Nanoparticles may cause arterial disease

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A U.S. study has found nanosized particles near plaque-filled arteries in animals that might contribute to arterial calcification.

The research, led by Maria Kraemer, a Mayo Clinic Graduate School student, suggests nanoparticles might represent a previously unrecognized factor in the development of arteriosclerosis and calcific arterial disease.

Kraemer and colleagues reported isolating and propagating self-replicating, self-calcifying, nanoparticles from human arteriosclerotic aneurysms and kidney stones.

"The work we are doing with human-derived nanoparticles is important because preliminary studies indicate they may increase negative responses to arterial injury, possibly leading to blocked arteries and arterial calcification," Kraemer said.

Researchers tested their hypothesis by inoculating animal models with nanoparticles from human calcified tissues. A second group of models received a diluted inoculation. Blocked arteries were apparent in some animals in both groups 35 days after receiving the dosage.

The study was presented Sunday in Washington during the Experimental Biology 2007 meeting.