GEORGIA TECH RESEARCH

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AEROSPACE ENGINEERS CONTRIBUTE
TO UNDERSTANDING OF HEART ATTACKS

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For Immediate Release

ATLANTA, GA -- Earlier detection of potential heart attacks and strokes is getting a push from an unexpected source -- aerospace engineers.

Georgia Tech researchers in this field are developing a non-surgical technique for diagnosing atherosclerosis, a gradual narrowing of the arteries which is the leading cause of heart attacks and strokes.

Tech's Bio-fluid Dynamics Laboratory is exploring the connection between atherosclerosis and abnormal flows of blood through human arteries. Physicians already use special equipment to listen to blow flows for diagnosis of this disease. Tech engineers hope to give them a better method for early detection.

''We're involved in this work because the same natural laws governing blood flow apply to air flows in aeronautical science,'' explains program director Dr. Don Giddens.

Earlier diagnosis of atherosclerosis is important because victims of the disease show few distinctive symptoms until it is well advanced.

Giddens says that medical researchers once thought that the effects of atherosclerosis were irreversible. However, recent experiments on test animals indicate that some improvement in the condition of human victims may be possible.

''Blood flow studies may help us pinpoint why atherosclerosis begins at preferred locations in the body,'' says Giddens. ''That knowledge could

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deepen our understanding of the causes of the diease -- and possible methods of treatment.''

Tech engineers are working with neuro-surgeon Dr. Robert Mabon at Piedmont Hospital in Atlanta to test a prototype instrument which measures arterial blood flow. Dr. Max Casty, a visiting research scholar from Switzerland, is also collaborating on the program. The equipment is made in Switzerland and is known as a Pulsed Doppler Ultrasound Flow Meter. It makes readings without breaking the skin by sending pulses of sound into arteries, then measuring the resulting frequency of echoes from the body.

'' Any unusual turbulence in the blood may mean that the artery being measured has narrowed and that the patient has atherosclerosis,'' Giddens says.

Blood flow studies show promise for other kinds of medical treatment. Giddens' lab was asked recently to study blood flows in the cerebral area of premature infants. The technique also is being used to make kidney dialysis treatment more effective.

The National Science Foundation and the National Institutes of Health are sponsoring Georgia Tech's atherosclerosis work. Private foundations also have given supplemental financial support.

Giddens hopes his group can develop a technique which can be adapted to medical equipment already in existence.

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