



PAIN RELIEF: ALTERNATIVE THERAPIES

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For patients who would prefer to forgo or who don't respond to traditional pain medications, there are alternative options that can provide relief.

Pain is the most common motive for a patient to seek out their physician. It is a universal ailment. In fact, everyone experiences pain to some degree, from birth to the grave. But, pain shouldn't be mistaken for a runny nose, cough, gastrointestinal symptoms or other physical ailment. Instead, it is something that has the potential to harm the body.

The International Association for the Study of Pain describes the concept of pain as: "An unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage. Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early

life. It is unquestionably a sensation in a part of the body, but is also unpleasant, and therefore also an emotional experience. Many people report pain in the absence of tissue damage or likely pathophysiological cause; usually this happens for psychological reason. There is no way to distinguish their experience from that due to tissue damage, if we take this subjective report."¹

When the body's pain mechanism is functioning correctly, it serves the very useful purpose of alarming the individual that something is, has or could harm their body. Without pain, there is extreme potential for extensive damage. For instance, what would result if one couldn't feel anything after casually leaning up against a hot stove and staying



there to finish a conversation, or breaking a leg while walking down the front steps and then taking a jog because they didn't feel anything was wrong? Fortunately for most, the worse the damage, the worse the pain. So if something is being done that increases damage to the body (e.g., continuing to run on a broken leg), the body is going to try to stop the damage by making the pain increasingly intolerable.

Because pain is subjective to the person experiencing it, caregivers, family and friends must be careful to not discount a patient's complaints. The pain that they are reporting is likely very real, whether or not it can be linked to a physical origin. To refuse to recognize the reality of

the situation can contribute further to the emotional component of a patient's pain, especially if they become anxious about the lack of support coming from those closest to them.

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Some patients don't tolerate or don't respond well to traditional pain medications. Others would rather avoid prescribed medication altogether, if possible. Therefore, alternative pain therapies can be tried. But, first, in order for a patient and their caregivers to better comprehend how to combat pain, it's important to understand the basics of what causes it and how the pain signal can be interrupted. The body's pain mechanism is actually a quite fascinating and complicated physiological process; however, for the purposes of this article, the following should provide a helpful — if oversimplified — overview.

The Pain Cycle

Every tissue in the body is innervated with nociceptors (special nerve receptors designed to detect painful stimuli). When the nociceptor is activated, the nerve fires a signal that travels back to the spinal cord and then up to the brain, where it passes through a region called the thalamus and then to different areas of the cortex (the largest and outer layer of the brain). The brain interprets the pain signal differently depending on what area(s) of the brain is/are activated.

With chronic pain, which lasts longer from the time of a specific injury than would be expected (generally defined as more than three months) or which comes back for an unknown reason, the normal link between tissue damage and pain is disrupted. Due to repeated or prolonged activation of the nociceptor pathway, less of a signal is required to result in an interpretation of pain. Actual changes also may occur to the structure of the brain itself,

increasing the size and sensitivity of the area(s) interpreting the pain.

Neuropathic pain (as opposed to nociceptive pain) is caused by the misfiring of the pain pathway and the experience of pain without tissue damage. The pain is often severe (commonly described as tingling, burning or electric) and can be triggered by something as seemingly innocent as a bed sheet on the patient's legs or a light touch.

People commonly speak of having a high or low tolerance for pain, and many refer to people who are "unable to take it [the pain]" as weak, crybabies or attention-seekers. However, because of the many factors involved in pain interpretation (e.g., strength, speed and duration of the nociceptor signal; region of the brain being activated; and psychological influences), it is impossible for an outside observer to truly know what a patient is feeling. Instead of criticizing or discounting a patient's complaints — a mistake made too often even by medical caregivers — continued efforts should be made to help find a way to break or at least interrupt the pain cycle.

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Gate Control Theory

The gate control theory describes how the body regulates pain. To understand gate control, think of pain signals as traffic traveling along highways (i.e., nerve fibers) back to the brain. The body has mechanisms (a.k.a. gates) built in along the highways to affect the way pain is perceived. The first gate region, located in the spinal cord, utilizes (nonpain) sensory fibers to suppress the pain nerve fibers by closing the gate. For instance, if someone misses a nail with a hammer and smashes their thumb, their immediate (nonverbal) reaction would probably be to grab and squeeze their thumb, rub it, shake it in the air, maybe even suck it or squeeze it between their teeth. Why? Even subconsciously, their brain knows that activating the nonpain fibers in the thumb can inhibit or at least dampen the pain by closing the gate in the spinal cord. The body's second gate region of pain regulation is in the brain,

where special chemicals called neurotransmitters (e.g., endorphins and serotonin) can help to suppress the feeling of pain. These neurotransmitters' release can be influenced by a number of factors, and strongly influence a general sense of well-being.

Alternative Therapies for Pain

There are a number of alternative therapies for pain. Some are supported by sound scientific research for their use, while many others are not. Nevertheless, as was discussed, psychological factors can have a significant impact on pain perception, either amplifying the pain as an impact of anxiety or depression, or reducing the pain as a consequence of happiness, peace and confidence. So, even if a given treatment has no other evidence for its use other than its effect as a placebo, clinicians should remember that placebos have repeatedly been shown to have a positive pain-reducing effect on patients. The point is that if a treatment is effective in reducing a patient's pain and doesn't otherwise hurt them (physically, psychologically or financially), why not stick with it?

Exercise. Exercise is one alternative therapy that has the most scientific support for pain control. Physical activity increases the production of endorphins in the pituitary gland and their release into the spinal cord and brain. These chemicals interact with the body's pain receptors to decrease the perception of pain, relax the body and increase feelings of contentment. Early studies also suggest that exercise helps to decrease the presence of inflammation-promoting substances called cytokines, helping to reduce, but not necessarily eliminate, neuropathic and chronic pain.

These are only a few of the many benefits of exercise that can be experienced by just about anyone. Regardless of a patient's athletic ability or current physical condition, appropriate exercise exists for their unique situation.

Mind-body therapies. As we all know, pain can exert a profound influence on emotions, but often the impact that emotions can have on pain is overlooked. Relaxation techniques can help to relax muscle tension, control heart rate, increase endorphin and serotonin production and release, and otherwise override pain signals in the brain. These methods include abdominal breathing, guided imagery (imagining a relaxing experience or calming place), meditation, self-hypnosis and biofeedback (use of equipment to monitor the body's processes [e.g., respiratory or pulse rate] in an attempt to control them). It should be noted that some patients actually deal with pain better when they are distracted or in a noisier environment

versus focusing on their own thoughts. They may find that watching television, engaging in conversation or taking part in some other form of recreation are effective means of dealing with their pain.

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Movement therapy. Movement therapy is the connection between exercise and mind-body therapies. It promotes a central focus of achieving balance between body and mind. These therapies, which include yoga, Qigong and tai chi, can be particularly effective at releasing endorphins.

Massage. Therapeutic massage techniques help to alleviate trigger points (hyperirritable muscle knots), enhance blood flow in a region and reduce stress and tension through the release of endorphins. Massage also may help to decrease cytokines in an area and close the pain gates through nonpainful stimuli.

Acupuncture. Acupuncture has been used for thousands of years. Traditional Chinese medicine asserts that the practice regulates the flow of qi (vital energy) through the body along pathways known as meridians. Though conventional science has not yet determined how acupuncture works, there are a number of theories, and the technique has been utilized effectively for a number of pain complaints.

Electrical stimulation (e-stim). E-stim is a treatment performed by placing a set of two or four electrodes on the surface of the patient's skin near a location of — typically neuromuscular — pain. The other ends of the electrical leads are attached to a unit that allows for the adjustment of a current delivered to the body. The current works to relieve pain by delivering a nonpainful (though distinct) sensation through the nervous system that interferes with the pain signal by closing the gate.

Herbal therapy. Herbal remedies for pain predate recorded history. Despite this fact, scientific studies into the efficacy of many of these herbs are still in their infancy. It should also be remembered that just because they're

natural doesn't mean that the use of herbs can't present undesired side effects or that a patient won't be allergic to them. When in doubt, or when planning to try a new herbal regimen, it is still best for a patient to conduct their own research *and* consult with their physician regarding the appropriate dose, means of administration and interaction with other medications.

Presented below are several of the more common herbal remedies and their uses (herbs are taken orally in pill form or as an infusion unless otherwise specified):

- Arnica: applied as an ointment/liniment for muscular and other soft tissue injuries, or taken orally for post-surgical pain or as an anti-inflammatory
- Capsaicin: prepared as a topical cream for arthritis and neuropathy
- Devil's claw: taken for back pain and osteoarthritis
- Fish oil: taken for joint pain related to arthritis and autoimmune disorders
- Turmeric: taken for arthritic pain and inflammation
- St. John's wort: long used as a natural remedy for depression; also used for neuropathic pain and arthritis
- Valerian root: taken as a muscle relaxant, sedative and/or pain aid
- Boswellia: taken for inflammatory conditions, including rheumatoid arthritis
- Willow bark: taken for rheumatoid and osteoarthritis, gout, muscle soreness, headache and general pain (acts similarly to aspirin)

Do No Harm

The pain-relieving techniques presented in this article are by no means exhaustive. However, they do represent many of the best-supported and/or most widely used alternative therapies. In attempting them, clinicians and caregivers should remember to not discount the patient's complaints and to "do no harm" with treatment. Everyone experiences pain to some degree, but they also can experience relief.

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Reference

1. International Association for the Study of Pain. *Pain*, 1979(6)249-252-, ex Shipton, 1993.