To the Editor:

The Selenium and Vitamin E Cancer Prevention Trial (SELECT) by Dr Lippman and colleagues¹ reported that selenium or vitamin E alone or in combination did not prevent prostate cancer. The negative results of this trial confirm the outcomes in the Nutritional Prevention of Cancer (NPC) Trial for those participants with the highest baseline plasma selenium concentration prior to supplementation with selenized yeast.² The conclusion from both NPC and SELECT is that daily selenium supplementation will not benefit all persons. Cancer risk reduction with selenium should be expected only in men with low or suboptimal levels prior to supplementation.

That the relationship between selenium intake and cancer risk may follow a U-shaped dose-response, as suggested by studies in dogs³, is consistent with the results of SELECT and NPC. At baseline, the average participant in SELECT had selenium status within the trough of the U-shaped curve, i.e., not low or suboptimal. After supplementation with 200 µg/d selenium as selenomethionine, the average SELECT participant achieved selenium levels that far exceeded the high post-supplementation values of men in NPC in the highest baseline-selenium tertile. Those NPC participants experienced no prostate-cancer risk reduction and an almost 3-fold increased incidence of diabetes^{2,4}. In SELECT, there was no reduction in prostate-cancer risk and a statistically nonsignificant increased diabetes incidence. We therefore consider the results of SELECT and NPC to be consistent, not contradictory.

We believe that it is time to move beyond the belief that any particular agent administered at the same dose to all participants will benefit the overall population and instead attempt to individualize cancer prevention³. Subsets of individuals should be identified who are more likely to benefit from supplementation, such as persons with low selenium concentrations or who have the particular selenoprotein-P genotype that has recently been found to affect prostate-cancer risk⁵. This stance is distinct from claiming that we know which types of cancer will or will not be prevented by selenium.

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