

A person is shown from the waist down, wearing a black skirt and white sneakers. They are using two wooden crutches for support and have a white elastic brace on their right knee. The background is a plain, light-colored wall.

Massage in an Orthopedic Context

Correcting common misconceptions about pain and injury

By Ben E. Benjamin

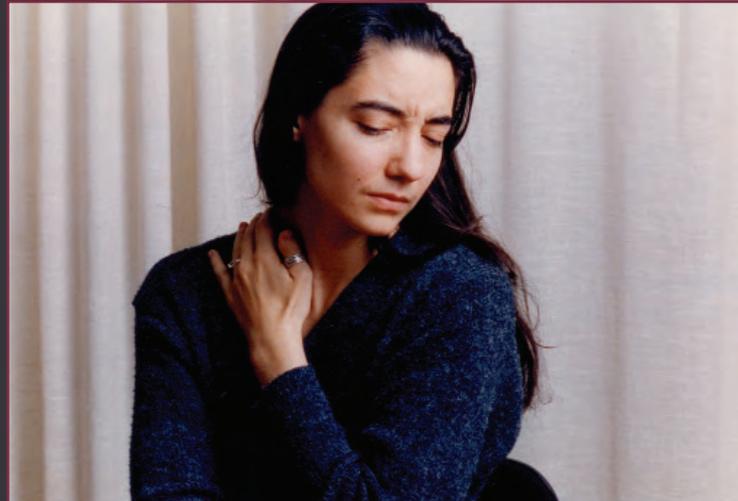
As Mark Twain famously observed, “To a man with a hammer, everything looks like a nail.” In the context of health concerns, this means that the tools most easily available to us—including our theories, assumptions, testing procedures, and technical skills—have a tremendous impact on the type of care we provide. Thus, health professionals in different fields may offer dramatically different assessments and treatments for the same condition. For instance, in cases of pain and injury, we would expect chiropractors to address spinal misalignments, acupuncturists to emphasize the flow of energy (Qi), and surgeons to consider more surgical options. Within the field of massage therapy (and related forms of bodywork), the focus has typically been on muscles and more recently on fascia.

Over the past few decades, many health professionals have begun seeking therapeutic alternatives outside their traditional modes of practice. Physicians are working in collaboration with chiropractors and referring more and more patients to massage therapists. Chiropractors are broadening their areas of expertise, learning how to work with a wide variety of soft tissue injuries. Massage therapists, too, have been integrating new knowledge and skills into their work. Some of these changes—including an increasing reliance on the principles of orthopedic massage—have allowed practitioners to dramatically increase their effectiveness.

When I use the term *orthopedic massage*, I am referring to precise techniques for assessing, understanding, and treating musculoskeletal pain and injury. These techniques are based on the principles of orthopedic medicine developed by Dr. James Cyriax. He was one of the first physicians to take a scientific approach to musculoskeletal pain that did not require surgery. Working in England in the 1940s, Cyriax found that most of the ideas about assessing and treating pain that were current at that time were incorrect. He developed his own approach—outlining systematic assessment procedures that

enable a practitioner to clearly identify what structure or structures have been injured, as well as guidelines for determining what method(s) of treatment will be most effective for each individual.

Orthopedic medicine is “color blind” as to which approach is best for treating a given individual or condition. This means one would recommend and apply the therapy that is best



suiting to a given person’s problem rather than the therapy he or she knows best. In addition to hands-on therapy, a skilled practitioner of orthopedic massage might recommend specific exercises, manipulation performed by a chiropractor or osteopath, or sessions with a teacher of the Feldenkrais Method or Alexander Technique. The practitioner may also consult with a physician to explore whether injection therapy might be effective when other interventions have failed.

Studying with Cyriax more than twenty-five years ago transformed my practice and my teaching, leading to much greater success in treatment. In this article, I’ll use the principles of orthopedic medicine as applied to massage therapy to offer insight into what I see as five misconceptions that are prevalent in our profession. →

Misconception Number One

Muscles are a major source of pain and injury. Massage therapists spend a large portion of their training learning about muscles; therefore, when something goes wrong in the body, muscles are naturally the first place they look. When a client is in chronic pain, the practitioner might attribute that discomfort either to a muscle spasm or to injured muscle tissues. However, as we'll see, this is often not the case.

First let's look at muscle spasms, which are frequently identified as a source of pain. In my experience, most cases of muscle spasms are actually the result of an injury to some other tissue. They function as a protective mechanism to help avoid further injury. For example, if a ligament or a nerve root in your low back is injured, your body will work to prevent you from causing further damage: As you start to move in a way that exacerbates the injury, your low-back muscles will contract or spasm involuntarily.

Even when a muscle is directly injured, this is unlikely to cause serious pain problems for very long. Although muscle strains and micro-tears occur very frequently, muscles are highly vascularized and therefore heal very quickly.¹ A pain that develops after performing some activity and then disappears after a night's sleep or a few days of rest is often the result of a muscle injury. In contrast, tendons and ligaments have a very limited blood supply, so without proper treatment they heal quite slowly (if at all). These tissues are frequently injured, and are a major cause of chronic musculoskeletal pain. Joints are another common source of pain, with joint damage occurring more frequently as we age. Finally, injuries to fascia may cause chronic pain in many parts of the body as well. Knowledge about each of these structures is essential for us to be able to effectively assess and treat our clients' pain problems. Certainly, a thorough understanding of muscle anatomy and function is also necessary, but it is not sufficient.

**Misconception Number Two**

Increasing circulation is the major task in healing an injured tissue. Healing of musculoskeletal injuries is affected by a wide variety of factors, from nutrition and emotional stress to body alignment and exercise habits. Circulation is one key factor, and increased blood flow to injured tissues is often highlighted as a major benefit of massage. However, many practitioners are unaware of a more important contribution they can make toward the healing of injuries—helping to eliminate adhesive scar tissue.²

Many therapists do not fully understand the process by which soft-tissue injuries lead to chronic pain conditions. Often, chronic pain results when an injury heals improperly, with poorly formed adhesive scar tissue. In a healthy healing process, scar tissue serves as the biological glue that holds torn fibers together in proper alignment. However, in many cases, the process goes awry. Scar tissue builds up in a jumbled mass of adhesions, forming a weakened structure that is vulnerable to re-injury. A vicious cycle begins—the tissue tears again and again, each time causing more pain and the creation of more adhesive scar tissue.³

Breaking this cycle is the key to effective treatment. Existing adhesive scar tissue can be broken up through the use of cross-fiber (transverse) friction and, in more serious cases, manipulation or injection therapy. Then, to prevent adhesions from continually forming, the body part must be regularly moved through its full

range of movement during the healing process. For instance, while sprained ankle ligaments are healing, the ankle must be moved in all directions, not kept still. With a better understanding of how to eliminate adhesive scar tissue and prevent its re-formation, massage therapists can help their clients heal much more quickly and stay well for the long term.

Misconception Number Three

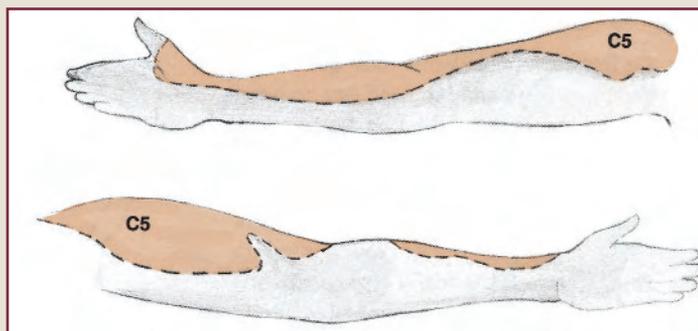
The injury is located where the pain is felt. The location of a client's pain is often misleading. In many cases, pain is "referred" from the source of injury to another part of the body. For example, pain felt only in the upper arm is often caused by an injured shoulder tendon,⁴ and pain felt around the scapula is often caused by a sprained neck ligament.⁵ Only certain areas of the body are significant sources of referred pain; these include the shoulders, neck, thorax, low back, sacrum, buttocks, and hip joints. The distal joints of the knee, foot, ankle, elbow, wrist, and hand do not refer pain any appreciable distance.

An in-depth understanding of referred pain is critical for pinpointing the exact location of an injury. Keep in mind these four principles:

- **Pain refers distally.** Referred pain from soft tissue injuries is usually felt distally (i.e., out toward the periphery of the body).⁶ For example, pain may be referred from the neck or shoulder down to the wrist, but not from the elbow or wrist up to the neck.

- **Referred pain does not cross the midline.** Pain never refers from the left side of the body to the right, or from the right side to the left.⁷ If a client experiences pain in the right shoulder that seems to travel to the left shoulder, that person actually has two injuries—one on each side.
- **Distance indicates severity.** The distance a pain refers is directly proportional to the severity of the injury.⁸ A mild shoulder injury may refer pain to the bottom of the deltoid muscle, while a severe one can refer all the way down to the wrist.
- **Referred pain follows the dermatomes.** An

injured structure will refer pain only to other areas within the same dermatome—i.e., tissues that arose from the same segment in embryological development.⁹ Various structures within the same dermatome can cause similar referred pain patterns. For example, pain referred to the arm from the shoulder is usually in a C5 der-



C5 dermatome distribution.

matome distribution (see illustration) and may be caused by damage to a rotator cuff tendon, shoulder joint, or bursa in the shoulder. The parts of the shoulder that are located within other dermatomes will cause different patterns of referred pain.

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Misconception Number Four

Pain caused by active movements gives a good indication of what structure is injured.

Orthopedic medicine differentiates between three main types of movement: resisted, passive, and active. For determining the location of an injury, tests of active movement provide the least reliable and least important information.

Resisted tests—*isometric contractions against resistance*—test for injury to structures that initiate movement (muscles and tendons). They also test for weakness, which may be caused by disc pressure on a nerve. Passive tests—in which the client behaves like a rag doll while

Three Varieties of Orthopedic Testing

In orthopedic assessment, passive and resisted tests provide more useful information than active tests. Below are photos of a single movement—side-flexion of the neck—performed in each of those three ways.



Active side-flexion of the neck.



Passive side-flexion of the neck.



Resisted side-flexion of the neck.

being moved by the therapist—test for injury to structures that do not initiate movement (ligaments, joints, and bursas). In active tests, the person moves her body through space by herself. This simultaneously tests both the structures that initiate movement and those that do not, making it difficult to tease out what is causing the pain.¹⁰

Misconception Number Five

The theory of trigger points can effectively explain the underlying causes of musculoskeletal pain. This final misconception is the most controversial one. The theory of trigger points, as articulated by Travell and Simons, is very cogent and influential, and yet it runs in direct contrast to Cyriax's principles of orthopedic medicine.

According to Travell and Simon's theory, a myofascial trigger point is a hyperirritable point on a muscle associated with a sensitive nodule in a band of myofascial tissue. Palpation of this spot produces pain, tenderness, motor dysfunction, and other symptoms within a target zone, which is usually (though not always) removed from the location of the trigger point. Referred pain and tenderness appear in particular classic patterns and sometimes cross the midline. The pain does not follow the dermatomes, and it can mimic the referred pain patterns of nerve root compression, zygapophyseal joints, and viscera.^{11, 12, 13, 14} (Note the contrast to the orthopedic principles of referred pain in orthopedic medicine, as outlined in Misconception Number Three.)

Adherents of this theory work to identify specific points on the body that produce pain when compressed, needled, etc. Signs used to confirm the presence of a trigger point include: a local twitch response; altered sensation in the target zone; painful limit to a full range of motion; EMG evidence of spontaneous electrical activity; pain when the muscle is contracted; weakness on muscle testing; damp skin in that area; rough skin in that area; and a "jump" sign on palpation. When a trigger point is located, recommended treatments may include trigger point pressure release, muscle energy techniques, positional release, spray and stretch techniques, wet or dry needling, injection, or a number of other options.^{15, 16}

Orthopedic medicine specialists take a very different perspective on the issue of trigger points and believe them to be secondary phenomena, subsidiary to the primary cause of pain. My own experience and my discussions with physicians who practice orthopedic medicine strongly support this view.

Consider the following example. If a person has significant referred pain down the leg as a result of sacroiliac ligament sprain (the primary injury), the leg will be experienced as very painful, even though there is no pathology in the leg. As a result of the referred pain in the leg, the person's leg muscles will react by contracting and constricting its fibers over time. This forms chronic,



Only time and further research will tell what is actually happening and which theories will stand the test of time and more scientific scrutiny.

localized contractions of muscle fiber or trigger point areas (a secondary phenomenon). When the primary source of the referred pain (the sacroiliac ligament sprain) is eliminated and a full range of motion is reestablished, the trigger areas usually disappear by themselves. In some cases these secondary trigger areas do not disappear, and must be eliminated by hands-on treatment. This is especially common in cases where the referred pain has been present for a long time. In my work with clients, I've found that when trigger areas are treated without treating the primary source of the pain, the relief is temporary and localized, and the pain quickly returns—usually within a few hours or days after the treatment. I have heard this scenario described by many therapists I have trained in orthopedic massage.

In the course of my ongoing practice and research of this phenomenon, I have tested hundreds of clients for trigger areas. In 95 percent of clients I see who have no pain problems at all, I can find hundreds of tense areas that cause pain under pressure. When I began my work in this field forty-four years ago, I believed muscle tension and trigger areas were the major causes of pain and injury, but my training in orthopedic medicine changed

my thinking. While accumulated muscle tension in the body makes it more likely that injury will occur, it usually does not constitute a significant injury in and of itself.

For some readers, this alternative understanding of the trigger point phenomenon may make perfect sense and reflect your experience with clients. For others it may seem like heresy and differ from your experience. Only time and further research will tell us what is actually happening and which theories will stand the test of time and more scientific scrutiny.

Expanding Your Knowledge

Practitioners in all therapeutic modalities are subject to certain biases in the way they approach assessment and treatment—and massage therapists are no exception. In 1979, the study of orthopedic medicine helped show me the limitations of my own ways of thinking. Here I've used the principles of orthopedic medicine to challenge what I see as five common misconceptions about pain and injury. I hope you will find this information useful in expanding your knowledge base and providing the best possible care to your clients. **M&B**

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Notes

1. Ludwig Ombregt, Pierre Bisschop, and Herman J ter Veer, *A System of Orthopaedic Medicine* (London:WB Saunders Company, 1995), 35.
2. *Ibid.*, 95.
3. *Ibid.*, 45.
4. James Cyriax, *Textbook of Orthopedic Medicine, Vol. 1* (London: Bailliere Tindall, 1984), 127.
5. Thomas A. Dorman and Thomas H. Ravin, *Diagnosis and Injection Techniques in Orthopedic Medicine* (Baltimore:Williams and Wilkins, 1991), 67.
6. Ombregt et al., 7, 14.
7. *Ibid.*, 15.
8. *Ibid.*, 17, 18.
9. *Ibid.*, 8.
10. *Ibid.*, 71.
11. Leon Chaitow and Judith Walker DeLany, *Clinical Application of Neuromuscular Techniques, Vol. 1: The Upper Body* (Edinburgh: Churchill Livingstone, 2000).
12. Leon Chaitow and Judith Walker DeLany, *Clinical Application of Neuromuscular Techniques, Vol. 2: The Lower Body* (Edinburgh: Churchill Livingstone, 2002).
13. David G. Simons, Janet G. Travell, and Lois S. Simons, *Myofascial Pain and Dysfunction: The Trigger Point Manual, Vol. 1: The Upper Half of Body (2nd ed.)* (Baltimore:Williams and Wilkins, 1999).
14. Janet G. Travell and David G. Simons, *Myofascial Pain and Dysfunction: The Trigger Point Manual, Vol. 2: The Lower Extremities* (Baltimore:Williams and Wilkins, 1992).
15. Chaitow and Walker DeLany, 2000; Chaitow and Judith Walker DeLany, 2002; Simons et al., 1999; Travell and David G. Simons, 1992.
16. The two previous paragraphs are adapted from Leon Chaitow and Judith Walker DeLany, *Clinical Application of Neuromuscular Techniques, Vol. 1: The Upper Body* (Edinburgh: Churchill Livingstone, 2000).

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