

holography, like crystallography, cannot illuminate highly disoriented samples such as living biological tissue." This statement is not in agreement with findings (3) about the use of x-ray holography to image subcellular structures and microfabricated test objects at sub-100-nanometer resolution; holography with x-ray lasers has been demonstrated (4) as a step toward flash imaging of initially living specimens. Other publications report biological imaging at a resolution of less than 60 nanometers by x-ray holography and plans for extension of the method to frozen hydrated specimens and 3D reconstruction by means of holographic tomography (5). These experiments involve holography in the usual sense of the word: A nonrepetitive object is illuminated by a coherent beam, and a classical image is reconstructed by propagation of a reconstruction wave through the processed hologram.

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"Natural" Cancer Prevention

I would like to comment on the News & Comment article "Natural cancer prevention trial halted" by Kim Peterson (26 Jan., p. 441), in which it is implied that there is "less anomalous" toxicity for beta carotene because of the findings of the Beta Carotene and Retinol Efficacy Trial (CARET) study (1) and the earlier Alpha-Tocopherol, Beta Carotene (ATBC) study (2) of smokers.

Albanes (the principal investigator in the ATBC study) made presentations at antioxidant meetings in Berlin (fall 1994) to that effect that the increased incidence of lung cancer in the beta carotene cohort occurred only in smokers who were also heavy alcohol abusers. In other words, the smokers on beta carotene who were not heavy drinkers did not have increased

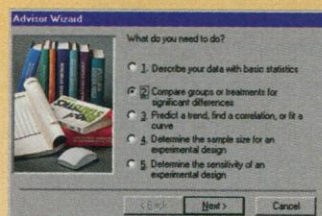
lung cancer. No harm occurred, but no benefit could be expected, because beta carotene is not a suitable therapy for thwarting the consequences of heavy smoking. A similar co-morbidity occurred in the CARET study, where vitamin A (conservatively estimated at 50,000 international units per day for 4 years, because the conversion of beta carotene to vitamin A is likely enhanced in the presence of vitamin A) was found to be toxic and to induce liver pathology not unlike that of alcohol damage.

The scientific literature (3) and the 1980 and 1989 U.S. Recommended Dietary Allowances make it clear that 50,000 international units of retinol per day for months is unwise and leads to vitamin A toxicity. Beta carotene has a record of safety in humans who have ingested large doses (150 to 300 milligrams per day) over 15 years to control the symptoms of the genetic disease erythropoietic protoporphyria. Ironically, in developing nations, vitamin A deficiency is a major problem in spite of carotenes in food (4).

There is a likelihood that autopsy materials are available for some of the subjects in the ATBC and CARET trials, and the funding agency would be remiss if at least the liver tissues were not examined. Fur-

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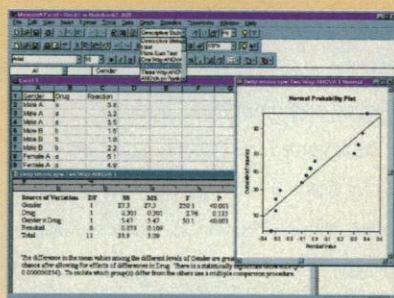
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ther, no clinical trials of these costly dimensions should be designed without peer review by experts in the biochemistry and toxicity of the agents under test.

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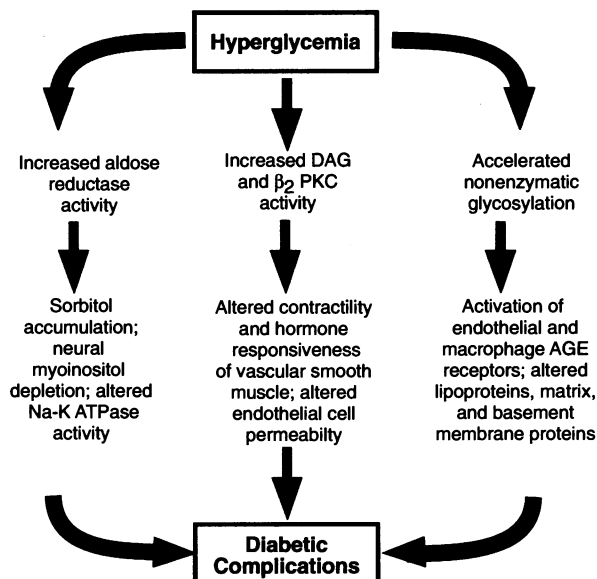
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Corrections and Clarifications

In column 4 of Table 1 (p. 524) in the report "Probing electrical transport in nanomaterials: Conductivity of individual carbon nanotubes" by Hongjie Dai *et al.* (26 Apr., p. 523), "ohm·m" should have been "microhm·m."

The diagram (p. 700) accompanying the Perspective "Diabetes complications: Why is glucose potentially toxic?" by Daniel Porte Jr. and Michael W. Schwartz (3 May, p. 699) was incorrectly drawn. The correct diagram appears below.

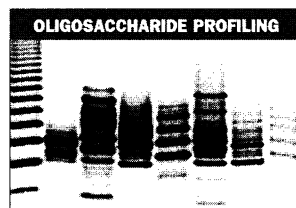


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