

# Trigger Points

*(See some helpful diagrams for common Trigger Point patterns at the end of the article.)*

## Definition/Description

### What is a Trigger point?

A Trigger Point (TrP) is a hyper-irritable spot, a palpable nodule in the taut bands of the skeletal muscles' fascia. Direct compression or muscle contraction can elicit a local tenderness, local twitch response and referred pain, which usually responds with a pain pattern distant from the spot. See the patterns below for some of the more common Trigger Points (the X is where the pathology is usually located, the Red areas are the usual areas where people get pain and in some cases autonomic phenomena.

### WHY ARE TRIGGER POINTS IMPORTANT?

In my experience, Acupuncture and/or Injection Therapy can be immensely helpful for pain due to Trigger Points. When the diagnosis of Trigger Point pathology is made (and is correct) the success rate for combined intervention of Acupuncture, Shiatsu/Tui Na, Injection therapy and home stretching programs, is 95% or more. While other ailments the success rate of acupuncture may be 80/20 or 60/40, etc., either way, if a Trigger Point diagnosis is correctly made and the above procedures are taken the success rate is incredibly high, like closer to 95% success rate.

**But “I don’t like needles.”** Once the diagnosis is made the home stretching program as well as non-invasive approaches are often helpful. In some cases stretching alone (along with lifestyle revisions) will be enough to resolve the trigger point(s).

### FREQUENCY OF OCCURRENCE...

Among 200 unselected, asymptomatic young adults found focal tenderness representing **latent** Trigger Points in the shoulder-girdle muscles of 54% of the female and 45% of the male subjects... **Referred pain** was demonstrated in 25% of these subjects with latent Trigger Points.

**IMPORTANCE:** Voluntary (skeletal) muscle is the largest single-organ of the human body and accounts for nearly 50% of body weight...

(There are) about 200 paired muscles, or a total of 400 muscles...

Yet the muscles in general and Trigger Points in particular receive little attention as a major source of pain and dysfunction in modern medical textbooks...

**SEVERITY** – the severity of symptoms caused by myofascial Trigger Points ranges from the agonizing incapacitating pain caused by very active Trigger Points to the painless restriction of movement and distortion of posture due to latent Trigger Points that are so commonly overlooked...

Patients who have had other kinds of severe pain, such as that due to a heart attack, broken bones, or renal colic say that myofascial Trigger Points can be just as severe...

**Trigger Points are not directly life threatening but their painfulness can ... devastate the quality of life....**

**ONSET** – the activation of Trigger Points is usually associated with some degree of mechanical abuse of the muscle in the form of muscle overload, which may be acute, sustained, and/or repetitive. In addition, leaving the muscle in shortened position can convert a latent Trigger Point to an active Trigger Point and this process is greatly aggravated if the muscle is contracted while in the shortened position. In paraspinal (and very likely other) muscles, a degree of nerve compression that causes identifiable neuropathic electromyographic changes is associated with an increase in the numbers of active Trigger Points.

**Trigger Points can be activated directly by acute overload, overwork fatigue, direct impact trauma, and by radiculopathy.**

**Trigger Points can be activated indirectly by other existing Trigger Points, visceral disease, arthritic joints, joint dysfunctions, , and by emotional distress.** Satellite Trigger Points are prone to develop in muscles that lie within the pain reference zone of key myofascial, or within the zone of pain referred from a diseased viscus, such as the pain of a myocardial infarction, peptic ulcer, cholelithiasis, or renal colic. A perpetuating factor (see chapter 4 of Travell and Simon's Trigger Point Manuals) increases the likelihood of overload stress converting a latent Trigger Point to an active Trigger Point.

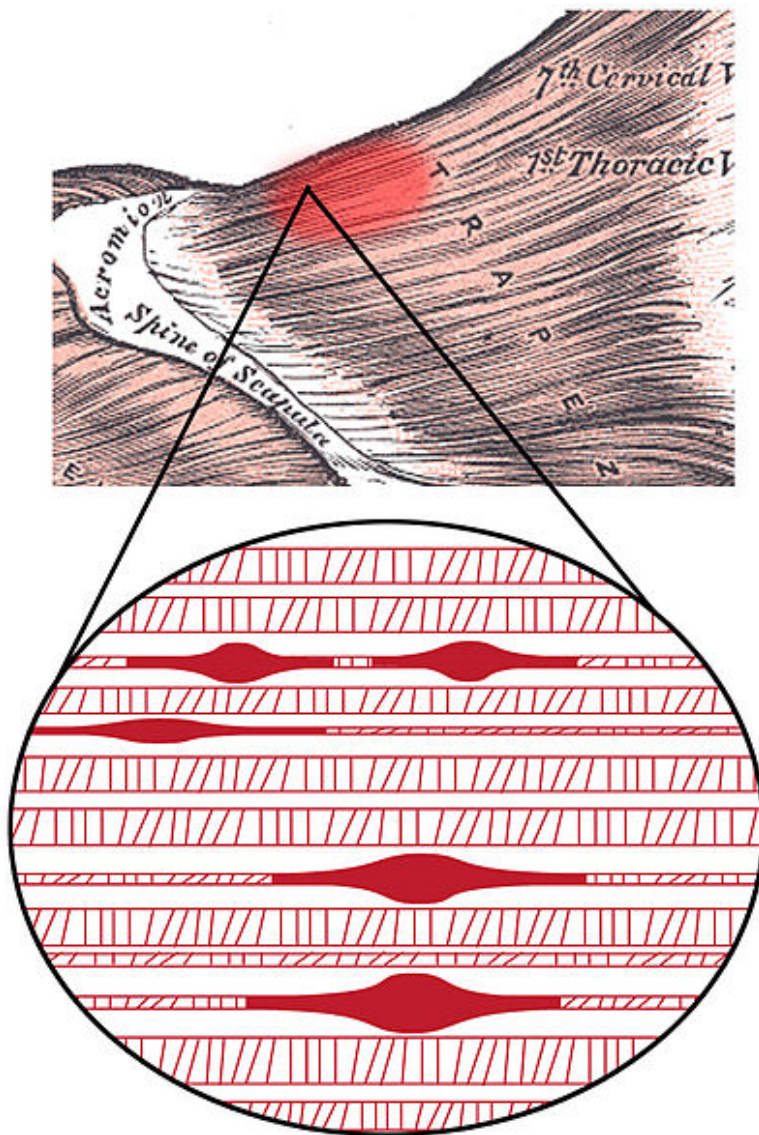
**The intensity and extent of the referred pain pattern depends on the degree of irritability of the Trigger Point, not on the size of the muscle. Myofascial Trigger Points in small, obscure, or variable muscles can be as troublesome to the patient as Trigger Points in large familiar muscles.**

#### **4 Cardinal Features of Trigger Points:**

- 1) A palpable nodular or band-like hardness in the muscle
- 2) A highly localized spot of extreme tenderness in that band
- 3) Reproduction of the patient's distant pain complaint by digital pressure on that spot...
- 4) Relief of the pain by massage or injection of the tender spot...

**Perpetuating Factors are also “pre-disposing factors”, if they are present they need to be addressed to fully eliminate the Trigger Point. These can include:**

1. Mechanical Stress (Structural Inadequacies, Postural Stresses, Constriction of Muscles)
2. Nutritional Inadequacies (Specifically Vitamin B1, B6, B12, Folic Acid, Ascorbic Acid, Dietary minerals and trace elements)
3. Metabolic and Endocrine Inadequacies
4. Psychological Factors
5. Chronic Infection and Infestations
6. Allergic Rhinitis
7. Impaired Sleep
8. Nerve Impingement 1,2



### Trigger point in trapezius muscle[24]

A **Trigger Point (TrP)** is a hyperirritable spot, a palpable nodule in the taut bands of the skeletal muscles' fascia. Direct compression or muscle contraction can elicit jump sign, local tenderness, local twitch response and referred pain which usually responds with a pain pattern distant from the spot.

A **“Jump sign”** is the characteristic behavioral response to pressure on a TrP. Individuals are frequently startled by the intense pain. They wince or cry out with a response seemingly out of proportion to the amount of pressure exerted by the examining fingers. They move involuntarily, jerking the shoulder, head, or some other part of the body not being palpated. A jump sign thus reflects the extreme tenderness of a TrP. This sign has been considered pathognomonic for the presence of TrPs.

**Local twitch response (LTR)** - defined as a transient visible or palpable contraction of the muscle and skin as the tense muscle fibers contract when pressure is applied. Caused by needle penetration or by transverse snapping palpation. Referred pain, also called reflective pain, is pain perceived at a location other than the site of the painful stimulus. Pain is reproducible and does not follow dermatomes, myotomes, or nerve roots. There is no specific joint swelling or neurological deficits. Pain from a myofascial TrP is a

distinct, discrete and constant pattern or map of pain with no gender or racial differences able to reproduce symptoms - referred pain map.

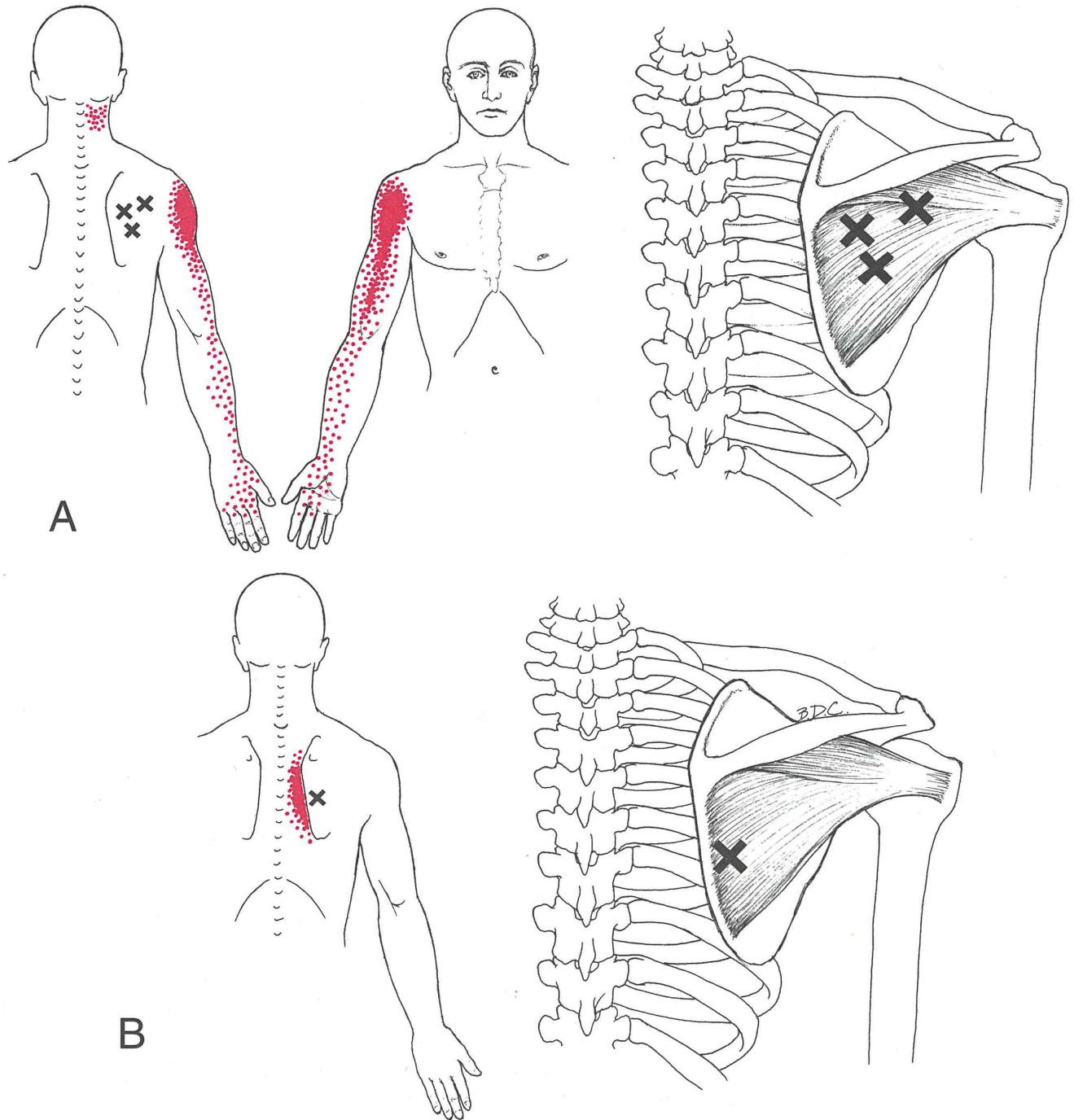
**Anatomy** – Radioactive Isotope Studies show that Skeletal TrPs are muscle cells that are “injured”, they have been shown to have impaired circulation (Every cell in the body needs to have both nutrients and oxygen imported into the cells as well as a mechanism for waste products to leave the cell), cells with Trigger Points have been shown through Radioactive Isotope studies to have a breakdown of this fundamental circulation. In Chinese medicine for a very long time parts of the body that have Qi or Blood stasis tend to be painful to the touch. Some have written that they believe that the Chinese discovered Trigger Points.

**Etiology** – the two most common ways to set off/irritate a TrP are shortening and over using a muscle with a TrP. Shortening, for example, say you ride in the back of a VW with your knees pulled up in a shortened position and you go from LA to NYC with very few breaks, when you get out at your destination you will find it hard to move because of TrPs. An example of Overuse most can relate to is say you are picking up your luggage from an airport luggage turnstile and your bag is in 3 deep and you overload your shoulder thinking that you can pick up the bag this way without consequence. Of course there are also Repetitive Motion Injuries that involve Trigger points, etc. Making the correct diagnosis for Trigger Point patterns is key; if the correct diagnosis is made then the appropriate stretching and lifestyle changes can be made. Trigger Points can be the root of other problems as well, such as in “Piriformis Syndrome”, where the tightening of the Piriformis muscle impedes the Sciatic Nerve and can create a form of Sciatica that is muscular in origin.

**See the other diagrams for common Trigger Point patterns.**

NOTES:

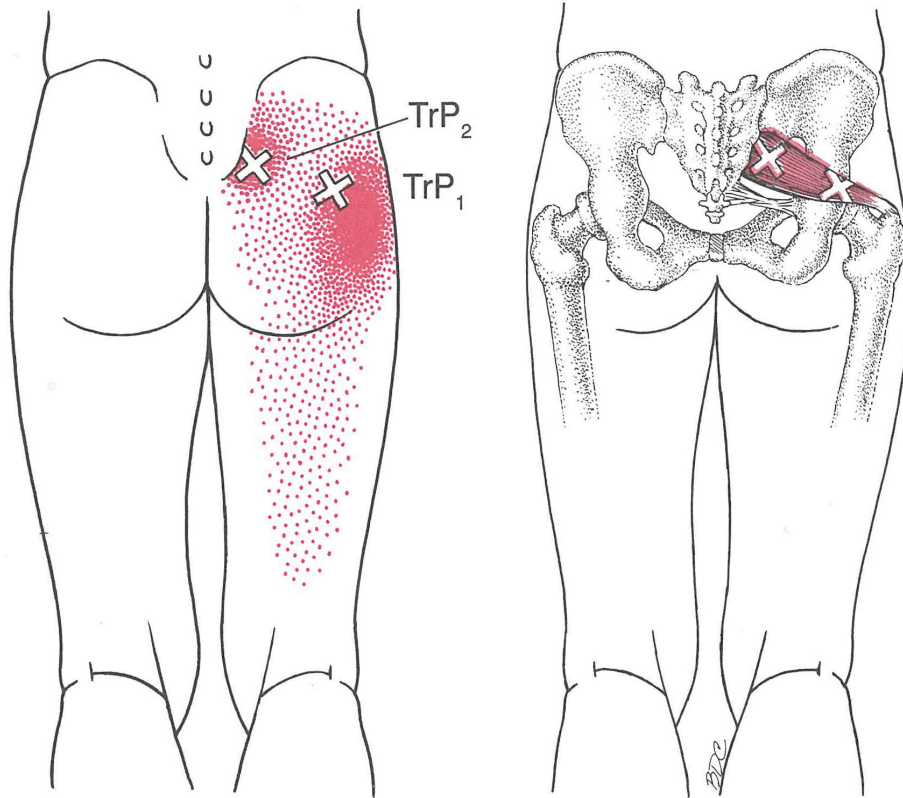
1. Simons DG, Travell JG, Simons LS. Travell & Simons' myofascial pain and dysfunction: upper half of body. Lippincott Williams & Wilkins; 1999.[\[1\]](#)[\[2\]](#)
2. Alvarez DJ, Rockwell PG. Trigger points: diagnosis and management. American family physician. 2002 Feb 15;65(4):653-62.[\[3\]](#)
3. Davidoff RA. Trigger points and myofascial pain: toward understanding how they affect headaches. Cephalalgia. 1998 Sep 1;18(7):436-48.[\[4\]](#)
4. Eduardo Vázquez Delgad, et al. Myofascial pain syndrome associated with trigger points: A literature review. (I): Epidemiology, clinical treatment and etiopathogeny Med Oral Patol Oral Cir Bucal. 2009 Oct 1;14 (10):494-498.[\[5\]](#)



**Figure 22.1.** Referred pain patterns (*red*), and location of corresponding trigger points (**Xs**) in the right infraspinatus muscle. *Solid red* shows essential referred pain zones, *stippled red* areas show spillover zones.

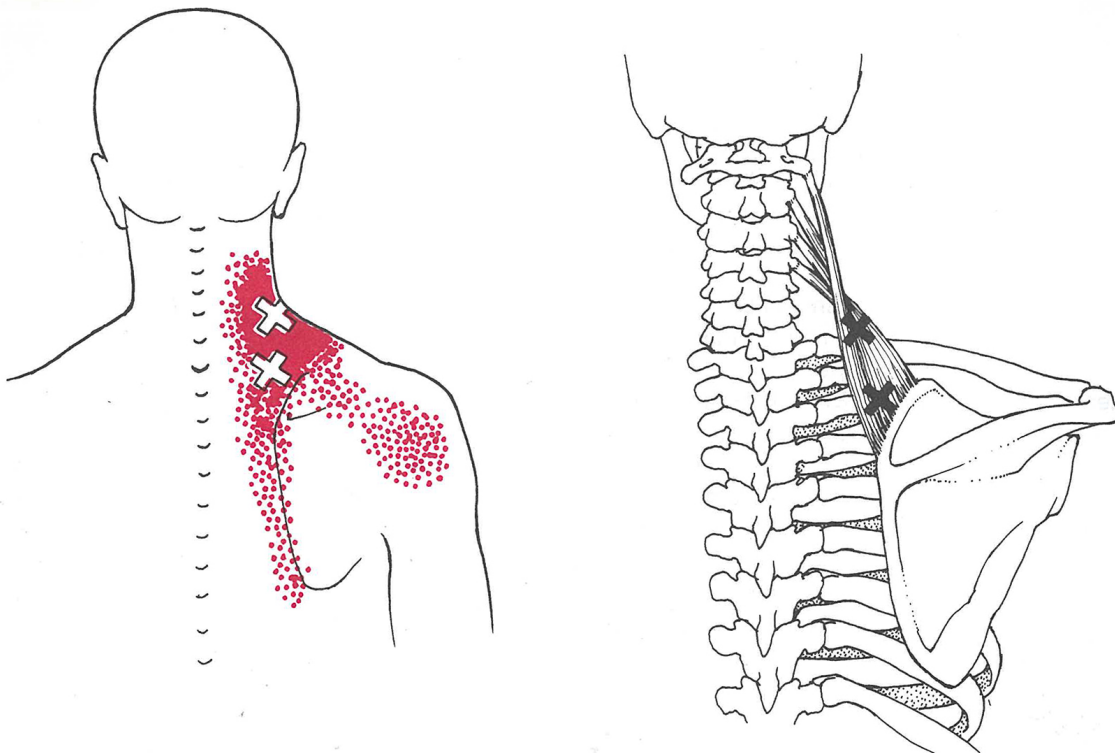
**A,** three common locations of trigger points. **B,** location of tenderness at a trigger area in the region of the musculotendinous junction and the corresponding referred pain pattern.





**Figure 10.1.** Composite pattern of pain (*bright red*) referred from trigger points (TrPs) (*Xs*) in the right piriformis muscle (*darker red*). The lateral *X* (TrP<sub>1</sub>) indicates the most common TrP location. The *red stip-*

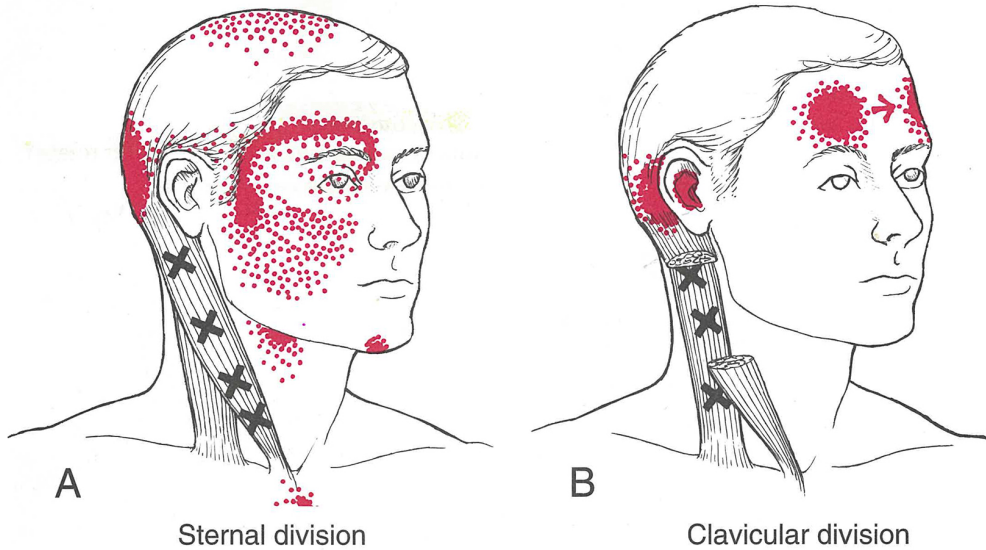
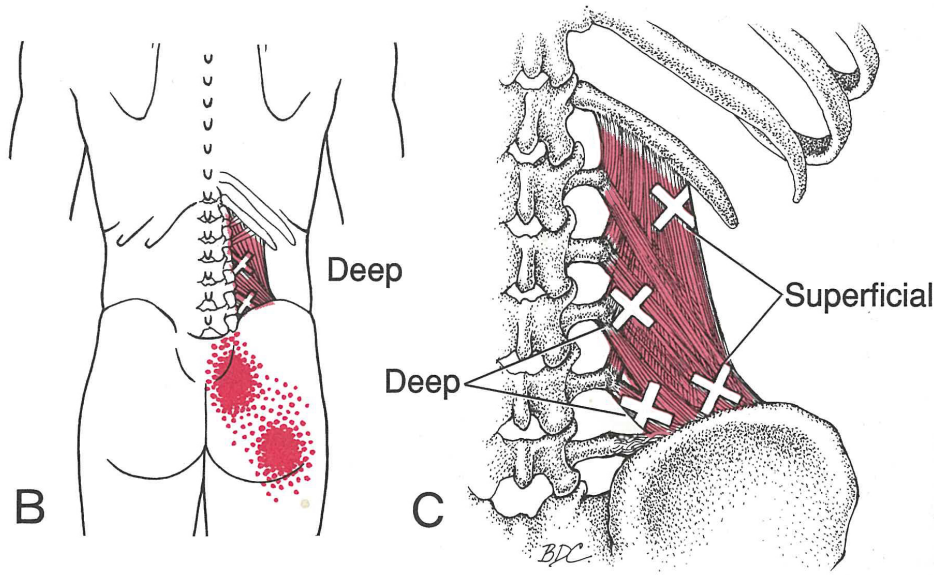
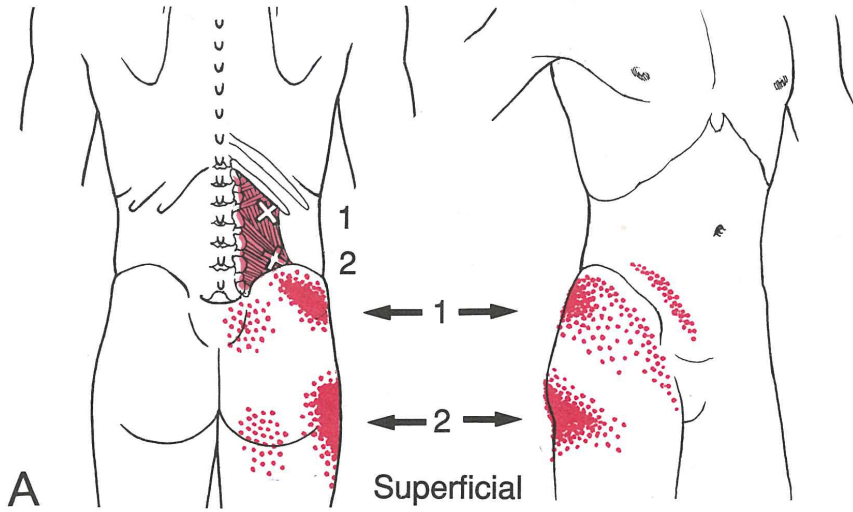
*pling* locates the spillover part of the pattern that may be felt as less intense pain than that of the essential pattern (*solid red*). Spillover pain may be absent.



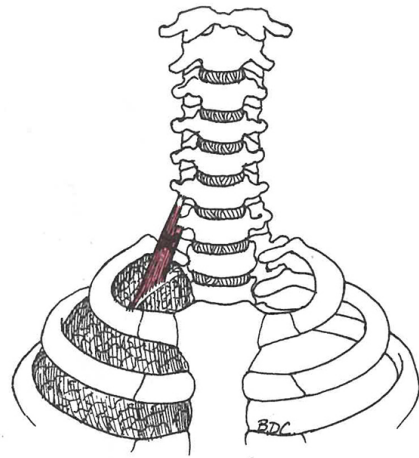
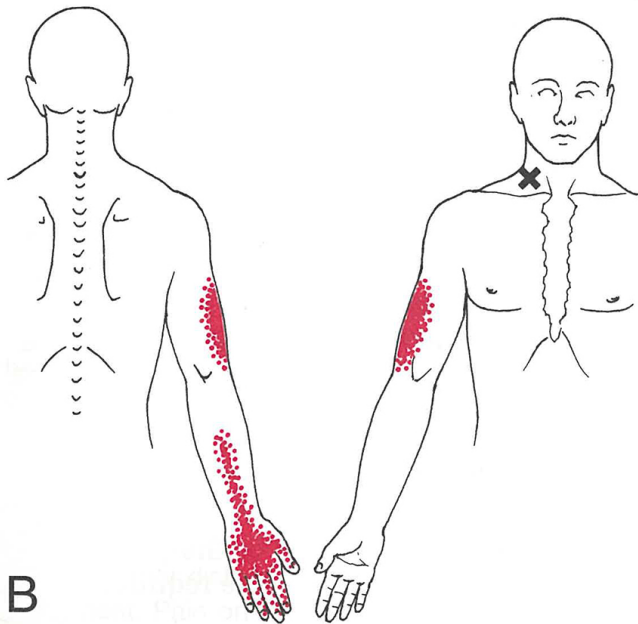
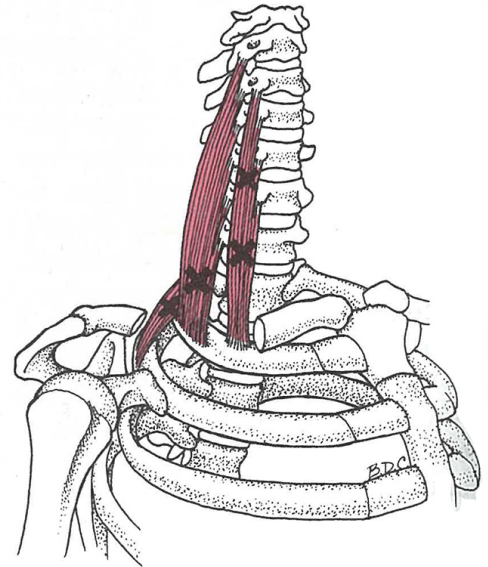
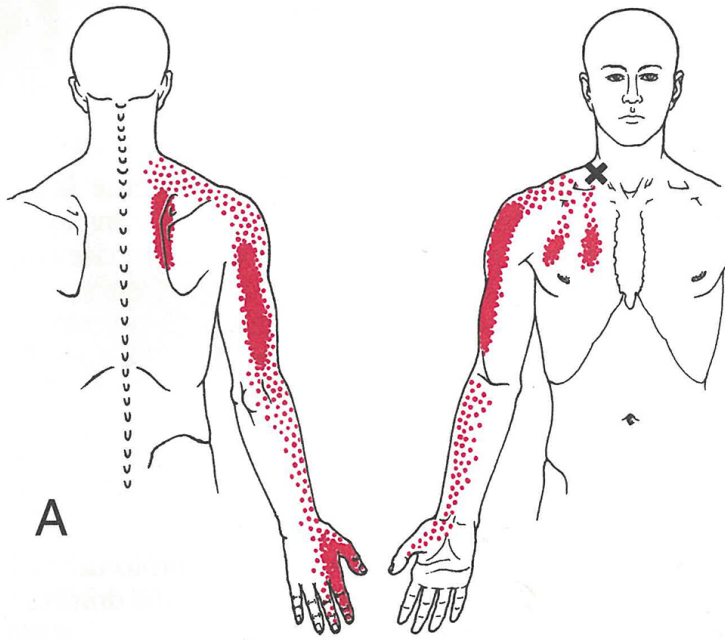
**Figure 19.1.** Consolidated referred pain pattern for trigger point regions (*Xs*) of the right levator scapulae muscle. The essential pain pattern is *solid red*, and the spillover pattern is *stippled red*. The upper *X* locates TrPs in the midportion of the muscle (often over-

looked). The lower *X* locates the much more obvious trigger area tenderness commonly found near the region of the muscle's scapular attachment, which often is enthesopathy secondary to taut band tension associated with the TrPs.

# Quadratus lumborum



**Figure 7.1.** Referred pain patterns (*solid red* shows essential zones and *stippling* shows the spillover areas) with location of common trigger points (Xs) in the right sterno-cleidomastoid muscle. **A**, the sternal (more anterior and more superficial) division. **B**, the clavicular (more posterior and deeper) division.



**Figure 20.1.** Composite pain patterns (*solid red* areas are the essential pain reference zones, and *stippled red* areas are the spillover reference zones) with location of some trigger points (Xs) in the right scalene

muscles (*medium red*). **A**, scalenus anterior, medius, and posterior. Some trigger points may have only one essential reference zone. **B**, scalenus minimus.