

New animal model for rheumatoid arthritis

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Researchers at Northwestern University Feinberg School of Medicine have created the first animal model that spontaneously develops rheumatoid arthritis (RA) and is predisposed towards atherosclerosis, or hardening of the arteries.

This model is considered of critical importance because patients with RA are at increased risk for heart attack and other premature [cardiovascular events](#), but scientists don't know why.

"Generally, people with RA die because of cardiovascular disease," said Harris Perlman, associate professor of rheumatology at Feinberg, who is corresponding author on the paper. "This new model will allow us to examine the systemic influence of [inflammatory arthritis](#) on the development of heart disease."

RA is a chronic, inflammatory disease that causes pain, swelling, stiffness and loss of function in joints. The disease can affect any joint but is common in the wrist and fingers. Approximately 1.3 million people live with RA, and more women than men have the disease, which often starts between ages 25 and 55.

Perlman's team developed a specialized mouse model with RA, then fed the animals a "high-fat, Western-type" diet. "As we see in patient populations, the RA-affected mice spontaneously developed atherosclerosis," he said. Mice without RA who were fed the same diet did not develop atherosclerosis.

Next, Harris' team treated the affected animals with Enbrel, a common first-line therapeutic for [joint inflammation](#) in humans. Following an eight-week course of treatment, the occurrence of atherosclerosis decreased by 50 percent in the animal model.

The findings are published online in [Annals of the Rheumatic Diseases](#).

"This unique [animal model](#) will allow us to address a number of important questions regarding the connections between RA and cardiovascular disease," said Perlman. "The most pressing question will be to explore how drugs that treat RA inhibit cardiovascular disease. What's the mechanism at work? We also want to understand how cardiovascular disease and RA work together in the body."

Perlman says the findings were made possible by a series of collaborations at Northwestern University involving the divisions of rheumatology and cardiology at Feinberg, as well as the Center for Advanced Molecular Imaging (CAMI) on the Evanston campus.

Provided by Northwestern University

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