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Women's Heart Risk Tied to Kinds of

By Jane E. Brody
New York Times Service

NEW YORK — The kinds of fats consumed, not the total amount of fat, determine a woman's risk of suffering a heart attack, according to the first major study of the effects of all dietary fats in women.

The 14-year study, of more than 80,000 nurses, highlighted two types of fats as the bad actors in heart disease: saturated fats, found mainly in meat and dairy foods, and trans fats, found in most margarines, commercial baked goods and deep-fried foods prepared with hardened vegetable oils.

The research, which documented 939 heart attacks, fatal and nonfatal, among the participants, is the latest in a series of studies that have sought to define more carefully the effects of diet on heart disease. The earlier research focused mainly on saturated fat, cholesterol and total fat intake as the chief dietary factors. The new findings, in contrast, confirm and extend those from a report, published four years ago and also based on this study of

nurses, about the risk of trans fats.

When the researchers took into account other influences on coronary risk like smoking, trans fats stood out as the most serious problem. Among the women who consumed the largest amounts of trans fats, the chance of suffering a heart attack was 53 percent higher than among those at the low end of trans fat consumption.

But women in the group with the largest consumption of total fat (46 percent of calories) had no greater risk of heart attack than those in the group with the lowest consumption of total fat (29 percent of calories).

The researchers, from the Harvard School of Public Health and Brigham and Women's Hospital in Boston, said this suggested that limiting consumption of trans fats would be more effective in avoiding heart attacks than reducing overall fat intake.

The authors said they believed that their finding would apply to men as well as to women.

But some other experts pointed out that the study had not examined the effects of a diet

any lower in fat than calories, and said the time to recommend reduce total fat.

Currently, about 5 to 10 percent of the fat in American diets, which is produced by oils that are artificially hydrogenated to increase their firmness and resistance to rancidity.

Liquid vegetable oils, such as olive, canola, soybean, corn and sunflower, are free of trans fat.

Like earlier research, this study found that polyunsaturated fats, which are highest in fish, soybean, corn and sunflower, are associated with lower coronary risk at small levels, and that saturated fats, most prominent in animal products, had a small increase in risk.

The study was published in the Thursday issue of the *Journal of the American Medical Association*, but it drew an extensive comment,

November 13, 97 p.10

Gene Therapy Allows Blood to

By Gina Kolata
New York Times Service

NEW YORK — Gene therapy has prompted patients with hopelessly blocked blood vessels in their legs to grow their own bypasses, researchers said. Most patients in a small study saw a sharp reversal of the predictably downhill course of that type of cardiovascular disease.

The results, reported at the scientific meeting of the American Heart Association in Orlando, Florida, by Dr. Jeffrey Isner of St. Elizabeth's Hospital and the Tufts University School of Medicine near Boston, covered 10 patients. Although that is not a large number, some experts said the study was a rare demonstration of a clinical benefit from gene therapy and might be pivotal.

Dr. Isner and his colleagues injected genes into legs, eliciting the growth of a web of hairlike blood vessels that rerouted blood around the blockages and could be seen with X-ray and magnetic resonance imaging.

As a result, he reported, three patients who had been scheduled for amputations avoided them entirely because blood flow improved so markedly. For six other patients, severe and unrelenting pain lessened; two of them, who had been scheduled to lose legs, each lost a toe to amputation. In some cases, gangrene cleared up. Only one of the 10 patients failed to respond.

A paper describing the results has been accepted for publication in the *Journal of Circulation*, Dr. Isner said.

In addition to using a small number of patients, the study lacked a group that received a placebo for purposes of com-

parison. Medical experts urged that the work be repeated in a large study with such controls.

Until then, said Dr. R. Sanford Williams, chief of cardiology at the University of Texas Southwestern School of Medicine in Dallas, "we have to be extremely cautious and avoid giving false hope."

Nonetheless, some experts said, the results were compelling. The patients, after all, were in the final stages of a devastating disease. There was essentially no chance that their conditions would improve on their own. And never before, some experts said, had gene therapy actually resulted in the clinical improvement of a disease.

"This could be a pivotal study," said Dr. James Wilson, director of the Institute for Human Gene Therapy at the University of Pennsylvania.

Dr. Isner said the results were preliminary. He said the study was a small pilot study. He said the study was a small pilot study. He said the study was a small pilot study.

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日本原子力産業会議

14時52分 環境部 東京 97年12月 8日 再送

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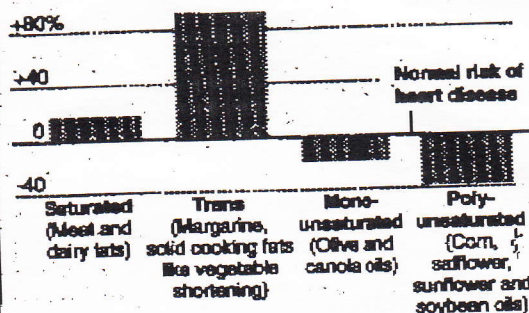
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Good Fat. Bad Fat

A 14-year study found that increased consumption of saturated and trans fat increased the risk of heart disease. Here is how the risk of heart disease changes after an increase in the consumption of various fats. The risk was measured for an increase of 5 percentage points in daily calories derived from fat, except for trans fat, for which the increase was 2 percentage points.



Source: New England Journal of Medicine

The New York Times

icates of a low-fat diet to prevent heart disease and those who say a high-fat diet promotes obesity and some cancers.

← 14年間 80,000 の
看護婦の観察から、
saturated fat (肉、牛乳)
はよくなく
trans fat
も有害とわかった
という話

脚の血流障害を
gene 治療 (注射) で
治療する話。但し
まだ例は少ない (10例)。

Bypass Blockages in Legs

Dr. Stuart Orkin, a professor of pe-
dic medicine at the Harvard Medical
col, said, "It is one of the first, if not
first, times that gene therapy has
ited in a clinical improvement."
r. Orkin is co-chairman of a com-
ee convened by Dr. Harold Varmus,
stor of the National Institutes of
th, to advise him on gene therapy
arch.

nd despite his trepidation about giv-
false hope, Dr. Williams said, he
id the results thrilling. When some of
patients' histories are described, he
ed, "you have to say, 'Wow.'"
ack year 30,000 to 40,000 Amer-
s develop such severe blockages in
r leg arteries that they have excru-
ing pain or ulcers on their legs that do
heal. For those patients, unlike
ple with blocked coronary arteries,
e is no effective drug therapy.
stead, they face eventual amputa-
is, as the lack of blood flow leads to
ctions and gangrene.

Dr. Isner said that 20 percent of those
patients died in the hospital and that 40
percent died within a year of the surgery.
His patients, Dr. Isner said, had the most
to gain and the least to lose from gene
therapy.

The study exploited the remarkable
properties of a gene known as the vas-
cular endothelial growth factor, or
vegF, that is thought to be the body's
signal to grow new blood vessels.

The idea was to inject vegF genes
directly into muscle cells near the block-
age and allow the muscles to take up the
gene and use it to make vegF protein.
About 5 percent of the billions of genes
that Dr. Isner injected actually went into
muscle cells and were used by them.

Upon taking up the genes, the muscle
cells secreted the vegF protein, which
made its way to nearby blood vessels.

Normally, vegF would not avidly at-
tach itself to cells that line the blood-
vessel walls. But when a vessel is
blocked, the cells just beyond the block-

age, which are starved for blood, become
very sticky for vegF. And so the vegF
proteins presumably attached them-
selves to the exact sections of the blood
vessels where they were needed.

With vegF stuck to their surfaces, the
cells started to sprout a network of
threadlike blood vessels. When that hap-
pens, for reasons that are still mysterious
to researchers, the new vessels wind
their way around the blockage and form
an alternative pathway for blood.

Any vegF that did not attach to cells
near the blockage was swept away by the
bloodstream and degraded. The muscle
cells secreted vegF only for several
weeks, just long enough for the body to
grow its bypasses.

"When we began our study," Dr.
Isner said, "we had no idea what dose of
gene therapy was going to work or if the
way we were injecting the genes was
appropriate or if the sites we were in-
jecting were appropriate. I have to admit,
we really lucked out."