that we did not have enough data to make arbitrary breaks where one set of data would represent one compartment and another set of data would represent another compartment. The apparent $t_{1/2}$ was calculated graphically by extrapolation of the log-transferred plasma ascorbic acid values during the depletion phase to day 0. Because no labeled ascorbic acid was used in our study (which would have provided the information to derive true $t_{1/2}$ values), we defined our $t_{1/2}$ calculated values as apparent $t_{1/2}$ so as not to be misunderstood.

Kallner's calculated $t_{1/2}$ from day 12 to day 32 are very similar; however, a biphasic curve might likewise be true if sufficient data were available so that the $t_{1/2}$ estimates from day 1 to day 12 could be even more different. What appears from our calculation is that taking all the data into consideration there is some difference in the loss of ascorbic acid over time. On the other hand, if we evaluate the data using only the first five time points (**Fig 1**) we find that the following regression lines are obtained for the depletion curves after the ingestion of ascorbic acid at 60 and 600 mg/day, respectively: $y_{60} = -0.2328 - 0.0194x$, $R = 0.5736$, and $y_{600} = -0.0728 - 0.0318x$, $R = 0.8928$. There is a very clear difference in slope.

We would like to point out that as correctly noted by Kallner, there is an error in the label of our x axis for Figures 1 and 2. Days 12, 20, and 24 are offset by 1 d. However, calculation using the corrected x axis indicates that the error does not distort the final conclusion to an appreciable extent because the points taken at each time were so far apart.

The effects of systemic conditioning in humans after large doses of ascorbic acid similar to what was found in the recent study may not be of common occurrence in all humans, but some individuals may be more liable to this effect than others under certain circumstances. Consequently, we stand by our original conclusion that individuals who have been taking a large amount of ascorbic acid should revert to smaller intakes gradually rather than making an abrupt change.

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## Zinc, vitamin B-6, and nutrients

Dear Sir:

The paper "Zinc, vitamin B-6, and nutrients in pregnant women attending prenatal clinics in Mexico" by Dr Hunt et al (1) is of interest to us because of our zinc studies. The authors found significantly low plasma Zn values at 18.9 ± 5.9 and 35.1 ± 2.0 wk of gestation. They speculated that the fall in plasma Zn levels in the Mexican women may have been due to lower dietary Zn intakes during late pregnancy.

There has been controversy in the literature about serum and plasma Zn levels of pregnant women from different nutritional or socioeconomic backgrounds and about Zn-supplemented pregnant women vs unsupplemented pregnant women (2–4).

We recently started to study plasma Zn concentrations in 83 pregnant Turkish women who were divided into two groups by nutrition and socioeconomic status. Sixteen women of similar ages and of middle socioeconomic status were used as control subjects. The plasma Zn levels were determined by atomic absorption spectrophotometry. The mean Zn concentrations were significantly low in 13 poorly nourished pregnant women in the first trimester compared with those of control subjects and the well-nourished subjects (**Table 1**). The difference became more significant between 18 well-nourished and 41 poorly nourished women at the third trimester (Table 1).

TABLE 1
Plasma zinc levels in pregnant Turkish women during early and late pregnancy*

| | First trimester | Third trimester |
|---|---|---|
| | *μmol/L* | |
| Well nourished | 11.02 ± 1.52† [11] | 10.25 ± 2.50‡ [18] |
| Control | 12.05 ± 1.49 [16] | |
| Poorly nourished | 9.356 ± 1.36§ [13] | 8.444 ± 1.43‖ [41] |

* $\bar{x}$ ± SD. Number in group is given in brackets.
† Well nourished (WN) vs control (C), $p > 0.05$; WN vs poorly nourished (PN), $p < 0.01$.
‡ WN vs C, $p < 0.05$; WN vs PN, $p < 0.001$.
§ PN vs C, $p < 0.001$.
‖ PN vs C, $p < 0.001$.

This finding confirms our earlier study on serum Zn concentration in Turkish pregnant women (3). Our preliminary results on plasma Zn levels also revealed that poorly nourished women began pregnancy with low plasma Zn concentration that probably indicated significantly decreased Zn intakes during the first trimester as compared with well-nourished counterparts who had good nutrition and consequently good Zn intakes. We tend to believe that nutritional conditions in developing countries like Mexico, Turkey, etc are different from those in the developed countries as far as Zn intakes are concerned.

Contrary to some published data, we suggest that decreased Zn levels during pregnancy should not be interpreted solely on grounds of physiological changes in view of the importance of Zn for normal embryonic and fetal development as well as the teratogenic effects of maternal Zn deficiency, which have already been shown in some parts of the world (5, 6).

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## Reply to AO Çavdar and D Uçkan

Dear Sir:

We were pleased to learn of the studies by Drs Çvdar and Uçkan in pregnant women in Turkey and of the preliminary findings that plasma zinc levels were lower in poorly nourished than in well-nourished women. We agree with the observations that in developing countries the nutritional status of Zn during pregnancy is important to support normal embryonic and perinatal developments. It is necessary to establish biochemical indicators of Zn status and these data together with those of others may provide evidence that low plasma Zn levels are reliable indices of poor Zn status. As you know, we found that the daily Zn intakes were lower in pregnant women living in Mexico than in pregnant Hispanic women living in Los Angeles, CA (~8 mg as compared with 11 mg). We hope that in their final report Çvdar and Uçkan will also give data on Zn intakes of the women along with information about whether the Zn came primarily from plant or animal sources because the Zn in animal sources is of higher bioavailability. These data will be important in providing information about the Zn requirement during pregnancy.

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