

Diabetes and sugar mania: A sour story

The average American supermarket is a testament to $C_{12}H_{22}O_{11}$. The formula might not ring a bell, but the sweet taste surely does—it's sugar. Aisle after aisle of cookies, candies, cereals and snacks reveal the addictive nature of the civilized sweet-tooth. The average consumption of refined sugar has risen dramatically in the Western industrialized nations during this century, from about 85 pounds per year in 1900 to 140 to 150 pounds per year now. This trend started with large-scale industrial refinement and availability and has ended in sugar mania.

There is, of course, a catch. Diabetes, the number one cause of blindness in the Western nations, has risen dramatically, too. Fifteen percent of adults—every fifth or sixth person—is diabetic. The reason? A combination of genetic tendency and the consumption of sucrose. This was the not-sweet conclusion of several researchers who presented papers at the American Chemical Society meeting in Chicago.

The immigration of Yemenites to Israel during the past few decades has provided Israeli researchers with a clear picture of the effects of diet on diabetes. A.M. Cohen of the Hadassah Medical School in Jerusalem described what is sure to become a classic epidemiological case study: The incidence of diabetes was low among new Yemenite immigrants. The Yemenite gene pool probably remained stable, Cohen says, because there was little intermarriage. No sucrose was used in their traditional diet in Yemen, but their consumption increased to the level of Western Jews within a short time. And within a few years after immigration to Israel, the incidence of diabetes among Yemenites was as high as the other Israelis.

Cohen and colleagues followed this study with laboratory experiments, and found that animals on the "Yemenite diet" (no sucrose) for two months remained normal, while some of those on a "Western diet" (sucrose included) developed symptoms of diabetes. Those animals that did develop diabetic symptoms were probably genetically susceptible. "And this is undoubtedly true of humans, too," Cohen says. "Eating sucrose can bring on diabetes in the genetically prone person. On the other hand, proper dieting—cutting the consumption of refined sugars, including sucrose, glucose and fructose—down to five percent of total carbohydrates, not 50—can prevent the onset of diabetes in the genetically prone person."

At least for now, Cohen says, "there is no way to tell who is genetically prone to diabetes and who isn't. But one out of six persons is prone. Therefore, we must all be careful about the consumption of sugars." The sweet taste of sugar in food

"is addictive, too, and starts with the feeding of sugar to infants," he says. "This is a very bad practice."

Several American researchers are studying the effects of sugars on the intestinal tract. Biologist Arthur R. Diani of Western Michigan University at Kalamazoo reported studies on the diabetic Chinese hamster. This, he says, is one of the best animal models for human diabetes, but the physiological changes in the gut had not been well studied. He found muscle and nerve degeneration, loss of absorptive cells, blood vessel lesions and signs of

The scientist as stereotype

Please complete the following sentence briefly before you read on: *When I think of a scientist, I think of. . . .*

Readers of NEW SCIENTIST and NEW SOCIETY were faced with the above question last May as part of an inquiry into the image of scientists. Results of the survey, published in the Aug. 28 NEW SCIENTIST, indicate that a stereotyped image of scientists definitely exists but that scientists and nonscientists disagree on what that stereotype is. Scientists, for instance, see themselves as approachable, sociable, open, unconventional, possessing many interests and being popular. In contrast, nonscientists see scientists as being remote, withdrawn, secretive, conventional, having few interests and being unpopular.

All but nine percent of the 1,559 respondents revealed some degree of stereotyping in their answers. Twenty-three percent even went so far as to describe scientists in physical terms—bespectacled, bald, shabbily dressed, middle aged, short, etc. Seven percent were actually hostile and abusive toward scientists: "an uncultured illiterate," "largely unjustified arrogance," "often blind to the disastrous consequences of his work," "their destructive capabilities in controlling the future" and, "When I think of a scientist, I think of intellectual curiosity triumphing over moral responsibility."

The survey, however, does not confirm the often-held view that the young are disenchanted with science. A high degree of enthusiasm and optimism characterized the answers of the majority of the respondents under the age of 30. This finding can be somewhat misleading, warn the compilers of the survey. Philip Hills of the University of Surrey and Michael Shallis of the University of Oxford point out that the respondents are a self-selected population from the readership of two magazines, rather than from the general public.

Although the results of the survey may be almost meaningless in terms of public

infection—symptoms "markedly similar to those found in the intestine of human diabetics."

Studies on carbohydrate-sensitive rats have convinced nutrition researcher Sheldon Reiser, too, that sucrose intake and genetic tendency can lead to diabetes. Reiser is the chief of the U.S. Department of Agriculture's Carbohydrate Nutrition Laboratory in Beltsville, Md. The present trend toward eating disaccharides—sucrose and fructose, for example—in amounts greatly out of proportion to those found in nature, he says, must be reversed. "We've got to go back to eating more complex carbohydrates—starch, in other words." □

attitudes, one conclusion is obvious: A great many people have unrealistic, stereotyped attitudes about scientists. "If those stereotypes are a result of lack of knowledge," say the researchers, "then it is important to educate and inform, through the media and the schools and colleges, in order to avoid the prejudice that can grow out of lack of knowledge. . . . Surely, through trying to understand more about scientists and the processes of science, and by sharing that understanding widely with the whole public, the 'gulf of prejudice' that separates the two cultures can be bridged." □

Make room for baby: Birth-rise foreseen

Baby booms produce baby booms, and the population should make substantial gains every 20 years or so. But what was supposed to happen didn't. In 1973, the United States should have had a boom in birth rates. Instead, it had a bust and hit an all-time low. But things may be changing. June Sklar of the University of California at Berkeley and Beth Berkov of the California State Department of Health reported in the Aug. 29 SCIENCE, that "the decline in the nation's birth rate is coming to a halt and that an upturn is in the making."

These conclusions are based on California birth figures through 1973 and estimates from 1974. Changing sexual attitudes and behavior, as well as the changing role of women in society, apparently kept many women from having children during the past several years. But recent evidence suggests that these women do not intend to remain childless permanently, and that they may have already begun to make up for lost time. Despite somewhat adverse economic conditions, birth rates rose in California in 1974. If this trend is seen when the statistics are in from the other 49 states, then we may yet see a post-baby-boom baby boom. □