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Healthful omega-3 may worm its way into our diets

By Elizabeth Weise, USA TODAY

Scientists have inserted a worm gene into mice, and the results of their efforts may one day transform steak and eggs into the heart-healthiest meal you could eat.

Mammals can't convert omega-6 fatty acids into the healthier omega-3 version. Even fish can't do it. Popular omega-3 sources such as salmon don't actually produce the fat — they accumulate it from the algae they eat.

Omega-6 and Omega-3 are fatty acids that can be obtained only through food. Both have many health benefits, but omega-3 has been shown to reduce significantly the risk of heart attack and stroke. Nutritionists urge a balance of both, but people generally consume more omega-6 because it is found in more common foods, such as cereals, vegetable oils and whole-grain breads.

But now, researchers at Harvard University have engineered a roundworm gene to convert omega-6 to omega-3 and have successfully transferred it into mice, according to an article in this week's issue of the science journal *Nature*.

Performing this feat of bio-engineering on animals such as cattle, pigs and chickens could lead to meat, eggs and dairy products that are rich in omega-3 fatty acids.

The potential for meeting increased demand for omega-3 is huge, says lead researcher Jing Xuan Kang. "This is a safer and more convenient way than relying solely on fish oil."

The Harvard work demonstrates the potential of this technology to produce healthier products, says Alison Van Eenennaam, an animal geneticist at the University of California- Davis who in another project has engineered mice to make omega-3 in their milk.

"Instead of eating fish, you could eat a hamburger and still have the beneficial effects of eating fish," she says.

It may also be safer. Many fish that contain significant amounts of omega-3 are

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contaminated with toxins such as mercury and cancer-causing polychlorinated biphenyls, because of polluted water.

Those pollutants are eaten by algae, which are eaten by small fish, which are eaten by larger fish. The toxins accumulate at each stage, resulting in sometimes high levels in the fish that people eat.

A non-fish source also would be environmentally friendly. Farmed fish are fed meal made from ocean fish as a protein and to increase their omega-3 levels. It takes from two to five pounds of ocean fish to produce one pound of farmed fish, leading to overfishing.