

Pain: Why it's 'ow' for me and 'YOW!' for you

March 12 2010, By Rosie Mestel

Ever noticed how two people can suffer from back pain, say, but one will moan and groan and take to bed while the other will get up and about and on with life? Pain specialists have often noted that conditions that seem similar on the outside can cause widely varying amounts of reported pain.

Since there's no external pain-ometer, it's hard to know whether some people are just more stoic or if some truly feel more pain than others. A new study, while it doesn't rule out the piss-and-moan factor, has found that the latter certainly seems to be true.

Published in the [Proceedings of the National Academy of Sciences](#), the study found that a small genetic difference is linked to a higher or lower perception of pain.

The scientists started by noting that there are rare pain conditions caused by mistakes in a gene called SCN9A. In one of those conditions, kids lack all ability to feel pain -- and you would not want to rear such a child. This article describes how one such boy could walk on hot coals and pass knives through his arms without flinching. His SCN9A gene was totally nonfunctional. (Other changes in the gene cause extremely ramped-up pain conditions. In these cases, the SCN9A gene is in overdrive.)

The researchers reasoned that there might easily be less-extreme conditions caused by far more subtle changes in the same gene -- ones that would just make the gene a little bit more active or a little bit less

active. And that's just what they found.

Testing the DNA of 578 people with [osteoarthritis](#), they found that those with a more common version of the SCN9A gene tested lower on pain self-assessment scores than those with a rarer version that differed in a very minor way.

What's more, the scientists (from Britain's Cambridge Institute for Medical Research and a bunch of other places) found that this [pain perception](#) difference held in other groups of people who suffered from conditions such as sciatica, phantom pain, pancreatitis or back problems.

Why would this gene cause a pain difference? The SCN9A gene contains instructions for a protein that sits in the membranes of pain sensory nerves. That protein is involved in setting off a signal of pain that travels to the brain. The protein's structure is slightly different in those people who feel more sensitive to pain -- and it seems to allow [pain](#) signals to get to the brain more readily.

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