

ASPARTAME ALERT



Photo by Robert King

According to Lt Col James S. Freeman, an aerospace physiologist at the Air Force Safety Agency, many crewmembers question him on the effects of artificial sweeteners on their performance. The following is extracted from a recent issue of *Navy Physiology* which sheds some light on the subject.

— Ed.

■ In December 1965, James M. Schlatter (while working for Searle Pharmaceuticals) accidentally discovered aspartame . . . the artificial sweetener we know as NutraSweet®. Patented and approved by the FDA in 1974, it was pulled from the market 5 months later due to questions about the test data supplied by Searle.

In 1981, NutraSweet® was re-

tified for market introduction and was approved as an artificial sweetener in breakfast cereals, powdered beverages, gelatins, puddings, whipped toppings, and chewing gum. Two years later, the FDA approved its use as a sweetener in carbonated beverages.

Aspartame is voluntarily consumed by more people than any other synthetic chemical in history. By 1985, we were buying 7 million pounds of this substance annually. Today, it is more than twice that amount.

After it was approved for sale in beverages, a marked rise in aspartame-related complaints to the FDA occurred. Neurologic and behavioral symptoms (including migraine headache, dizziness, and visual disturbances) were the most common grievances. In 1984 alone, over 250

reports against aspartame had been registered with the FDA.

After investigating 50 of these, the FDA rejected a request to hold a public hearing on the safety of aspartame.

By 1986, aspartame had been linked to seizure activity, changes in brain chemicals responsible for mood and behavior, deterioration of higher brain functions, and as many as 50 allergic reactions. By 1988, over 551 additional complaints had been studied including severe dizziness, blindness in one or both eyes, and sudden loss of memory. Other side effects which had been reported include diarrhea, mania, pain attacks, rashes, and respiratory distress.

To date, over 3,000 complaints have been lodged against the sweetener. Sixty-nine percent involved neurological or behavioral problems including headaches, dizziness, and mood alteration.

Inconclusive Research

The Center for Disease Control studied 517 of those 3,000 complaints and found no common thread which linked aspartame with any specific symptom complex. Other researchers were more successful and have linked aspartame ingestion to allergic reactions, headache, dizziness, and various brain functions.

Still, the evidence derived from these investigations is statistically inconclusive. The FDA maintains "we cannot definitely state aspartame is or is not associated with any specific clinical syndrome." Monsanto Industries (which currently manufactures NutraSweet®) sticks to their assertion that aspartame is completely safe.

When NutraSweet® Isn't

Before you can make any judgments about whether NutraSweet® is safe, you have to understand some of its chemistry. The aspartame molecule is stable in its dry form for more than a year (at temperatures up to 104 degrees Fahrenheit). When dissolved, however, it rapidly decomposes. Within 8 weeks, the aspartame in carbonated beverages has decomposed about 38 percent (about 10% of the

byproduct is methanol . . . wood alcohol).

When digested, aspartame breaks down into its three essential ingredients . . . methyl alcohol, aspartic acid, and phenylalanine. Methanol has been proven to damage the eyes and the central nervous system, and phenylalanine affects the chemical balance of the brain.

Wood Alcohol in Your Cokes

Medical test subjects get pure, encapsulated NutraSweet® provided free of charge by Monsanto. But some of the problems with aspartame seem to be linked to the methanol byproduct rather than to the sweetener itself. Because of the decomposition, people who drink carbonated diet beverages are consuming a substantially greater amount of pure methanol than any research subject would.

The FDA has concluded that even with high doses of aspartame ingestion, serum methanol levels are nontoxic. Further, they stated only people who have deficient phenylalanine hydroxylase genes are likely to suffer from NutraSweet® (about 1 person in 60).

Excessive amounts of phenylalanine, even in normal people, affects the brain and central nervous system. And those "1 in 60" people are likely to exhibit symptoms of Alzheimer's disease, seizures, or even mental retardation.

How Much Is Too Much?

There is no safe dosage for methanol. The FDA has stated the methanol content of aspartame is sublethal, yet has not addressed its cumulative effects on the brain and eyes.

The FDA has established the "acceptable daily intake" of aspartame at 50 mg per kilogram of body weight. For a 200-pound man, this is roughly 25 cans of diet soda per day. For a child, it is far less.

If that child is one of the "1 in 60," a single diet drink per day may be sufficient to severely impair their learning and thinking ability. In pregnancy, the effects of aspartame can be passed directly on to the fetus, even in very small doses.

Some people have suffered aspartame-related disorders with



It may taste like sugar and it may cut down on caloric intake, but, as aircrew, we must be alert for potential in-flight problems.

doses as small as that carried in a single stick of chewing gum.

Implications for Aviators

Phenylalanine inhibits the body's ability to manufacture certain chemicals essential for nerve function. Several researchers have found aspartame can increase the frequency of seizures, or lower the stimulation necessary to induce them.

This could mean a pilot who drinks diet sodas is more susceptible to flicker vertigo, or to flicker-induced epileptic activity.

It also means that ALL pilots are potential victims of sudden memo-

ry loss, dizziness during instrument flight, and gradual loss of vision.

Washington Responds

Because aspartame is a food additive rather than a drug, adverse reactions do not have to be reported to any government agency, and continual safety monitoring is not required by law. For the same reason, the testing of human subjects is not required prior to approval for marketing.

On 15 March 1990, the FDA prohibited the use of sulfates in certain fresh potato products (such as potato salad in salad bars) after approximately 1,000 complaints of diverse reactions.

Yet, after receiving more than 3,000 complaints against NutraSweet®, including seizures and incapacitation, the only restriction placed on aspartame is a warning label for phenylketonurics.

A Heads Up!

The Surgeon General's office has reviewed the research on aspartame and feels there is not sufficient evidence to justify a policy prohibiting its use. This article offers a "heads up" to a potential problem which may affect a few people without warning. If one of those people is a pilot, there could be serious problems with in-flight performance. ■



Research shows us this artificial sweetener could cause problems in the form of flicker vertigo, sudden memory loss, dizziness during instrument flight, and gradual loss of vision.