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BIOMEDICINE

From Washington, D.C., at the Experimental Biology '99 conference, a meeting of 26 scientific societies

Some fats may ward off colon cancer

Diets enriched with any of several sphingolipids—arcane, ubiquitous fats (SN: 5/31/97, p. 342)—appear to offer potent protection against colon cancer, a pair of animal experiments now indicates. Though sphingolipids occur in many foods, the source in these studies was, ironically, "fat-free" skim milk.

Colon cancers develop within crypts, normal pocketlike structures lining the large intestine. Although young cells in the lower half of crypts proliferate, their growth in a healthy animal stops as the maturing cells slowly migrate upward. When this proliferation is abnormally high and it continues even as the cells enter the upper crypt regions, cancer can develop.

In their new experiments, Eva-Maria Schmelz and Alfred H. Merrill of Emory University in Atlanta fed sphingolipids to mice with this abnormality, called aberrant crypts. In one test, the researchers triggered the precancerous changes with a chemical carcinogen. When these animals later ate sphingolipids for 4 weeks in quantities equal to 0.1 percent by weight of their diet, the proliferation of cells throughout the crypts diminished. Most notably, Schmelz reports, cell-proliferation rates fell by 50 percent to 95 percent in the upper half of those crypts.

In their second study, she and Merrill fed the same amount of sphingolipids to mice that spontaneously develop colon tumors. These animals model a human hereditary condition that can lead to cancer. Mice that downed the sphingolipid-enriched chow for some 2 months developed during that period only about half as many cancers in their intestinal tract—including the colon—as untreated mice did.

What's exciting, Schmelz notes, is that this intervention reverses precancerous changes relatively late in the development of disease. She says that trials in which supplements of the natural fats are given to people could begin within a few years.

—J.R.