

NUTRITION

Got them low-fat, polyunsaturated blues

Some people joke that the best therapy in the world can be found in their refrigerator. Nothing seems to raise their spirits better than high-fat, high-carbohydrate foods.

No one really knows if the immediate solace provided by a pint of chocolate chip ice cream has any biochemical basis. But some scientists propose that a deficiency of a particular kind of polyunsaturated fat may contribute to depression.

Previous studies have linked low-cholesterol diets with increased rates of depression and suicide (SN: 03/11/95, p.157). Cholesterol is an important component in brain-cell membranes, and altering the composition of these membranes may in turn affect receptors for serotonin, a chemical messenger that is deficient in many people suffering from depression.

A study conducted in Finland, however, reached the opposite conclusion, and still another found no association at all between cholesterol and depression.

Another contradiction arose when connecting these findings to heart disease. If low cholesterol contributes to both depression and a lower risk of heart disease, then it follows that depression should go hand in hand with lower rates of heart disease. In fact, the opposite is usually true.

The key to explaining this conundrum may lie not in the cholesterol but in docosahexaenoic acid (DHA)—a long-chain, omega-3 polyunsaturated fat (SN: 04/15/89, p.237), says Joseph R. Hibbeln of the National Institute of Alcohol Abuse and Alcoholism in Rockville, Md. Hibbeln and colleague Norman Salem Jr. review previous work in the field and present their theory in the July AMERICAN JOURNAL OF CLINICAL NUTRITION.

In some of the earlier studies, subjects were encouraged to lower the cholesterol content of their diet by lowering their overall fat intake. This also may have lowered levels of DHA, which, like cholesterol, is an important component of brain-cell membranes.

Because about 50 percent of the fatty acids in these membranes cannot be made by the body, Hibbeln explains, membrane composition strongly depends on the diet.

DHA and its fatty acid precursors come mainly from seafood. In the Finnish cholesterol study, participants lowered their fat intake by consuming more fish, while in other studies, people tended to replace saturated fats with polyunsaturated plant fats—corn oil, for example—which the body cannot make into DHA. This difference, the researchers suggest, may account for the conflicting results.

Jay Kaplan of the Bowman Gray School of Medicine at Wake Forest University in Winston-Salem, N.C., studies the effect of low cholesterol on aggression in monkeys as an analogue to its effects on human behavior. He expresses some skepticism about Hibbeln and Salem's theory, arguing that it doesn't explain results from studies in which cholesterol was reduced with drugs, not by changes in diet. Kaplan's own work still points to cholesterol as the culprit.

But Hibbeln proposes an explanation for those cases too. "Cholesterol-lowering drugs bind fats and interfere with fat absorption in the gut," he says. "They may be interfering with the absorption of essential fatty acids as well as absorption of cholesterol." Other drugs have a secondary effect of inhibiting the synthesis of DHA from its precursor fatty acids, which in turn could reduce DHA levels, he says.

The theory does not rule out the contribution of other factors to depression, such as stress, personality, and psychological disorders, the researchers say, but at least it "opens up the question" of the role of polyunsaturated fats. The theory also doesn't offer any dietary recommendations, Hibbeln says—and still needs to be backed up with experimental evidence.

It may be some time before anyone recommends eating a piece of fish instead of ice cream as a cure for the blues.