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SELENIUM IN THE AUSTRALIAN DIET. IS THERE A PROBLEM?

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The nutritional role of selenium (Se) continues to attract increasing attention in the scientific and the lay press. Once known only for its toxicity to farm animals, it is now well established that the element is an essential nutrient, with important metabolic roles. Recognition of the existence of Keshan disease, a cardiomyopathy related to Se deficiency in areas of low soil Se in China and that similarly low levels occur in the South Island of New Zealand, triggered considerable interest in Australia and contributed to the belief that Se deficiency may be a widespread problem. Health authorities have responded to the situation by introducing a Recommended Dietary Intake for Se, the first in the world. It is widely believed, by practitioners of alternative health care in particular, that many Australians fail to meet these RDIs and are at risk of a variety of Se deficiency related illnesses including cancer. To prevent these the use of supplements and the removal of the current restriction on their sale is sought. This view is criticised principally on the grounds of the potential toxicity of Se and our ignorance of the long term effects of increased intake. Absence of adequate data on levels of Se in different foods and intakes in diets in Australia has made it difficult until recently to resolve the debate. The situation is now improving. Though Se is a difficult element to analyse, especially at the nanogram levels found in foods, new analytical techniques (especially Zeeman AAS and NAA) and availability of appropriate Certified Reference Materials are helping to overcome this problem. Ongoing studies at the QUT show that while there are wide ranges of levels of Se in different foods, depending on soil concentrations in growing regions and certain production factors, diets consumed by the average population with access to a variety of foodstuffs from different sources, adequately meet the RDIs. Intakes of adults and children are comparable to those in the US and Canada and higher than in New Zealand. The evidence does not support the need for widespread use of supplements or of other interventions to increase Se levels in the national diet. Where however the diet is restricted, by choice or by the requirements of therapy, a severe Se deficiency can occur. In such cases there may be grounds for the use of appropriate Se supplements.

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