**Why do we feel pain?**

Pain is the body's way of alerting you that something may be wrong, like an alarm system. For example, if you put your hand too close to a fire, the nerves in your hand send a message to your brain that your body may be hurt if you do not pull your hand away. The brain recognizes the nerve message as “PAIN” and can be viewed as a “warning signal.”

**What is acute pain?**

Acute pain most often has an identifiable source and is brief in time. Examples of acute pain can be broken bones, toothaches, giving birth, cuts, and scratches. Acute pain usually resolves when damaged tissues have healed.

**What is chronic pain?**

Chronic pain is different from acute pain. With chronic pain, the body's pain mechanism has malfunctioned. Fortunately, chronic pain is not life-threatening. It may or may not have an identifiable source however.

**How is pain processed?**

- All pain is processed through the brain. This process is called the pain cycle.
- In the body, the nervous system is made up of sensors that become activated when something is potentially harmful. When sensors are activated, they send an electrical signal through the nervous system to the brain.
- The brain creates a pain sensation by getting information from 3 major areas in the brain
  1) Body Map: where it registers location and intensity,
  2) Emotional centers: where a feeling of avoidance and anxiety is created, and
  3) Thinking: where the danger signal is judged harmful or not.
The pain cycle with chronic pain.

In chronic pain, the pain cycle is repeated over and over. This leads to neuroplasticity (patterns that are well formed). Neuroplasticity: “Nerves that fire together, wire together.” If a nerve pathway is used a lot the brain creates a chemical and physical bond to allow these messages to travel easier and faster. This hard wired pathway is the nervous system learning to transmit pain messages better and better. This tends to block out other pleasant sensations, thoughts, and emotions such as calmness, tolerance, and relaxation as the pain pathways become stronger. As the pain pattern increases, feeling emotions like worry, avoidance, frustration, resignation, and fear can become a habit. The impact over time can be devastating, leading to feelings of hopelessness, problems with sleep, memory and concentration, weakening of muscles, and social isolation.

Retraining the brain.

Reducing chronic pain requires retraining the brain. It is possible to create new nerve pathways to change and lessen the experience of the pain.

Some example of retraining practices might include:

• Instead of reacting to pain – Stop. Breathe. Observe.
• Practice movement: Yoga, Qi -Gong, T'ai Chi, Feldenkrais, walking
• Do a body scan: Notice your body: breath, posture, muscle tension, etc.
• Try something new-Brush your teeth using your opposite hand, change something about your daily routine.
• Be aware of your negative thoughts and emotions that contribute to your pain. Reassure yourself. “I’ve had this before and I will get through it.”
• Turn toward your pain. Practice “being with” instead of avoiding.
• Practice observing your thoughts and feelings without judgment.
• Notice other areas of your body that are not in pain. What are the sensations in those areas? (warm, heavy, soft, light)

Next steps?

If you would like more information about Chronic Pain visit kp.org/santaclara/pmrpvideo to view the Pain Management Rehabilitation video.