

Vinson, J.A., 24/3/1986, Unpublished Data.

COMPARISON OF CALCIUM ABSORPTION

Background

There are two methods of comparing human absorption of minerals - by measuring areas of blood concentration-time curves and by measuring urine excretion. The concentration of calcium in the blood is hormonally controlled so the latter method is used.

Protocol

Three different forms of calcium were utilised in this study - calcium carbonate, calcium gluconate and calcium yeast. College age subjects (18-29) participated in the study with informed consent. Each subject refrained from dairy products during the course of the experiment. The subjects collected a 24 hour pre-dose urine and appeared for testing after an overnight fast. The subjects ingested 500 mg of Calcium, in one of three forms, dissolved in 200 ml of orange juice. (Pauling has shown that Vitamin C does not affect calcium excretion). The subjects fasted for an additional six hours and then were allowed to eat. A 24 hour post-dose urine was collected. The experiment (pre and post-dose urine collection) was repeated for the other forms.

Results

The results are shown in the table below.

Subject	24 hour Post Dose - Pre dose Calcium Urine excretion (mg)		
	Ca Carbonate	Ca Gluconate	Yeast
1	7.9		83.1
2	39.6		114.9
3	0.4		157.3
4	0		36.8
5		57	96
6		49	104
7		31	92
8		5	160

Average \pm Std. Dev. 12.0 \pm 18.7 mg 35.5 \pm 23.1 mg 105.5 \pm 40.0 mg

The statistical analysis using the student 't' test and Mann-Whitney test showed that there was no significant difference between the calcium carbonate and calcium gluconate excretion. The Calcium yeast produced a significantly greater urine excretion ($p < 0.01$ by statistical tests) than either the calcium carbonate or calcium gluconate. Calcium yeast was found to be more absorbed than either calcium carbonate or calcium gluconate.