used the same dose of vitamin C did not show any acute effect on the baseline (unstimulated) diameter, at the same time showing an improvement in endothelial vasomotor function. Our own observations are also consistent with this. By showing an increase in the lumen surface area, derived from diameter changes, Drossos and colleagues¹ implied that vitamin C produces endothelium-independent dilatation.

Second, Drossos and colleagues¹ presented their data as lumen surface area. Why was this chosen? Also, was it derived from πr^2 ? This also was not made clear in the article.

Third, the results were actually presented as percentage change of lumen surface area. With this approach, any small change in measured diameter would be magnified by conversion to lumen surface area and further magnified by analysis of percentage change. Was the change in diameter statistically significant?

Finally, despite the larger increase in lumen surface area seen with vitamin C than with diltiazem, there did not appear to be any effect on blood pressure. Did Drossos and colleagues¹ see a change in heart rate and blood pressure in the vitamin C group? If not, why not?

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Reply to the Editor:

We thank Madhavan for his interest in our work. We have addressed these issues as follows, in reverse order:

TABLE 1. Diameter (expressed in mm) of radial arteries (mean $\pm$ SD) at baseline and 2 hours after the oral administration of 2 g vitamin C in four groups of 15 subjects each

	Baseline	2 hr after vitamin C	P value (Wilcoxon test)
Control subjects	3.60 $\pm$ 0.50	3.85 $\pm$ 0.50	.008
Smokers	3.36 $\pm$ 0.33	3.96 $\pm$ 0.30	.001
Coronary artery disease, vitamin C	3.57 $\pm$ 0.49	4.14 $\pm$ 0.65	.001
Coronary artery disease, diltiazem	3.58 $\pm$ 0.46	3.83 $\pm$ 0.38	.009

We did not measure blood pressure and heart rate in the vitamin C group because we were unaware that this would be necessary.^{1,2} We did measure just the blood pressure before and 2 hours after the oral administration of 2 g vitamin C in 6 volunteers (2 smokers and 4 nonsmokers). We found no change in arterial blood pressure after the administration of 2 g vitamin C, but the heart rate was reduced by 5% to 10% in 4 subjects (2 smokers and 2 nonsmokers). We recommend repetition of this trial by others.

The changes in diameter of the radial artery were statistically significant in all four groups (Table 1). The mean percentage increases in radial diameter were 7.38% in the control group and 18.75% in the smoking group ($P = .004$ when analyzed by t test or $P = .004$ when analyzed by Mann-Whitney U test). Also, the mean percentage increases in radial diameter was 15.88% in patients with coronary artery disease who received vitamin C and 7.76% in patients with coronary artery disease who received diltiazem ($P = .037$ when analyzed by t test or $P = .016$ when analyzed by Mann-Whitney U test).

Lumen surface area measurement was chosen because the Acuson equipment that we used exhibits it (Figure 1 in the original article). With respect to not using the πr^2 formula, we assumed that all readers are aware of the meaning of our statement: "All lumen surface areas (derived from the estimated lumen diameter) are expressed in square millimeters" in the Methods section of our article.

Diameter measurements from the original data are given in Table 1 as desired by Madhavan. As to the new findings in Greek patients from a remote mountain region of Epirus, on a typical Mediterranean diet, without discontinuation of multiple medi-

cations before the administration of vitamin C, and notably heavy smokers, it appears that vitamin C plus "something" does indeed cause endothelium-independent vasodilation in the radial artery of our patients. In addition, the objective of our work is to protect a vessel that is excessively handled during harvesting for coronary artery bypass grafting.³ Therefore our study with ultrasonographic probing, which may be excessive (as many as 5 minutes of manipulation of the radial artery) does not necessarily imply a systemic effect. Perhaps the study may be furthered by studying other populations and arteries.^{4,5}

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