

Rotator cuff tears: Are they all in the family?

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People with relatives who have experienced rotator cuff tears are at increased risk of similar tendon tears themselves, according to a study published in the May 2009 issue of *The Journal of Bone and Joint Surgery (JBJS)*. "This strongly suggests genetic predisposition as a possible cause for rotator cuff disease," said Robert Z. Tashjian, MD, associate professor of orthopaedic surgery, University of Utah School of Medicine Orthopaedic Center in Salt Lake City.

By using the Utah Population Database combined with the University of Utah Health Sciences Data Warehouse numbers, researchers found an increased risk for these tears in family members of patients with rotator cuff tears. The risk extends out and beyond third-cousin relationships (Third cousins are the great-great-grandchildren of one's great-great-grandparents.)

"While we have not determined the exact genetic component," said Dr. Tashjian, "our family history data supports that heredity plays a role in the development of rotator cuff tearing."

This problem usually affects people in their 50s and 60s. It is believed to have both mechanical and environmental influences; however, scientists unclear as to exactly why it occurs, have several theories including:

- Decreased blood flow leading to tendon dysfunction and tearing
- Bumping (impingement) of the rotator cuff on the undersurface

of the shoulder cap (acromion) when moving the arm

- This may lead to a slow development of tears due to repetitive micro-trauma over time
- Age-related degeneration

The potential impact of this research is that it is a springboard for attempting to identify an exact genetic component for this injury. Dr. Tashjian and his colleagues are currently collecting blood samples for [DNA analysis](#) of patients with rotator cuff tears, which will be used later for various [genetic analyses](#) to determine the exact [genetic component](#).

The results of this research have potential long term implications, including:

- Prevention
- Knowing about a family history of rotator cuff disease can alert patients to take some precautionary measures to protect against their own injuries
- Orthopaedic surgeons can initiate a shoulder stretching and strengthening program for patients to help limit the effects of possible future rotator cuff problems

While an exercise program would not completely prevent development of rotator cuff disease, it may limit the negative impact on shoulder function.

The research results can also lead to future treatment options. "Rotator cuff healing is often incomplete and identifying a possible genetic link to

the disease may provide targets for biologic treatments to improve the healing rates," noted Dr. Tashjian.

Source: American Academy of Orthopaedic Surgeons ([news](#) : [web](#))

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