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#### Mice bred to produce omega-3 fatty acids

By Karla Gale Last Updated: 2004-02-06 14:57:38 -0400 (Reuters Health)

NEW YORK (Reuters Health) - Genetically engineered mice have been made to produce high heart-healthy omega-3 fatty acids in their tissues and organs, according to a brief communication in the science journal *Nature*.

Adapting this technology to livestock could mean meat, milk and eggs enriched with omega-3 fatty acids, the authors suggest.

Mammals are unable to produce omega-3 fatty acids because they lack the enzyme that converts omega-6 to omega-3 fatty acids, Dr. Jing X. Kang and colleagues at Harvard Medical School report. The researchers transferred the fat-1 gene, which encodes the necessary enzyme, raised them on a diet high in omega-6 and lacking omega-3 fatty acids.

In regular mice raised on the same diet, tissue polyunsaturated fatty acids consist primarily of arachidonic acids, both omega-6 fatty acids. In contrast, the engineered mice produce a mix of omega-6 to omega-3 fatty acids in muscle, milk, and other tested organs, the report says.

The animals appear to be normal and healthy.

Kang's team is now attempting to cross fat-1-producing animals with obese mice that develop diabetes. "Then we can see if introducing this gene into this model can change the disease process or prevent its development," Kang told Reuters Health.

In fact, since his group's report appeared online two days ago, he said, he has been inundated with requests for the animals by other research groups wanting to test the effects of omega-3 fatty acids on animals that simulate other human diseases.

Government regulations will probably delay efforts to bioengineer livestock to produce meat and milk for human consumption, Kang said, but it may still provide a more cost-effective way of enriching farm animal feed with omega-3 fatty acids than the current use of fishmeal and other marine products.

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