such drugs—otherwise unrelated—have been called into question.

However, new work indicates that the theory that thalidomide acts through glutamic acid won't stand up. Scientists at the National Institutes of Health, Bethesda, Md., now propose another explanation for thalidomide's behavior, and they suggest that, on the basis of their theory, it should be possible to spot other drugs that may cause deformed infants.

In studies with rabbits and rats, Drs. Herbert Schumacher, David A. Blake and James R. Gillette studied the toxicity of an analogue of thalidomide —a similar compound, but one without the third of its three rings. "Because this third ring is missing, this other compound cannot be metabolically changed to a glutamate derivative," Dr. Gillette says, "but the new drug is just as toxic to embryos as thalidomide itself."

The investigators suggest that thalidomide acts either directly on the fetus by invading its cells and irreversibly altering cell components such as DNA and RNA which are directly involved in the transmission of genetic information. Or, it may act on some kind of "organizer" substances which theoretically determine why specific cells become primordial for certain organs—in this case, limbs.

In either case, new evidence contradicts the view that thalidomide produces abnormalities by interfering with glutamate. Its mechanism of action is more direct.

The NIH team suggests the major mechanism for teratogenesis by chemically unstable drugs such as thalidomide is through a process called acylation. In this process, a drug crosses the fetal barrier by dissolving in the lipids or fats in the barrier membrane and, because of its chemical instability, is able to react directly with genetic material in the fetal cells.

What this means, though other mechanisms may still be found, is that careful studies for possible teratogenic effects should be made on any drug that turns out to be both lipid soluble and chemically unstable.

AMA CONVENTION

Cholesterol Study Sparks FDA Policy Review

Nondairy shortening and vegetable oil makers are fond of the words "polyunsaturated fats," and of using them to fight the dairy and animal food industries in the battle for cholesterol-conscious customers. They would like as well to list the proportions of kinds of fats in their products, but the Food and Drug Administration banned that 16 months ago. FDA said it would imply an unproved health claim which might cause people to start trying to treat themselves for real or imagined heart ailments.

Last week, however, results were released of a study that is already causing FDA Commissioner James L. Goddard to reconsider his agency's stand, and to wonder whether a food's saturated fat level isn't information that consumers—particularly heart patients—ought to have. His decision was expected to be announced by the end of this week.

The cause of the FDA's possible about-face was not even a major effort. Though it took more than two years, cost $3.5 million and involved 2,400 subjects, the team of medical investigators who ran the study is adamant that it is only preliminary. In fact the doctors won't be happy with anything short of a study of up to 68,000 subjects, which could cost $50 million.

The preliminary study, which was carried out only to see if a larger one could feasibly be made, was reported to the American Medical Association meeting in Atlantic City last week by a team headed by Dr. E. Cowles Andrus of Johns Hopkins University. Ironically, he was standing in for study head Dr. Irvine H. Page of the Cleveland Clinic Foundation, who was recovering from a heart attack suffered the week before.

The investigation's subjects, all males between 45 and 54, included residents of Baltimore, Boston, Chicago, Minneapolis-St. Paul and Oakland, Calif., as well as institutionalized men from the Faribault, Minn., State School and Hospital. Some of the subjects lived on a normal American diet, while the rest received a custom-made diet of foods with controlled fat content. The study was double-blind, in which none of the subjects knew which of them were on which diet.

The key result reported was a 13.6 percent reduction in serum cholesterol in the group on the experimental diet. This diet's major feature was a reduction in foods containing saturated fats and cholesterol, and an increase in intake of polyunsaturated fats. An absolute reduction in fats of all kinds was not involved.

Cholesterol is one—but not the only—body lipid thought to be associated with heart disease. It apparently collects on the walls of the blood vessels, thickening and stiffening them while creating strain on the heart and circulatory system.

The feasibility study was never intended to answer the question of whether low-fat diets would prevent heart attacks, Dr. Andrus emphasized. The study was too small. In recommending the larger study he pointed out that there is "overwhelming evidence that the incidence of coronary disease is strongly associated with serum cholesterol level and that this can be safely lowered by modification of the usual American diet in ways that are acceptable to large numbers of people."

HEALTH PHYSICS

TV Radiation Assessed

X-rays emitted from color TV sets are no longer an easily dismissable problem.

Defective sets contribute to the total genetic radiation dose of the population, as well as causing possible cornea damage, such as cataracts, to viewers.

Children crawling under the badly designed console could be over-exposed to X-rays, since the harmful beam is directed downward. However, any *floor strong enough to support a color TV set would have sufficient matter* to absorb all the radiation, so there would be no hazard to anyone in a basement beneath it.

Dr. Harold Stewart, director of the X-ray exposure laboratory of the Public Health Service's National Center for Radiological Health warned, at a Conference on Radiological Health in Washington last week, of the possibility of slight mutations to persons exposed to a direct beam for a certain number of hours, though he was unable to be more precise.

Dr. Stewart found no significant X-ray emission from color TV sets tested in late 1966. Recent inspection of color TV's, however, showed radiation from some shunt voltage regulators, which direct the high voltage necessary to center the picture tube's electron beam.

General Electric Co., which produced the color TV assemblies in question is now exchanging the regulator tubes causing the trouble with another, non-harmful type. The danger of excessive radiation was first found by GE health physicists in routine tests of occupational hazards.

Some of the defective regulator tubes emitted as much as eight roentgens an hour in a downward and slightly forward direction, Dr. Stewart said. The National Council on Radiation Protection has set a limit of one-half a milliroentgen per hour at two inches.

Although only GE color TV sets with a K-C chassis and 6EF4 or 6LC6 regulator tubes have so far been declared as defective, the Public Health Service is testing 20 models of color TV from various manufacturers.