Pain, is it all in your head?

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In today's article, I want to touch base regarding the physiology of pain perception and what goes on in the nervous system when we feel pain. It will help in our understanding of how complex pain is which can make it difficult to treat at times. Pain is important. It tells us something is wrong and we have to react to avoid further injury. Imagine the damage to your skin if you could not sense pain from a burn and left your hand on a hot stove for several minutes without realizing it. Pain is vital to our survival.

So let's use an example we are all familiar with, stubbing your toe. When you hit the chair leg with your toe, injury occurs to the soft tissue at the end of your toe and even in the joint surfaces within the toe. Each of these tissues has many pain sensitive nerve ending called nociceptors whose job is to send a message to your brain we call pain. That message is transmitted along nerves that travel up your leg into your spinal cord at your lower back. From there the message gets transferred to other nerves in your spinal cord that travel up to your brain and get transferred to the part of your brain that is responsible for processing sensations (I'll call it the pain center).

Now here is where things get complicated. When the pain message gets to the brain, several other areas of the brain have connections to the same pathways the pain message is travelling on. Some of these other areas involve things like our emotional state at the time, our previous experiences with stubbing our toe, and our mood at the time. These parts of the brain can influence how much pain message gets to the pain center in the brain. Our emotional state, our mood, and our previous experiences with toe injuries play an important role in how painful our toe is. In other words, if you are having an awful Monday and you just had an argument with your best friend, your toe hurts more! If you just fell in love and got promoted at work, that toe doesn't feel too bad.

A recent study in the Journal of Neuroscience discussed how predictions about pain effect how we perceive pain. Subjects in the study observed a group of people receive a painful stimulus. The subjects watched judgements made by those people regarding the stimulus. Then when those subjects received the same stimulus, their rating of the pain was very similar to the rating they had observed in the other group. The study also showed that uncertainty regarding a painful stimulus has an effect of making the pain more intense.

So now not only does your previous personal experience with toe stubbing effect how painful it is, but the time you saw Aunt Betty stub her toe, rendering her immobile for 3 weeks, also effects how much pain you feel. This is getting complicated!

The point is, we are wonderfully created. Physical pain is not perceived until the message gets to your brain. So yes, pain IS all in your head. And along the way, many very complex connections from our nervous system filter the message for better or worse. These connections effect how you recover and how you perform in

therapy here at Shoreline Physical Therapy. We understand this complex process and can help you down the road to recovery from a variety of injuries, even a sprained toe.