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# News

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\*\*\*Splenectomized children, adults wanted  
for exercise tolerance studies.

DALLAS--Scientists at the University of Texas Health Science Center at Dallas are looking for children and adults who have had their spleens removed to test their endurance to exercise.

There may be a decrease in one's exercise capacity and a tendency to fatigue more quickly after a splenectomy, according to Dr. Jureta Horton, instructor in the Department of Surgery and a cardiovascular researcher in exercise physiology at the health science center.

It is thought that the spleen may play an undefined beneficial role in the workings of the heart and blood vessels when the body is under stress. In splenectomized patients this role may be lacking. Horton reported preliminary research on this phenomenon at a recent meeting of the Federation of American Societies for Experimental Biology.

The effects of the spleen on the heart is a topic unknown to medical science, she says, although much is known about the spleen in general. It is known that the spleen helps in the making of red blood cells in the fetus and shortly after birth. Gradually, that function is lost and taken over by other systems. The spleen also works as an immunological filter, and it contributes to the body's production of antibodies.

From findings thus far by Horton and others, researchers are hypothesizing that the spleen may secrete a substance or initiate a reflex action to aid the heart during times of stress from exercise, aging or disease.

To assess the effects of the spleen on the heart, Horton and her colleagues are asking for children and adult volunteers to take an exercise stress test on a stationary bicycle. Testing will take place at the health science center. Test records will be made available to volunteers or their doctors to help subjects learn how much exercising they can do.

Also volunteers can participate in an exercise training program to improve their endurance. Horton, aided by an expert team of researchers, is training volunteers over a period of months in an effort to increase exercise tolerance. These volunteers will be tested for the effects of exercise on the heart and results will be made available to them.

Working with Horton in her studies are exercise physiologists Dr. Peter Snell, three-time Olympic gold medal runner in the 800 and 1500 meter races; Dr. Gunnar Blomqvist, NASA researcher studying the effects of weightlessness on the heart; Dr. Jere Mitchell, world authority on the effects of exercise on the heart, and Dr. Dale Coln, chief of Pediatric Surgery, all at the health science center.

Horton has been studying the effects of the spleen on the

(over)



cardiovascular system for several years. It was her own observation of splenectomized children during her son's soccer games that initiated the research. She noticed that splenectomized children tired more quickly and were unable to play the entire game. Their inability to keep up with other children reinforced what she knew about the removal of the spleen in laboratory animals, but she didn't have the statistics to support her observation in humans. Studies with laboratory animals show a decrease in work capacity after splenectomy. Her Ph.D. dissertation was based on the spleen's role in cardiovascular function.

The spleen lies on the left side of the abdomen, below the rib cage unprotected by ribs or organs. In children and adults it is very vulnerable to puncture wounds or rupture from blunt trauma.

Frequently trauma is the cause for splenectomies in children. Children will fall off their bicycles and rupture their spleens, or will get hit with a baseball or trip over something. Another reason for splenectomies in children is blood-related diseases.

While spleens were removed without fear of harming the body in years past, surgeons now routinely repair the spleen or perform partial splenectomies to preserve at least a portion of splenic tissue and its blood supply. These types of splenic repairs were pioneered at Parkland Hospital by health science center surgeons.

The preservation of the spleen in children below the age of four is now considered important because of an increased susceptibility to severe infection when the spleen is removed.

A major risk after splenectomy is overwhelming infection because of poor immunologic defense. Horton and her colleagues documented the importance of the spleen in an individual's immunologic defense in the Annals of Surgery, February 1982. This research showed that for the bodies of laboratory animals to efficiently clear injected pneumococcal organisms, there must be an intact splenic artery. Without a splenic artery there is a delay in getting rid of the bacteria.

Horton says that a group of 18 people studied thus far during exercise may not be indicative of all splenectomized adults. All subjects were splenectomized because of splenic trauma, most were sedentary and all showed decreased endurance for both static and dynamic exercise. More adults and children are needed to study.

For further information about participating in the exercise study, call Dr. Jureta Horton at 688-3543.

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