

Pain Killer

Leading researcher Joel Katz works on getting the ouch out.

BY MICHAEL TODD ■ PHOTOGRAPHY BY SOPHIE KINACHTCHOUK



NORTH AMERICANS DON'T DO PAIN WELL. When we're not talking about those flickering, pulsing, throbbing, torturing, miserable, intense, unbearable, wretched, tender, hot, sharp, numb, crushing, nagging and sometimes nauseating pains that afflict us, we're trying to find ways to assuage them. (The descriptive words here are taken from the McGill Pain Questionnaire, a scale known and used worldwide to rate pain.)

But pain has its positive side. It's there as a warning signal, and it helps us avoid potentially damaging situations. For instance, it can tell us to take things easy if we've got a sprained ankle, thereby avoiding further damage. Having no sense of pain is more dangerous than suffering from it.

Scientifically, pain is partly defined by the International Association for the Study of Pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage." Most times, small hurts resolve by themselves quickly as the body heals. But sometimes pain will persist even if the stimulus is removed or the injury has healed – for example, the brain will still perceive pain in a limb even when the limb is no longer there, a phenomenon known as post-amputation phantom limb pain. That is one of the continuing mysteries that interest leading pain researcher Joel Katz, York's Canada Research Chair in Health Psychology and a psychology professor in the Faculty of Health.

Katz's major accomplishments include using a preventive approach to advance the treatment of acute post-operative pain, and increasing our understanding of how to manage pain in newborn babies. Katz also discovered previously unrecognized gender differences in how males and females experience pain. He is currently coordinator of York's Health Psychology Graduate Diploma Program – the only program in Canada offering specialized training in health psychology leading to a diploma. He is also director of the Acute Pain Research Unit in the Department of Anesthesia and Pain Management at the Toronto General Hospital.

Interestingly, for a guy from Montreal who's devoted his academic life to relieving pain, Katz never received any anesthetic when he went to the dentist as a child. He just toughed it out. "It didn't seem like a big deal at the time. I didn't know any better," he says. "I just thought the care I was receiving was normal." (He now receives local anesthetic.)

Chronic pain is especially mysterious. Unless there is obvious tissue damage, doctors often can't use traditional diagnostic tools and have to rely on patient narrative, a state of affairs that in the past often led to the diagnosis, "It's all in your head." Even as little as 20 years ago, some chronic pains

were dismissed as purely psychological, notes Katz. Now the majority of physicians know better.

"Take the case of phantom limb pain, that almost every amputee experiences. Phantom limb pain shows how pain is a psychological experience rooted in brain mechanisms," he says. "A person who feels intense pain in her hand after an amputation clearly does not have pain in her hand; she has what we call referred pain."

Katz says the signals giving rise to pain are transmitted to central neural structures and up to the brain in such a way that the pain is experienced as if it were coming from the hand. In some instances, the pain may even represent the re-activation of a sensory memory-like mechanism in which the pain has become "imprinted" in the central nervous system. The problem that some patients face is their doctors do not believe that their pain is "real". "If you've ruled out every known medical cause for a person's pain," says Katz, "it is best to say 'we do not know enough about pain to identify the cause' rather than to say 'there is nothing wrong with you.' We simply do not know enough about the mechanisms that underlie chronic pain."

Katz, a prolific writer, has already published 135 papers in peer-reviewed journals, written one book and contributed 42 chapters to other books, as well as given 108 invited addresses at pain-related conferences. He says it took him time to find his passion, but in 1989 he completed his doctorate in clinical psychology at McGill, after taking some time off to work at the Montreal General Hospital Pain Centre. At McGill, he says, "I was fortunate to have had the opportunity to do my doctoral work with Dr. Ronald Melzack, a pioneer in the field of pain."

In 2002, he was invited to York to take up the newly created post of Canada Research Chair in Health Psychology. He has loved his time at York, he says, in terms of the research environment, his academic colleagues and, most of all, mentoring grad students in psychology and in kinesiology & health science.

There are many more intriguing questions to be investigated in the field of pain, says Katz. One of those is, "How can we prevent acute pain from becoming chronic pain? And, more specifically, how can we prevent it after surgery?" Another hot topic revolves around genetics and the challenging task of finding human pain genes for such a complex phenotype as chronic pain. There is also the unresolved question of the mechanisms responsible for gender differences in the experience of pain.

Katz says it's clear some people have a predisposition to suffer more from pain than others, but no one knows why. "The more we can understand how to manage pain both before and after surgical procedures, the better for patients, their families and for health-care costs. If we can improve the quality of people's lives just a little, it will all have been worthwhile." ■