficiency: case reports. Can Fam Physician Med Fam Can. 1996;42:1348-1351.

4. Calderón-Ospina CA, Nava-Mesa MO. B Vitamins in the nervous system: Current knowledge of the biochemical modes of action and synergies of thiamine, pyridoxine, and cobalamin. CNS Neurosci Ther. 2020;26(1):5-13. doi:10.1111/cns.13207

5. Suidasari S, Uragami S, Yanaka N, Kato N. Dietary vitamin B6 modulates the gene expression of myokines, Nrf2-related factors, myogenin and HSP60 in the skeletal muscle of rats. Exp Ther Med. 2017;14(4):3239-3246. doi:10.3892/etm.2017.4879

6. Koury MJ, Ponka P. New insights into erythropoiesis: the roles of folate, vitamin B12, and iron. Annu Rev Nutr. 2004;24:105-131. doi:10.1146/annurev.nutr.24.012003.132306

7. Montenegro KR, Cruzat V, Carlessi R, Newsholme P. Mechanisms of vitamin D action in skeletal muscle. Nutr Res Rev. 2019;32(2):192-204. doi:10.1017/S0954422419000064

8. Narbonne JF, Daubeze M, Bonmort F. [Protein metabolism in vitamin A deficient rats. II. Protein synthesis in striated muscle]. Ann Nutr Aliment. 1978;32(1):59-75.

(More studies are subject to be added to this list as presentation research advances)

Biography

Matthew Cress is a Dietitian Nutritionist who works individually and with Enable Your Healing as the lead Dietitian Nutritionist. He started his education at Western Michigan University and finish his dietetic training at Université Claude Bernarde, Lyon 1, France. Matthew is a former elite gymnast. He specialized in ketogenic diets, sports nutrition, the microbiome, and is currently exploring the vast world of fermentation.

Matthewcress79@gmail.com