

Whitehall-Robins Supplement

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A selection of recent findings in the field of nutrition

Long-term intake of vitamins and carotenoids and odds of early age-related cortical and posterior subscapular lens opacities.

It is estimated that 45% of the elderly (75 y and older) have cataracts impairing their vision. There are different forms of cataracts. However, some forms of cataracts are more prevalent than others, which makes it important to investigate modifiable risk factors that can reduce the occurrence of this condition in general and specific forms in particular. Good nutrition practices appear to be protective against cataracts. There is limited information about the role of nutrition in developing cortical or posterior subscapular (PSC) cataracts. This study investigated the relation between usual nutrient intake (including supplements) and cortical and PSC lens opacities in 492 non-diabetic women aged 53-73 y, who are participants in the ongoing Nurses Health Study cohort. Although no nutrient measure was related to the prevalence of opacities in the full sample, significant interactions were observed. For example, there was a significant interaction between age and vitamin C intake for cortical opacities. For women aged <60 y, vitamin C intake ≥ 362 mg/d was associated with a 57% lower odds of developing cortical opacities compared to women consuming < 140 mg/d. Also, the use of vitamin C supplements for ≥ 10 y was associated with 60 % lower odds of developing cortical opacities than was no vitamin C supplement use. Significant interactions were also seen between smoking status and folate, α -carotene, β -carotene and total carotenoids and the odds of developing PSC. The authors conclude, "Our results support a role for vitamin C in diminishing the risk of cortical cataracts in women aged <60 y and for carotenoids in diminishing the risk of PSC cataracts in women who never smoked".

[Taylor A, et al. Am J Clin Nutr 2002;75:540-549]

Intake of calcium and vitamin D in 3 Canadian long-term care facilities.

Osteoporosis is a condition characterized by low bone mass, deterioration of skeletal tissue and increase in bone fragility and fractures risk. It is well established that calcium and vitamin D supplementation reduces the risk of hip fractures and increases bone density. The recently published Canada/USA Dietary Reference Intake (DRI) guidelines determined that the Adequate Intake (AI) of vitamin D for people 51-70 y and for people over the age of 70 y to be 400 IU and 600 IU respectively. The AI for calcium is 1,200 mg for people older than 50 y. Both nutrient requirements are critical for this age group because with limited sun exposure less vitamin D is synthesized. Typically this group has limited dietary sources of vitamin D and calcium (lactose intolerance is highly prevalent in this age group), as well as the absorption of calcium and vitamin D declines with aging. This study was conducted to determine the intake of vitamin D and calcium among older adults living in 3 long-term care sites of a hospital in Canada. In this study, only 26% of the participants met the AI for calcium and only 30% met the AI for vitamin D. Interestingly, only 1 patient achieved AI for either calcium or vitamin D from dietary sources alone. This study gives further evidence to earlier observations that AIs for calcium and vitamin D among older adults are seldom met by diet alone. This study reveals that there are discrepancies between dietary recommendations for vitamin D and calcium, and the actual intake of both nutrients among the elderly population. The authors recommend that this age group needs to be targeted with strategies to increase the intake of both nutrients through dietary and supplementary means to improve bone health.

[Lee LT, et al. J Am Diet Assoc 2002;102:244-247]

Influence of multinutrient supplement on immune responses and infection-related illness in 50-65 year old individuals.

Recent reports are suggesting that there is a decline in immune functions and hence increased incidence of infections with aging. It is well established that nutrition is a critical factor in immunity in all age groups. Several studies have investigated the effect of either single nutrients or multinutrient supplementation on immune response among elderly individuals. This study in particular investigated the effect of supplementation with modest amounts of all essential vitamins and minerals on specific immune responses and infection-associated illness in 50-65 year old healthy subjects over a 12 month period. The results of this study demonstrated that supplementing with

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modest amounts of vitamins and minerals resulted in favorable effect on several immune response indicators. There was also a marked reduction in infection-related mild and severe illnesses particularly after 6 months and more of supplementation. Within the supplemented group the immune responses increased more in those with one or more nutrient deficiencies at baseline compared with those with normal nutrient levels. No side effects were observed among the supplemented group. The author concludes, "that nutrient deficiency observed in the age group of 50-65 years is associated with impaired immunity, that can be restored to normal within 6 months by providing a supplement containing modest amounts of all essential vitamins and trace elements. These findings have considerable significance for maintaining health and prevention of disease. The intervention is both cost-beneficial and cost-effective".

[Chandra, RK. Nutr Res 2002;22:5-11]

Maternal folate supplementation in pregnancy and protection against acute lymphoblastic leukaemia in childhood: a case-control study.

Acute lymphoblastic leukemia (ALL) is the most common cancer among children in developed countries. Few risk factors are associated with the ALL, however, the actual causes are largely unknown. This case-control study was conducted in Australia of children between 0-14 years with ALL, to investigate known and suspected risk factors for ALL. In this study, there was an unexpected significant association between maternal use of iron or folate supplements in pregnancy and the reduced occurrence of ALL in their children. There was a weak protective effect between ALL and the use of iron alone. This suggests that if iron or folate has a protective effect, it is mainly due to folate or by combining folate and iron. The protective effect of folate did not vary by time of first use of supplements or duration of use during pregnancy. The use of folate had little relation to the gender of children with ALL or the age at which the disease was diagnosed. Furthermore, adjusting for potentially confounding variables did not weaken the association. The authors suggest that two main mechanisms could explain the association between folate deficiency and increase in cancer risk: changed DNA methylation and impaired DNA synthesis and repair. The authors conclude, "our result, though unexpected, suggest that folate supplementation in pregnancy reduces the risk of common acute lymphoblastic leukaemia in the child".

[Thompson JR, et al. Lancet 2001; 358:1935-1940]

Suggested Readings

Fruits, vegetables, dietary fiber, and risk of colorectal cancer.

[Terry P, et al. J Natl Cancer Inst 2001;93:525-533]

Dietary fat intake and risk of type 2 diabetes in women.

[Salmeron J, et al. Am J Clin Nutr 2001;73:1019-1026]

Low serum lycopene concentration is associated with an excess incidence of acute coronary events and stroke: the Kuopio Ischaemic Heart Disease Risk Factor Study.

[Rissanen TH, et al. Br J Nutr 2001;85:749-754]

Carbonated beverages and urinary calcium excretion.

[Heaney RP, et al. Am J Clin Nutr 2001; 74:343-347]

Motherisk alert:folic acid fortification of flour-three years later.

[Kapur B, et al. Can J Clin Pharmacol 2001;8:91-92]

Plasma selenium level before diagnosis and the risk of prostate cancer development.

[Brooks JD, et al. J Urol 2001;166:2034-2038]

Vitamin-Mineral supplementation and use of herbal preparations among community-living older adults.

[McKenzie J, et al. Can J Public Health 2001;92:286-290]



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