

Lifestyle With Dr. Z



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Olympians and Pain: What Can We Learn?

Lying in an ambulance, her nose broken after hitting a barricade on her bike, Katie Zaferes had one question on her mind: How soon can I get back to training?

"It's not like I love pain, but I do kind of embrace it," said Zaferes, 35, who went on to win the world championship and take home a silver at the Tokyo Games in 2021.

This is a common story for Olympians.

The history books are filled with athletes winning in the face of serious injuries. Further, the burn of pushing the body to its limits can be a "suffer-fest" most people will not bear.

How do they do it?

"You could say elite athletes have a friendlier bond with pain than the normal person," said Jim Doorley, PhD, a sports psychologist with the U.S. Olympic Committee.

Data shows that high-level athletes have a higher tolerance for pain: They take longer to "cry uncle." Some studies suggest they also have a higher pain threshold, meaning it takes more punishment for them to start to feel pain in the first place, and lower pain sensitivity, meaning they rank their pain as, say, a 4 when others subjected to the same hurt call it a 9.

Precisely what's going on in their brain? Elite athletes are just normal people who play sports. They have the same biology and the same pain-producing process as anyone else. The contrast is that they learn to think about pain in a completely different way.



What Is Pain?

Pain is hard to define and even harder to study.

For years, people talked about pain simply being a sign of tissue damage. It has become clear that this definition is out of date.

Even people who have lost their limbs can have what's known as phantom limb pain, and with many chronic pain patients, the tissue has healed but the pain persists. Then there are the Olympians.

Who can forget gymnast Kerri Strug's gold medal vault on a sprained ankle at the '96 Olympics?

Of course, the acute pain of a serious injury is different from the pain of banging out laps at the pool or grinding through a grueling physical therapy visit.

Athletes are cavalier in their approach to exercise-induced pain but stoic when it comes to injury.

Recognizing how subjective pain is, the International Association for the Study of Pain recently revised their definition to "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage."

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In a thorough review looking at 36 studies with over 2,500 people, the data is clear: Athletes are able to tolerate pain better than non-athletes. But why?

Brain Chemicals and Facing Fear

Inside each of our brains rests a built-in pharmacy of “endogenous” painkillers: endorphins (our ready-made morphine) and cannabinoids (much like the feel-good chemicals in cannabis).

Research shows that during and after a workout, the brain releases these opioids, reducing pain not just during the workout – the legendary “runner’s high” – but also for about 30 minutes after.

More intense exercise strengthens and prolongs this effect, known as exercise-induced hypoalgesia.

It seems that as the brain is subjected to pain via training, it sends signals down the spinal cord and adapts to the pain – a phenomenon called conditioned pain modulation.

For example, if you stub your toe, obviously that really hurts and maybe you are hopping around on one foot. But say you then bang your head on the wall. Presumably, that would be less intense because your body has already sent out the inhibitory signals.

The more an athlete trains, the more of these inhibitory signals their brain sends out, the more dialed-in this system becomes.

In essence, pain kills pain.

Pain With a Purpose

Elite athletes also adapt to pain over time.

The more athletes feel and push through pain in training, the easier the pain becomes. A cycle ensues whereby more training leads to better pain tolerance, which allows for more intense training, which improves pain tolerance further.

Eddie O’Connor, PhD, a psychologist in Grand Rapids, MI, works with both elite athletes and chronic pain patients.

He said athletes (unlike many with chronic pain) benefit from having a clear purpose to their pain, whether that is a spot at the Olympics or a personal record.

In order to excel, athletes invite more pain than perhaps they have ever felt. They choose the pain in service of speed or performance.

What the Rest of Us Can Learn

A key lesson: To prevent chronic pain, exercise regularly. Research in Norway followed 10,732 adults, assessing them twice, eight years apart. The more active, the longer they could keep their hand in cold water, with those considered very active able to tolerate the pain for 16 seconds longer than those who were least active. Even more encouraging: The people in the study who increased their physical activity level over the eight years also increased their pain tolerance.

Playing tennis, running, swimming, and even gardening can help ward off long-term pain.

For those just starting an exercise program, stick with it, knowing that your tolerance for pain will increase over time.

For some, exercise often does not feel good when you start. And if you work so hard you can feel your heartbeat in your throat, you might get tempted to quit.

Athletes learn to lean into the pain, and so can you, whether it be training for a 5K, delivering a baby, or dealing with the grief of losing a loved one.

Pain felt through sport translates to life in many ways. It can truly lead you to feel proud of yourself and achieve things never thought possible.

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