



Effects of selenium supplementation on New Zealanders' health

Six years ago, having read Rayman's article *The Importance of Selenium to Human Health*¹ and Clark and colleagues' *Nutritional Prevention of Cancer Trial*,² I decided to take selenium (Se) to reduce my chances of getting cancer.

I took 200 mcg/day of Se as sodium selenate, available from pharmacies, costing less than \$20 per year. At the same time, blood plasma Se tests, both at Medilab Tauranga and the Dept of Nutrition, Otago Medical School were commenced on an intermittent basis.

The objective—to have a Se blood plasma level of about 2 $\mu\text{mol/litre}$ —was reached after about a year. At the commencement of the Se intervention, there was no expectation of any happenings other than a raised Se plasma level of 2 $\mu\text{mol/litre}$ in place of the initial level of 1 $\mu\text{mol/litre}$ (New Zealand's average human level).

After about 9 months, to my surprise, symptoms of an existing condition, benign prostatic hyperplasia (BPH), established by a urologist in Tauranga, had quietly disappeared. The urinary flow improved and finishing was definite. This was a pleasant surprise and one shared by an orchardist, who had similarly commenced taking Se (at the same time and dose rate as me).

These results were discussed with 12 other men, aged from 40 to 70 years, who had various BPH symptoms. After commencement of Se supplementation, almost universal improvement occurred within a year.

As a practising farmer for 40 years, and knowing the essentiality of trace elements in animals and humans, these results told that there was a lack of the trace element Se in all these men. I decided to carry out a wider study.

Information from Rayman¹ and Clark²—together with the results already found—was given to people who were invited (if interested in commencing Se supplementation) to fill in a form which would enable monitoring of any effects. This information and form were set out in some magazines, one pharmacy provided the same, and some enrolments were by word of mouth until just over 150 people were involved.

The Selenium Progress Form contained a consent request as follows:

I plan to take selenium drops so that my daily dose will be ____ mcgs.
I am happy to be contacted to have any changes recorded, and will be pleased if results can be used to help others.
I take full responsibility for any results that may occur.
Signed _____ Date _____

Further, a list of 12 possible interests that could be ticked was as follows:

Cancer reduction		Muscle / joint aches	
Asthma alleviation		General wellbeing	
Prostate problems		Weak fingernails	
Moodiness		Coition	
Miscarriages		Infertility	
Eczema		Psoriasis	

Just over 150 forms were received, and the people monitored for at least a year between the ends of 2003 and 2006. They were advised they could purchase selenium, from pharmacies which sold selenium drops, costing less than \$20 for a year's supply. The dosage was printed on the bottle, 1 drop per day equivalent to 150 mcg Se per day.

After a year, when questioned by phone, or in person, they answered whether their problem had either significantly or completely improved, or not changed significantly. The results are expressed as a ratio; the number with significant or complete improvement over the number nominating the subject as of interest or concern.

Problem	Result	Problem	Result
Asthma alleviation	8 / 27	Muscle /Joint aches	10 / 89
Prostate problems	23 / 56	Weak fingernails	10 / 14
Eczema	13 / 25	Coition (all males)	9 / 9
Psoriasis	4 / 18		

While not all the above listed problems disappeared completely, the Se intervention was really appreciated by those who were helped. Thus it has been established that the health of a significant number of New Zealanders is being adversely affected by our low Se levels.

Most animals in New Zealand have natural levels of Se lower than optimum for ideal good health. For this reason they are often supplemented by adding Se to fertilizers, drenches, and injections. It is not surprising that humans with their acknowledged low levels,³ should have deleterious results apparent too.

Two other countries have dealt with this problem. In Finland, which had soil levels comparable to New Zealand, all compounded fertilizer since 1985 (by law) has had to have a certain quantity of Se added. They did this to ensure all food produced, whether for local consumption or export, was of good quality.^{4,5} In parts of China (where levels are even lower than New Zealand's), when Se was added to salt (as we add iodine here), a large reduction of cancer incidence occurred.⁶

In conclusion, it has been established that the low Se levels in this random group of New Zealanders are a significant factor in various illnesses. Many positive results have been obtained by raising their normal level (about 1 µmol/litre), by the consumption of an additional 150 mcg/day.

The topics listed are only a few of the diseases shown to be affected by low Se levels. Cancer, depression, viruses, reproduction, miscarriages, cardiovascular disease, etc. are referred to in Dr Rayman's article.¹

David Walpole

Tauranga

(twinmore@paradise.net.nz)

(David Walpole is an industrial chemist / farmer / researcher who has been operating his own farm for 43 years.)

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