

The "Ideal" Daily Human Iodine Requirement

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The Food and Nutrition Board of the National Academy of Sciences-National Research Council suggests that 100 micrograms per day is the Recommended Dietary Allowance (RDA) of iodine (Food and Nutrition Board, 1974).

However, the literature is replete with evidence that obvious hypothyroidism may prevail in 3 percent and 10 percent of males and females respectively (Matovinovic et al, 1965). Whenever the iodine intake is consistently under 50 micrograms per day, thyroxine (T4) synthesis is reduced (Iodine and the Thyroid, 1977).

This paper will establish criteria for the optimal daily iodine requirement through a study of the reported daily iodine intake (seven-day computerized dietary survey) versus the reported total number of clinical symptoms and signs (as judged from the Cornell Medical Index Health Questionnaire) in a presumably healthy group of doctors and their spouses.

Table 1 (line 1) shows the daily iodine consumption of the entire group of doctors and their wives. In this sample of 1010, the CMI score ranged from 0 to 125 with a mean and one standard deviation of 16.0 ± 12.4 . The

daily reported iodine intake ranged from 0.1 to 4.5 mg. with a mean and a standard deviation of 0.5 ± 0.3 . This is approximately five-fold the amount designated as the RDA. Parenthetical mention must be made that both the American Medical Association (Editorial, 1962) and the American Dental Association (ADA Health Screening..., 1969) have indicated that the type of doctor interested in his own health is already above average in health. Hence, in the usual context, these values would be viewed as "ideal" since they exceed the RDA. However, proceeding downward through Table 1, it is obvious that progressively fewer symptoms and signs are associated with the increasing intake of iodine. Deleting all subjects with 50+ symptoms and signs leaves a sample size of 990 (line 2), a mean and standard deviation for the CMI score of 15.0 ± 10.0 , and a mean and standard deviation for iodine of 0.5 ± 0.3 . Proceeding through the eleven lines of this table, the daily iodine intake slowly rises as the number of allowable symptoms and signs (CMI score) is reduced.

Table 2 indicates that there are statistically significant differences in the daily iodine intake when one compares the consumption of the entire sample and those subjects with <10, <4, <3, <2, and zero clinical findings.

This study suggests that the "ideal" daily

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iodine intake might well be approximately 1,000 micrograms per day which is roughly ten times the Recommended Dietary Allowance. This is consistent with our

published findings that the "ideal" daily intake is two to tenfold higher than the RDA for a variety of other nutrients (vitamins, minerals, and amino acids).

TABU1

Relationship of reported daily iodine consumption (seven-day dietary survey) and reported total clinical findings (Cornell Medical Index Health Questionnaire) in a presumably healthy male and female sample.

	sample size	Clinical findings (affirmative CMI responses)		Daily intak) of iodine	
		range	mean&S.D.	range	mean & S.D.
1) entire sample	1010	0-125	16.0 ±12.4	0.1-4.5	0.5*0.3
2) CMK50	990	049	15.0±10.0	0.1-4.5	0.5*0.3
3) CMM40	959	0-39	14.1* 8.7	0.1-4.5	0.5*0.3
4) CMI < 30	892	0-29	12.6* 7.2	0.2-4.5	0.5*0.3
5) CMK20	721	0-19	10.0+ 5.0	0.2-4.5	0.6*0.3
6) CMK10	355	0- 9	5.6± 2.3	0.2-3.8	0.6*0.3
7) CMI<5	108	0- 4	2.8* 1.2	0.2-2.0	0.6*0.3
8) CMI<4	69	0-3	2.1 ± 0.9	0.2-2.0	0.6*0.3
9) CMI<3	45	0- 2	1.6* 0.7	0.2-2.0	0.7*0.4
10) CMH2	14	0- 1	1.3± 1.0	0.2-2.0	0.8*0.4
11) CMI 0	5	0	0.0* 0.0	0.7-2.0	1.1*0.6

TABU 2

Statistical significance of the relationship of iodine (seven day dietary survey) and reported cKncal findings (CMI)

			<m
1) entire sample	1010		
2) CMI<10	355	2.127	• 0.050'
3) CMK5	108	1.206	> 0.200
4) CMK4	69	2.084	« 0.050'
5) CMK3	45	2.283	< 0.025'
6) CMK2	14	3.010	« 0.005'
7) CMI 0	5	2.066	•0.050'

statistically significant difference of the means.

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