

### ASCORBIC ACID AND THE COMMON COLD

SIR,—Most of the earlier reports<sup>1,2</sup> claiming that supplementary ascorbic acid has little or no effect on the incidence and severity of the common cold have been based on dosages of the order of 200 mg. per day. Pauling<sup>3</sup> lately publicised other work which indicated that higher intakes of ascorbic acid might be beneficial in cold prevention. We wish to report a survey carried out between November, 1971, and March, 1972 (climatically, not a severe winter in Glasgow), amongst some of the staff and students of the University of Strathclyde.

The test group (47 out of the original 50 people completed the experiment) were supplied with 4×250 mg. ascorbic-acid tablets to be swallowed every day after breakfast, and the control group (43 out of the original 45 completed

INCIDENCE AND DURATION OF COLDS DURING 15 WEEKS  
IN WINTER

	Ascorbic acid 1 g./day	Placebo
No. of persons in group .. .. .	47	43
No. of persons having: 0 cold(s) .. .. .	16	6
1 " .. .. .	19	11
2 " .. .. .	11	14
3 " .. .. .	1	7
4 " .. .. .	0	5
Total no. of colds .. .. .	44	80
Average no. of colds per person .. .. .	0.94	1.86
No. of colds of: 2 days' duration .. .. .	12	2
3 " .. .. .	13	11
4 " .. .. .	12	38
5 " .. .. .	5	26
6 " .. .. .	1	3
14 " .. .. .	1	0
Average duration of cold (days) .. .. .	3.5	4.2

the experiment) were given a placebo similar in appearance but containing lactose and 5% citric acid. Every week any symptoms of cold, and their duration, were recorded; only the operator of the survey (S. S. C.) knew the identity of the subjects in the two groups.

Symptoms during the first week of the survey were negligible and are not included in the accompanying table, which is based on 15 weeks of observations; it was known that up to 7 days might be required for the test group to approach saturation. The tabulated results show that the incidence of colds was reduced by 49% in the group receiving 1 g. ascorbic acid supplement a day compared with the control group. On the basis of a one-tailed statistical test (it was not necessary to consider the possibility of the placebo influencing cold symptoms) it can be shown that 1 g. ascorbic acid a day is effective in reducing the incidence of colds at the 0.002 level of significance. For the subjects taking ascorbic acid, statistical analysis showed that the duration of colds was less at the 0.05 level of significance, and narrowly missed the 0.01 significance level because of one prolonged 14-day cold.

An interesting observation from the present survey is that the reduction in the incidence of colds when taking pro-

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2. Glazebrook, A. J., Thomson, S. *J. Hyg., Camb.* 1942, 42, 1.
3. Pauling, L. *Vitamin C and the Common Cold*. San Francisco, 1970.

longed supplementary doses of vitamin C was more significant than the reduction in duration of cold symptoms. Some of the previous findings<sup>4</sup> in favour of ascorbic acid as an ameliorator for the common cold have tended to emphasise the reduced severity of the cold rather than the number of colds during the experimental period.

We are aware that criticism can be levelled at this survey (in common with most surveys) on the grounds that it should have been of a double-blind design, should have run for longer, should have had larger groups, and should have investigated even higher levels of ascorbic acid, but most of these factors were outwith our resources and facilities. However, the results obtained are so clearcut in favour of vitamin C as a positive agent in reducing the incidence and duration of the common cold when ingested in higher amounts than could be achieved on a normal dietary regimen or with low supplementation, that we suggest further investigations are needed.

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5. Kaplow, L. S. *ibid.* 1968, 203, 1135.
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