

Shoulder Pain in Spite of Treatment

Pain can be a good thing. For one thing, it is protective. It is a normal response of the body when there is an injury. The body uses pain to protect itself while it is healing. But in time, the healing processes are completed and the pain goes away. That is the normal healing response.

Well, not always. In some people, a persistent pain response gets turned on in the central nervous system and it doesn't get turned off. The result is chronic pain from this phenomenon we call central hypersensitivity. Pain is felt with even a small touch or input. Pain is felt with lower mechanical pressure than would normally elicit a painful response. And this doesn't just occur in the arm or leg that's hurt. The heightened pain response is perceived throughout the body. That's what we mean by "central" hypersensitivity.

In this study, a group of researchers from Case Western Reserve University School of Medicine carried out part two of a previous study. They examined the pain response of patients with a particular shoulder problem called subacromial impingement syndrome or SIS.

Someone with SIS experiences pain when lifting the arm overhead. The supraspinatus tendon of the rotator cuff gets pinched by the acromion. The acromion is a curved piece of bone coming from the back of the shoulder blade around and over the top of the shoulder.

SIS is caused by different things. Sometimes it's a previous injury to the rotator cuff. Some people are just experiencing degenerative fraying (wear and tear) of the supraspinatus tendon. In other cases, there is a bursitis (inflamed bursa). Anything that causes the supraspinatus tendon to get pinched or impinged can contribute to the development of SIS.

And as this study showed, once the tissue has healed, the hypersensitivity continues causing persistent pain even after treatment. They proved this by testing pain responses to mechanical pressure applied to the skin.

People with central hypersensitivity clearly had reduced pain thresholds (it took less pressure than normal to cause pain). The reduced pain thresholds were observed at the site of the shoulder problem and in other parts of the arm unaffected by the injury.

And they compared the pain responses of the individuals with SIS to normal controls (people without shoulder problems). As suspected, the patients with SIS had much lower pain thresholds compared with the control subjects. In other words, the patients with SIS felt a painful response when a rubber tip was touched to the skin sooner and with less pressure compared with normal adults. And the sensation caused pain in the SIS group when it was just felt as pressure to the control group.

What can this information do to help these patients? First, it offers reassurance that they are not making this all up in their heads. It's a real event and it's something controlled by their nervous system. Second, it may help answer the question which came first: the chronic pain or the central hypersensitivity. And third, by treating the nervous system component of pain (not just the anatomic or biomechanical aspects of the problem), it might be possible to end this problem.

Reference: Tracy Maria Paul, BS, et al. Central Hypersensitivity in Patients with Subacromial Impingement Syndrome. In *Archives of Physical Medicine and Rehabilitation*. December 2012. Vol. 93. No. 12. Pp. 2206-2209.