

USANA Technical Bulletin

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Rheumatoid Arthritis

Description

- Rheumatoid arthritis is a progressive autoimmune disease of unknown etiology occurring in approximately 3% of the population. It is characterized by inflammation of the membranes lining the joint, which in turn causes pain, stiffness, redness and swelling. Bone and cartilage become damaged and the joint eventually loses its shape which contributes to pain and stiffness. The synovium becomes inflamed and painful and usually affects hands, knees, ankles and feet.¹

Causes

- The causes of rheumatoid arthritis are not known. It is theorized that endocrine, infectious, or genetic factors may play a role.

Stages

- This disease progresses from inflammation of the synovial membrane to destruction of the joint capsule and bone, and finally to bony ankylosis and immobility.

At Risk

- This disease most affects women 2-3 times more often than men. Average age at onset is 35 years but the disease can also occur in children.

Prevention and Management

- A variety of conventional (non-nutritional) therapies have been used to control pain and inflammation. Physical therapy, adequate rest, and moist heat are usually recommended. Surgery may be beneficial in some cases.
- General good nutrition and weight management is recommended; fad diets should be avoided.
- Antioxidants, minerals and fish oil supplements have been studied and show beneficial effects. Oxygen free radicals have been implicated as mediators of tissue damage in rheumatoid arthritis patients and low serum antioxidant levels appear to be a risk factor for rheumatoid arthritis.²
- Numerous studies on fish oils^{3,4,5} show decreased tenderness in joints and decreased morning stiffness with supplementation.

- Vitamin D and calcium supplements were shown to help prevent loss of bone mineral density in rheumatoid arthritis patients.⁶
- Supplementation with copper and selenium has been studied, however these results have been inconclusive.⁷

Sources of Additional Information

- Arthritis Foundation: 1-800-283-7800
- <http://www.arthritis.org>

Abstracts

Heliovaara M, Knekt P, Aho K, Aaran RK, Alfthan G, Aromaa A. Serum antioxidants and risk of rheumatoid arthritis. Ann Rheum Dis 1994 Jan;53(1):51-3.

OBJECTIVES--Oxygen free radicals have been implicated as mediators of tissue damage in patients with rheumatoid arthritis (RA). Thus it is possible that several micronutrients acting as antioxidants and free radical scavengers provide protection against RA. Serum alpha-tocopherol, beta-carotene, and selenium were studied for their associations with the risk of RA. METHODS--A case control study was nested within a Finnish cohort of 1419 adult men and women. During a median follow up of 20 years, 14 individuals initially free of arthritis developed RA. Two controls per each incident case were individually matched for sex, age, and municipality. Serum alpha-tocopherol, beta-carotene and selenium concentrations were measured from stored serum samples. An antioxidant index was calculated as the product of the molar concentrations of these three micronutrients. RESULTS--Elevated risks of RA were observed at low levels of alpha-tocopherol, beta-carotene and selenium, but none of the associations were statistically significant. A significant association, however, was observed with a low antioxidant index (p for trend = 0.03), the relative risk of RA between the lowest tertile and the higher tertiles of its distribution being 8.3 (95% confidence interval 1.0-71.0). CONCLUSIONS--The results of the present study are in line with the hypothesis that a low antioxidant level is a risk factor for RA.

Kremer JM, Bigaouette J. Nutrient intake of patients with rheumatoid arthritis is deficient in pyridoxine, zinc, copper, and magnesium. J Rheumatol 1996 Jun;23(6):990-4

OBJECTIVE: To determine nutrient intake of patients with active rheumatoid arthritis and compare it with the typical American diet (TAD) and the recommended dietary allowance (RDA). METHODS: 41 patients with active RA recorded a detailed dietary history. Information collected was analyzed for nutrient intake of energy, fats, protein, carbohydrate, vitamins and minerals, which were then statistically compared with the TAD and the RDA. RESULTS: Both men and women ingested significantly less energy from carbohydrates [women 47.4% (6.4) vs 55% RDA. p = 0.0001: men = 48.9% (7.4). p = 0.025] and more energy from fat [women = 36.8% (4.5) vs 30% RDA. p = 0.001 and men = 35.2% (5.9) p = 0.02]. Women ingested significantly more saturated and mono-unsaturated fat than the RDA (p = 0.02 and p = 0.04 respectively) while men ingested significantly less polyunsaturated fat (PUFA) (p = 0.0001). Both groups took in less fiber (p = 0.0001). Deficient dietary intake of pyridoxine was observed vs the RDA for both sexes (men and women p = 0.0001). Deficient folate intake was seen vs the TAD for men (p = 0.02) with a deficient trend in women (p = 0.06). Zinc and magnesium intake was deficient vs the RDA in both sexes (p values < or = 0.001) and copper was deficient vs the TAD in both sexes (p = 0.004 women and p = 0.02 men). CONCLUSION: Patients with RA ingest too much total fat and too little PUFA and fiber. Their diets are deficient in pyridoxine, zinc and magnesium vs the RDA and copper and folate vs the TAD. These observations, also documented in previous studies, suggest that routine dietary supplementation with multivitamins and trace elements is appropriate in this population.

References

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- ⁵ Editorial. Fish oil in rheumatoid arthritis. *Lancet* 1987;2:720-21.
- ⁶ Buckley LM, Leib ES, Cartularo KS et al. Calcium and vitamin D3 supplementation prevents bone loss in the spine secondary to low-dose corticosteroids in patients with rheumatoid arthritis. A randomized, double blinded, placebo controlled trial. *Ann Intern Med.* 1996;125:961-8.
- ⁷ Honkanen VEA. Plasma zinc and copper concentration in rheumatoid arthritis:influence of dietary factors and disease activity. *Am J Clin Nutr* 1991;54:1082-6.