Some sweet news for diabetics

For years the American Diabetes Association (ADA) has counseled patients to avoid foods containing sucrose (table sugar) in favor of starchy foods, such as pasta or rice. In a study published in the July 8 NEW ENGLAND JOURNAL OF MEDICINE, John P. Bantle and colleagues at the University of Minnesota in Minneapolis suggest that diabetics can tolerate modest amounts of sucrose as long as they do not consume too many calories. "We're not advising diabetics to eat a lot of sugar," Bantle told SCIENCE NEWS. "We're just raising questions about limiting sucrose."

Previously, nutritionists based their advice to diabetics on the belief that simple carbohydrates (sugars such as fructose, glucose, and sucrose) entered the bloodstream almost immediately. Starches and other complex carbohydrates (long chains of sugar molecules), it was thought, took longer to be digested and absorbed, resulting in a small steady increase in blood sugar, as opposed to a simple sugar's large peak.

To a sufferer of diabetes mellitus, a disease named for the sweet-smelling urine of its victims, such a peak could be fatal. Lacking the ability to dispose of blood sugar properly, diabetics easily become hyperglycemic, a condition which can lead to dehydration, coma and death.

Normally a high blood sugar level triggers the pancreas to produce insulin, which makes cells more permeable to glucose, thus removing sugar from the blood. Diabetics lack this built-in regulator. People with Type I diabetes mellitus — about 10 percent of the United States' 10 million diabetics — stop making insulin entirely. They rely on daily injections of the hormone, as well as a restrictive diet, to control blood sugar. Type II diabetics continue to produce insulin, but fail to use it efficiently. This condition, which is complicated by obesity, can be controlled with proper diet alone.

But the Minnesota researchers have cast some doubt on the traditional definition of a proper diabetic diet. They served five kinds of breakfasts to 12 Type I diabetics, 10 Type II diabetics, and 10 nondiabetics. While all meals contained similar amounts of carbohydrate, protein and fat, each fare had only one of five forms of carbohydrate — either a potato, a wheat pancake, or refined fructose, glucose, or sucrose.

The researchers then measured the amount of sugar in blood and urine at various times after the meal. Glucose produced the largest blood sugar response, fructose the smallest, and sucrose tied for second with potato and wheat starch. "While sucrose is not better than complex carbohydrates," says Bantle, "it's not worse either."

Fructose, which enters the bloodstream more slowly than other sugars, is rapidly cleared from blood by the liver, even without insulin. Bantle suggests that refined fructose may be a desirable sweetener, but he stresses the need for more research on it and other sugars.

Phyllis A. Crapo and Jerrold M. Olefsky, of the University of Colorado Health Sciences Center in Denver, agree. In an editorial that appeared in the same journal issue, they say studies damning simple sugars "have led to conclusions that go far beyond what the data show." According to Crapo, a carbohydrate's effect on blood sugar is far from consistent, and can depend on factors such as how a food is prepared and what it's eaten with. "Carbohydrate metabolism is more complex than we thought," she says. "But with more mechanistic-type studies we may be able to increase our understanding enough to accurately predict the physiologic response to a food based on its content."

In the meantime, the ADA cautions diabetics against changing their diets prematurely. Says Karl Sussman, president-elect of the association, "We will review this study along with those of other scientists to determine if we should change our recommendations."

If they do, notes Bantle, it may be possible to "liberalize the diabetic diet and allow diabetics to enjoy limited amounts of foods other people eat every day."

—S. Steinberg

High court OKs testimony on future violence

While acknowledging that psychiatrists cannot reliably predict future behavior, the Supreme Court nevertheless ruled last week that such "expert" testimony is not unconstitutional and should be permitted even when life-or-death decisions hang in the balance. But in a strongly worded dissent, Justice Harry A. Blackmun rebuked his colleagues for loading the judicial process against the defendant by permitting juries to be swayed by "purportedly scientific but actually baseless testimony" —testimony that even organized psychiatry concedes is more often wrong than right.

In a 6-to-3 decision, the court upheld the death sentence imposed on Thomas A. Barefoot, who in 1978 was convicted of murdering a policeman in Bell County, Tex. The jury in that case sentenced Barefoot to death after hearing testimony of two psychiatrists; John Holbrook testified that Barefoot was likely to commit future acts of violence, and James Grigson testified that he was certain to. Neither psychiatrist had actually interviewed the defendant, but had based their prognostications on descriptions of a hypothetical character with Barefoot's reputation and criminal history.

Barefoot appealed the decision, arguing that psychiatrists are not competent to predict future dangerousness; their testimony at punishment hearings is unconstitutional, he maintained, because it is more than likely to produce erroneous results. The American Psychiatric Association (APA), in an *amicus* brief, sided with Barefoot, stating that the unreliability of long-term prediction of dangerousness is "an established fact within the profession." The best evidence, APA testified, is that no more than one in three predictions is accurate—even when an in-depth clinical interview has been conducted; without such an interview (as in Barefoot's case), predictions would be even less reliable.

Writing for the majority, Justice Byron R. White dismissed these arguments. Comparing sentencing in capital crimes to parole and bail decisions, White argued that prediction of future behavior is fundamental to the entire criminal justice system; if lay people can be expected to make predictions, he wrote, it makes no sense to single out psychiatrists as unreliable; juries should be able to sort through conflicting expert testimony and separate the "wheat from the chaff."

Blackmun, in his dissenting opinion, argued that it is "inconceivable" that a judgment would be considered an "expert" judgment when it is "less accurate than the flip of a coin." Lie detector evidence, he notes, is routinely excluded from trials, even though it is considered 80 to 90 percent accurate. Holbrook and Grigson labeled Barefoot a sociopath — a diagnosis that, according to APA, does not predict violent behavior. Furthermore, APA wrote, the expert witnesses lacked the facts necessary to spot such a disorder or to rule out other treatable disorders, such as schizophrenia. The APA considers it unethical to offer a professional opinion without having conducted a clinical examination, Blackmun noted, so in effect the majority has sanctioned basing a death sentence on "testimony so unreliable and unprofessional that it violates the canons of medical ethics."

Furthermore, Blackmun argued, the adversary system is "extremely unlikely to cut through the facade of superior knowledge." Even unreliable scientific evidence has an aura of infallibility, he noted. And when psychiatrists exaggerate to perpetuate the "illusion of expertise" (as they did in this case), Blackmun said, lay jurors are unlikely to critically weigh the scientific validity. "Ultimately," Blackmun concluded, "when the Court knows full well that psychiatrists' predictions of dangerousness are specious, there can be no excuse for imposing on the defendant, on pain of his life, the heavy burden of convincing a jury of laymen of the fraud."

—W. Herbert