

Why is calcific tendinitis so painful?

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Calcific tendinitis of the shoulder, typically characterized by calcium deposits on the rotator cuff, is an extremely painful condition that can severely impair movement and life quality. A new study appearing in today's issue of the *Journal of Bone and Joint Surgery*, found a significant increase in blood vessel and pain receptor growth among patients with this condition.

"We found a 3-to-8-fold increase in the number of small [blood vessels](#), nerves and inflammatory cytokines (proteins that direct cell growth) in patients with calcific tendinitis in one of four rotator cuff tendons, as compared to patients with a torn yet normal tendon," said George A.C. Murrell, MD, an Australian orthopaedic surgeon and lead author of the study. "This might explain the chronic inflammation and severe pain that patients with calcific tendinitis often experience."

In the study, 30 patients received an ultrasound during arthroscopic surgery to identify and remove samples of calcium within the shoulder tendon. Each patient had calcific tendinitis, but no prior surgeries or fractures in the affected shoulder, and no history of rheumatoid arthritis or osteoarthritis. They were compared to similar patients with tears in normal rotator cuff muscles, without calcification or [rheumatoid arthritis](#), and patients with healthy [rotator cuff](#) muscles.

Overall, the results showed significantly elevated blood vessel growth (neovascularization) and nerve growth (neoinnervation) in the calcific tendinitis lesions. In addition, the calcific tendinitis group had more frequent pain during sleep and more extreme pain in general. The

findings are similar to, but much more pronounced than, those found in studies looking at [patients](#) with frozen shoulder and other tendon disorders and diseases.

"To our knowledge, few works have investigated the presence and/or role of immune cells and their molecular messengers in calcific tendinitis," said Dr. Murrell. "The results could lead to new ways to manage the [pain](#) associated with this condition."

More information: L. Hackett et al. Are the Symptoms of Calcific Tendinitis Due to Neoinnervation and/or Neovascularization?, *The Journal of Bone & Joint Surgery* (2016). [DOI: 10.2106/JBJS.O.00417](https://doi.org/10.2106/JBJS.O.00417)

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