

## Chapter 7

# Outcome based massage



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### INTRODUCTION

The information up to this point has involved both theory and methodology specifically focused to understanding, assessing, determining appropriateness of treatment and finally developing massage treatment approaches for low back pain.

This chapter specifically concerns the integration of theory, assessment and treatment of low back pain into general massage application and will not repeat assessment and treatment recommendations.

The focus of this chapter is to describe ways of incorporating the information and skills outlined in previous chapters into a massage session, so that the essence of the full body massage experience remains and is enhanced by the ability to specifically address low back dysfunction in the context of massage. Massage can provide an integrated approach for treatment of low back pain addressing many of the major factors already discussed.

When massage is used to address a specific problem or set of symptoms it is considered outcome based massage. *Outcome based massage* relies on results instead of methods and modalities. Various massage methods can be combined to achieve outcomes. For example, if a massage therapist is working with a multidisciplinary healthcare team to treat low back problems, outcome based instructions to the massage therapist might include suggestions such as:

- increase lumbo-dorsal fascia pliability
- lengthen shortened hamstrings
- address trigger point referred pain from the psoas muscle
- reduce sympathetic arousal.

The instructions are unlikely to be: 'apply Swedish massage with reflexology and energy based modalities'.

While the difference between massage modalities and massage based on outcome goals may seem simple, this is actually a major paradigm shift that the massage community continues to grapple with. Approaching therapeutic massage to address low back pain needs to be outcome based, since different massage modalities can be used alone, or in combination, and with other methods to achieve a positive change for those experiencing back pain and stiffness.

To be proficient in outcome based massage it is necessary to be skilled in evaluation and clinical reasoning in order to develop appropriate treatment plans. The information in previous chapters provides the foundation upon which the massage therapist can make appropriate treatment plan decisions in the context of treating back pain problems.

It is possible to include much of the assessment process into a general full body massage session. In fact it is desirable to consider the first few massage sessions as assessment. Then, based on assessment information gathered during massage sessions, coupled with other information from a comprehensive history, tests performed outside the context of massage, together with information from other professionals involved with the patient, a specific treatment plan can be developed to achieve the outcome goals.

Because most people have preconceived ideas about what a massage should be (relaxing, passive, general)

it becomes important to incorporate both assessment and treatment into the massage in such a way that the generalized full body experience of the massage is not compromised. People enjoy massage because it feels good, and is a nurturing integrated experience. This major strength of massage needs to be preserved, not replaced. General non-specific full body massage, based on the outcomes of decreased sympathetic arousal and maladaptive stress response, tactile pleasure sensation and nurturing, is effective in the treatment of low back symptoms even if nothing else is done (Yates 2004). It is prudent to preserve these qualities and benefits of massage when addressing specific conditions such as low back dysfunction.

The massage therapist can increase the effectiveness of massage treatment by becoming more skilled in how to target a specific outcome, such as reducing pain and stiffness in the low back. This is accomplished by incorporating assessment skills and targeted treatment methods based on that assessment information into the full body massage session. Targeted treatment such as for deactivation of trigger points can feel intense and/or uncomfortable. These methods are often better accepted and integrated by the patient when 'wrapped' in the pleasure and nurturing experience of a general massage session. Since low back problems are so common and massage has been shown to be beneficial (see Ch. 1), the massage therapist needs to be skilled in this area.

The low back pain and dysfunction targeted in this text is non-specific, mechanical. It is typically a cumulative response to many different factors such as: postural distortion, a combination of short soft tissue and long weak muscles or lax ligaments, various types of joint dysfunction especially instability, generalized stress and breathing dysfunction, repetitive strain, lack of movement, and so on.

Based on many years of professional experience, client populations that typically seek massage are often prone to back ache. These populations include athletes, and anyone who works in the sport massage area needs to understand the predisposing factors, assessment and treatment of low back pain. Those involved with rehabilitation exercise for cardiovascular conditions or weight management, or in physical therapy receiving care for a variety of physical injuries can develop secondary muscular back pain from the stress and altered movement of the exercises (Wieting et al 2005).

It is logical that individuals undergoing medical procedures such as surgery may develop back pain secondary to the positioning required to perform the procedure, extended bed rest, reduced physical activity, anxiety and other predisposing factors (see Ch. 1 for

more on these issues). Back pain is a major treatment concern in healthcare in many populations and includes 'growing pains' in children and adolescents, postural distortion during pregnancy, postural strain from obesity, and muscle pain as part of osteoporosis and other conditions related to aging (Yates 2004).

Management of low back pain and improvement in function requires life-style changes on the part of the client/patient and compliance with various treatment protocols. Unfortunately, many people are not diligent when it comes to implementing these changes. For these individuals low back pain can frequently be symptomatically managed with massage. This means that the massage outcome goal is pain management, more so than targeting a change in the factors causing the condition. And just as pain medication will wear off, so will the effects of massage, so it may need to be more frequent in order to maintain symptom management.

Massage may actually be the treatment of choice for those people who will not be compliant with a multi-disciplinary care plan for low back dysfunction. Based on the assumption that they are not going to make behavioral changes, or do the necessary exercises, massage can replace – to some extent – the activities necessary to maintain pliability and flexibility in shortened soft tissue structures as well as reducing generalized stress. People can become discouraged, which increases the tendency to be non-compliant with self-treatment protocols. A massage twice a week can often manage the pain and dysfunction in these people by moving fluids, lengthening short structures, stimulating internal pain modulating mechanisms, and by reducing generalized motor tone by decreasing sympathetic autonomic nervous system activity, as well as by providing pleasurable relaxation experiences.

The goal is not to 'fix' the back pain but to both mask it and superimpose short-term beneficial changes in the tissue. If these patients were treated with medication they would take muscle relaxants, some sort of analgesic and anti-inflammatory, and possibly mood modulating drugs. All of these medications have potentially serious side-effects with long-term use, making them undesirable in the management of chronic back pain. Massage may accomplish similar results to those achieved by medication, if applied frequently and consistently, and without the side-effect problem. Massage can replace or help reduce the dose of various medications, and it can be used indefinitely to treat the symptoms of chronic back dysfunction. Massage has few if any side-effects, is cost effective, produces at least short-term benefits and since people typically enjoy massage they tend to be compliant about attending sessions (Fritz 2004). This

situation is not ideal but it is not the worst-case situation either, and it is possible that eventually the patient/client will reach a point in their life when they are able and willing to be more responsible for the life-style and attitude changes necessary to manage chronic back pain and dysfunction.

## DESCRIBING MASSAGE

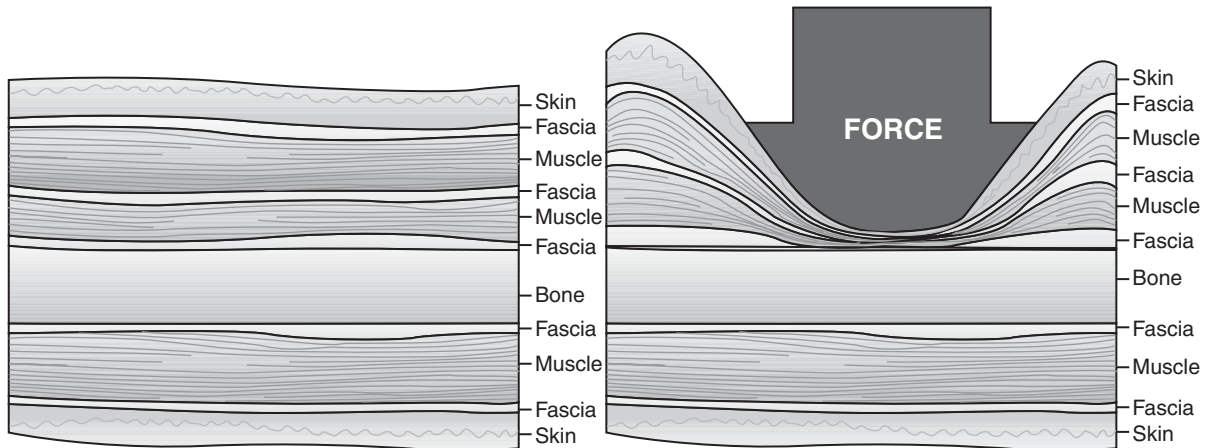
There is an evolution taking place in massage. The shift from a modality focus (examples: Swedish massage, reflexology, deep tissue massage, Amma, Lomi Lomi), to an outcome focus requires a change in terminology and how massage application is described. One definition of massage is that it represents the manual manipulation of the soft tissues. Soft tissue manipulations create various mechanical forces which cause shifts in the form and function of the body. The physiological responses of the body to massage are not specific to the modality used, but to what is described as qualities of touch.

### Qualities of touch

Massage application involves touching the body to manipulate the soft tissue, influence body fluid movement and stimulate neuroendocrine responses. How the physical contact is applied is considered by the qualities of touch. Based on information from massage pioneer Gertrude Beard and current trends in therapeutic massage, the massage application can be described as follows (De Domenico & Wood 1997).

### Depth of pressure

- Depth of pressure (Fig. 7.1) (compressive force) which is extremely important can be light, moderate, deep, or variable
- Most soft tissue areas of the body consist of three to five layers of tissue, including: the skin; the superficial fascia; the superficial, middle, and deep layers of muscle; and the various fascial sheaths and connective tissue structures
- Pressure should be delivered through each successive layer to reach the deeper layers without damage and discomfort to the more superficial tissues
- The deeper the pressure, the broader the base of contact required on the surface of the body
- It takes more pressure to address thick, dense tissue than delicate, thin tissue
- Depth of pressure is important for both assessment and treatment of soft tissue dysfunctions
- Soft tissue dysfunction can form in all layers of tissue



**Figure 7.1** Compressive force. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)

- In order to treat various changes in soft tissue (such as a trigger point), it is necessary to be able to apply the correct level of pressure to both reach the location of the point and compress the tissue to alter flow of circulation
- Soft tissue dysfunctions located in surface tissue require less depth of pressure than those located in deeper muscle layers.

### Drag

- Drag (Fig. 7.2) describes the amount of pull (stretch) on the tissue (tensile force)
- Drag is applicable for various types of palpation assessment for soft tissue dysfunctions, including skin drag assessment and functional technique used to identify areas of ease and bind
- *Ease* is identified when tissue moves freely and easily while *bind* is where tissue palpates as stuck, leathery or thick
- Drag is also a component of connective tissue methods used to treat soft tissue dysfunctions and lymphatic drainage methods.

### Direction

- Direction can move from the center of the body out (centrifugal) or in from the extremities towards the center of the body (centripetal)
- Direction can proceed from proximal to distal (or vice versa) of the muscle, following the muscle fibers, transverse to the tissue fibers, or in circular motions
- Direction is a factor in stretching tissues containing soft tissue dysfunctions or in the methods that influence blood and lymphatic fluid movement.

### Speed

- Speed is the rate at which massage methods are applied
- The speed can be fast, slow, or variable depending on the demands of the tissues being addressed and the state of the client/patient (faster more energizing in situations where stimulation is called for, slower and more rhythmic where calming influences are needed).

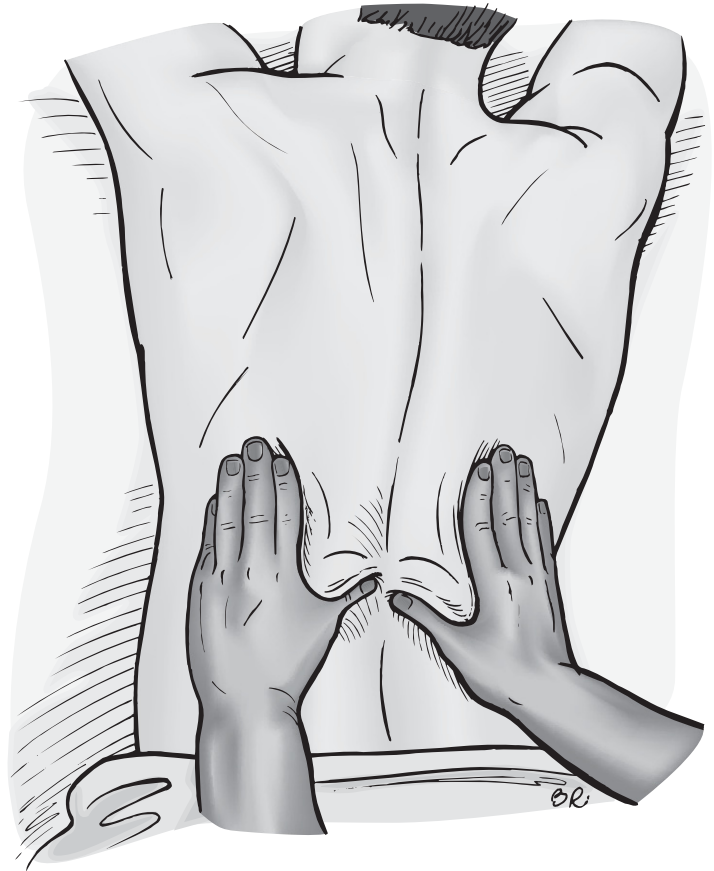
### Rhythm

- Rhythm refers to the regularity of application of the technique
- If the method is applied at regular intervals, it is considered even, or rhythmic
- If the method is disjointed or irregular, it is considered uneven, or arrhythmic
- The on/off aspect of compression applied to a trigger point to encourage circulation to the area should be rhythmic, as should lymphatic drainage application
- Jostling and shaking can be rhythmic or arrhythmic.

### Frequency

- Frequency is the rate at which the method is repeated in a given time-frame
- This aspect of massage relates to how often the treatment, such as ischemic compression or gliding, is performed
- In general, the massage practitioner repeats each method about three times before moving or switching to a different approach

**Figure 7.2** Drag. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)



- The first application can be considered as assessment, the second as treatment, and the third as post assessment
- If the post assessment indicates remaining dysfunction, then the frequency is increased to repeat the treatment/post assessment application.

### Duration

- Duration is the length of time that the method lasts, or that the manipulation stays focused on the same location
- Typically, duration of a specific method is approximately 60 s, although functional methods that position the tissue or joint in the ease (the way it wants to move) or bind (the way it does not want to move) can be an exception and may need to be applied for longer periods
- Duration relates to how long compression is applied to soft tissue areas of dysfunction, or how long a stretch is held.

The following example demonstrates how some of these qualities can be used to describe a massage modality. Myofascial/connective tissue methods (Fig. 7.3) may be indicated in the management and treatment of low back pain.

Massage used to influence superficial fascia can be explained as follows: light pressure, with sustained drag, to create tension forces, stretching the tissues just past their end of range barriers (bind) in multiple directions, for a duration of 60 s and repeated three times.

### DELIVERY OF MASSAGE

- Through these varied qualities of touch, delivery of massage methods can be adapted to achieve the outcomes best suited to meet the needs of the client
- The mode of application (e.g. gliding/effleurage, kneading/pétrissage, compression) provides the most efficient way to apply the methods
- Each method can be varied, depending on the desired outcome, by adjusting depth, drag, direction, speed, rhythm, frequency and duration



**Figure 7.3** Application of myofascial/connective tissue methods demonstrating drag and tension force. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- In perfecting massage application, the quality of touch is as important as the method
- Quality of touch is altered when there is a contraindication or caution for massage
- For example, when a person is fatigued, the duration of the application should be reduced; if a client has a fragile bone structure, the depth of pressure should be altered.

### Components of massage methods

- All massage methods introduce forces into the soft tissues
- These forces stimulate various physiologic responses
- Some massage applications are more mechanical than others
- Connective tissue and fluid dynamics are most affected by mechanical force.

Connective tissue is influenced by mechanical forces by changing its pliability, orientation and length (Yahia et al 1993).

- The movement of fluids in the body is a mechanical process, for example the mechanical pumping of the heart
- Forces applied to the body mimic various pumping mechanisms of the heart, arteries, veins, lymphatics, muscles, respiratory system and digestive tract (Lederman 1997)
- Neuroendocrine stimulation occurs when forces are applied during massage that generate various shifts in physiology (NCCAM 2004)
- Massage causes the release of vasodilators, substances that then increase circulation in an area

- Massage stimulates the relaxation response reducing sympathetic autonomic nervous system dominance (Freeman & Lawlis 2001)
- Forces applied during massage stimulate proprioceptors which alter motor tone in muscles (Lederman 1997)
- Typically these two responses to massage (fluid dynamics and neuroendocrine) occur together, although the intent of the massage application can target one response more than the other.

### Different forces

It is helpful to identify the different types of mechanical forces and to understand the ways in which mechanical forces applied during massage act therapeutically on the body. The forces created by massage are tension loading, compression loading, bending loading, shear loading, rotation or torsion loading and combined loading. How these forces are applied during massage becomes the mode of application.

The historical terms used to describe these forces are effleurage, pétrissage, tapotement and so forth. These terms are gradually being replaced with the terms gliding, kneading, percussion and oscillation. When force is applied to the tissue through the mode of application, this is called loading. The various forces listed above are outlined in more detail below (also see Figs 7.4 and 7.5).

### Tension loading (Fig. 7.4B)

- Tension forces (also called tensile force) occur when two ends of a structure are pulled apart from one another
- Tension force is created by methods such as traction, longitudinal stretching, and stroking with tissue drag
- Tissues elongate under tension loading with the intent of lengthening shortened tissues
- Tension loading is also effective in moving body fluids
- Tension force is used during massage with applications that drag, glide, lengthen and stretch tissue to elongate connective tissues and lengthen short muscles
- Gliding and stretching make the most use of tension loading
- The distinguishing characteristic of gliding strokes, is that they are applied horizontally in relation to the tissues, generating a tensile force
- When applying gliding strokes, light pressure remains on the skin
- Moderate pressure extends through the subcutaneous layer of the skin to reach muscle tissue but

not so deep as to compress the tissue against the underlying bony structure

- Moderate to heavy pressure that puts sufficient drag on the tissue mechanically affects the connective tissue and the proprioceptors (spindle cells and Golgi tendon organs) found in the muscle
- Heavy pressure produces a distinctive compressive force of the soft tissue against the underlying or adjacent bone
- Strokes that use moderate pressure from the fingers and toes towards the heart, following the muscle fiber direction, are excellent for mechanical and reflexive stimulation of blood flow, particularly venous return and lymphatics
- Light to moderate pressure with short, repetitive gliding following the patterns for the lymph vessels, is the basis for manual lymph drainage.

*Note:* The traditional term *effleurage* describes a gliding stroke.

### **Compression loading (Fig. 7.4A)**

- Compressive forces occur when two structures are pressed together
- Compression moves down into the tissues, with varying depths of pressure adding bending and compressive forces
- Compressive force is a component of massage application that is described as depth of pressure
- The manipulations of compression usually penetrate the subcutaneous layer, whereas in the resting position they stay on the skin surface
- Excess compressive force will rupture or tear muscle tissue, causing bruising and connective tissue damage. This is a concern when pressure is applied to deeper layers of tissue
- To avoid tissue damage, the massage therapist must distribute the compressive force of massage over a broad contact area on the body. Therefore, the more compressive the force being used to either assess or treat the tissue, the broader the base of contact with the tissue should be, to prevent injury
- Compressive force is used therapeutically to affect circulation, nerve stimulation, and connective tissue pliability
- Compression is effective as a rhythmic pump-like method to facilitate fluid dynamics. Tissue will shorten and widen increasing the pressure within the tissue and affecting fluid flow
- Compression is an excellent method for enhancing circulation
- The pressure against the capillary beds changes the pressure inside the vessels and encourages fluid exchange

- Compression appropriately applied to arteries allows back pressure to build, and when the compression is released, it encourages increased arterial flow
- Much of the effect of compression results from pressing tissue against the underlying bone, causing it to spread
- Sustained compression will result in more pliable connective tissue structures and is effective in reducing tissue density and binding
- Compression loading is a main method of trigger point treatment.

### **Bending loading (Fig. 7.4C)**

- Bending forces are a combination of compression and tension
- One side of a structure is exposed to compressive forces while the other side is exposed to tensile forces
- Bending occurs during many massage applications
- Pressure is applied to the tissue, or force is applied across the fiber or across the direction of the muscles, tendons or ligaments, and fascial sheaths
- Bending forces are excellent for direct stretching of tissue
- Bending force is very effective in increasing connective tissue pliability and affecting proprioceptors in the tendons and belly of the muscles
- A variation of the application of bending force is skin rolling
- Applying deep bending forces attempts to lift the muscular component away from the bone but skin rolling lifts only the skin from the underlying muscle layer
- It has a warming and softening effect on the superficial fascia, causes reflexive stimulation of the spinal nerves, and is an excellent assessment method for trigger points
- Areas of 'stuck' skin often suggest underlying problems (see Ch. 6).

### **Shear loading (Fig. 7.4D)**

- Shear forces move tissue back and forth creating a combined pattern of compression and elongation of tissue
- Shearing is a sliding force
- The massage method called friction uses shear force to generate physiological change by increasing connective tissue pliability and to insure that tissue layers slide over one another instead of adhering to underlying layers, creating bind
- Application of friction also provides pain reduction through the mechanisms of counter-irritation and hyperstimulation analgesia (Yates 2004)

- Friction prevents and breaks up local adhesions in connective tissue, especially over tendons, ligaments and scars (Gehlsen et al 1999).

All of these outcomes of applying shear force during massage can address various factors influencing low back pain.

For example, hamstring muscles can adhere to each other or develop local areas of fibrosis from micro-trauma injury. The result is short, inflexible muscles that can be a contributing factor in low back dysfunction. The lumbodorsal fascia can develop fibrotic areas that cause a decrease in pliability and a shortening of the structure, which can be a contributing factor in low back pain.

Trigger point referred pain patterns are aspects of back pain symptoms and the tissues surrounding trigger points that have been in place a long time may be fibrotic.

Friction is beneficial in these situations as properly applied shear force loading of the tissues can create a controlled inflammatory response that stimulates a change in tissue structure.

- Friction consists of small, deep movements performed on a local area
- The movement in friction is usually transverse to the fiber direction
- It is generally performed for 30 s to 10 min
- The result of this type of friction is initiation of a small, controlled inflammatory response
- The chemicals released during inflammation result in activation of tissue repair mechanisms together with reorganization of connective tissue
- As the tissue responds to the friction, the therapist should gradually begin to stretch the area and increase the pressure and intensity of the method
- The feeling for the client may be intense and typically described as burning, and if it is painful enough to produce flinching and guarding by the client, the application should be modified to a tolerable level so that the client reports the sensation as a 'good hurt'
- The recommended way to work within the client's comfort zone is to use pressure sufficient for him or her to feel the specific area, but not to feel the need to complain of pain
- The area being frictioned may be tender to the touch for 48 h after use of the technique
- The sensation should be similar to a mild after-exercise soreness
- Because the focus of friction is the controlled application of a small inflammatory response, heat and redness are caused by the release of histamine
- Also, increased circulation results in a small amount of puffiness as more water binds with the connective tissue
- The area should not bruise
- While using friction can be very beneficial there are cautions to applying excessive shear forces to tissues

*Caution:* This method is not used during an acute illness, or soon after an injury, or close to a fresh scar, and should only be used if adaptive capacity of the client can respond to superimposed tissue trauma.

- Excess friction (shearing force) may result in an inflammatory irritation that causes many soft tissue problems
- Friction will increase blood flow to an area but also cause edema from the resulting inflammation and tissue damage from the frictioning procedure
- The method is best used in small localized areas of connective tissue changes and to separate layers of tissue that might have become adhered
- The most common areas where more surface tissue becomes stuck to underlying structures are: scars, pectoralis major muscle adhering to pectoralis minor, rectus femoris adhering to vastus interomedialis, gastrocnemius adhering to soleus, hamstring muscles adhering to each other, overlapping areas of tendons and ligaments.

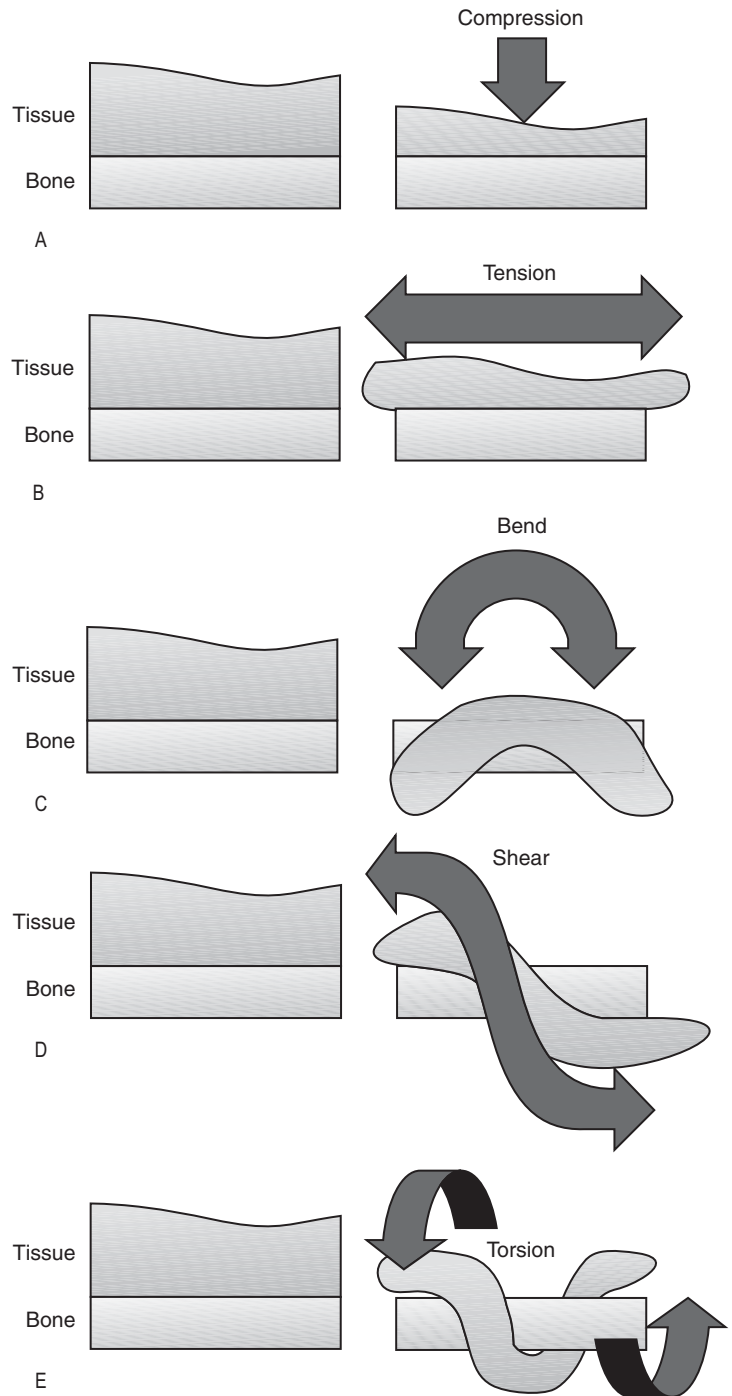
### Rotation or torsion loading (Fig. 7.4E)

- This force type is a combined application of compression and wringing, resulting in elongation of tissue along the axis of rotation
- It is used where a combined effect to both fluid dynamics and connective tissue pliability is desired
- Torsion forces are best thought of as twisting forces
- Massage methods that use kneading introduce torsion forces
- Soft tissue is lifted, rolled and squeezed
- Kneading soft tissue assesses changes in tissue texture and can be an aspect of treatment, especially as an aspect of stretching tissue or encouraging circulation or fluid movement in soft tissue
- Torsion force can be used therapeutically to affect connective tissue in the body
- Changes in depth of pressure and drag determine whether the kneading manipulation is perceived by the client as superficial or deep
- By the nature of the manipulation, the pressure and pull peak when the tissue is lifted to its maximum, and decrease at the beginning and end of the manipulation.

*Note:* pétrissage is another term for kneading.



**Figure 7.4A–E** Effects of mechanical forces produced during massage. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)





**Figure 7.5** Combined loading example. Compression loading on soft tissue surrounding SI joint combined with passive joint movement creating tension loading. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

### Combined loading

- Combining two or more forces effectively loads tissue (Fig. 7.5)
- The more forces applied to tissue the more intense the response
- Tension and compression underlie all the different modes of loading, therefore any form of manipulation is either tension, compression or a combination
- Tension is important in conditions where tissue needs to be elongated and compression where fluid flow needs to be affected.

### JOINT MOVEMENT METHODS

- Joint movement is incorporated into massage for both assessment and treatment
- Joint movement is used to position muscles in preparation for muscle energy methods and before stretching tissues
- Joint movement also encourages fluid movement in the lymphatic, arterial and venous circulation systems
- Much of the pumping action that moves these fluids in the vessels results from rhythmic compression during joint movement and muscle contraction
- The tendons, ligaments, and joint capsules are warmed from joint movement
- This mechanical effect helps keep these tissues pliable.

### Types of joint movement methods

Joint movement involves moving the jointed areas within the physiologic limits of range of motion of the

client. The two basic types of joint movement used during massage are active and passive.

*Active joint movement* means that the client moves the joint by active contraction of muscle groups. The two variations of active joint movement are as follows:

- 1 Active assisted movement, which occurs when both the client and the massage practitioner move the area
- 2 Active resistive movement, which occurs when the client actively moves the joint against a resistance provided by the massage practitioner.

*Passive joint movement* occurs when the client's muscles stay relaxed and the massage practitioner moves the joint with no assistance from the client. Various forms of oscillation (rocking and shaking) involve passive joint movement. Since muscle energy techniques are focused on specific muscles or muscle groups, it is important to be able to position muscles so that the muscle attachments are either close together or in a lengthening phase with the attachments separated.

- Joint movement is how this positioning is accomplished (Fig. 7.6)
- Joint movement is effective for positioning tissues to be stretched
- The muscles nearer the surface are relatively easy to position during the massage using joint movement
- The method can also be used for the smaller deeper joints of the spine and surrounding muscles but the positioning needs to be precise and focused
- Shortened tissue located in deep layers of muscle, or in a muscle that is difficult to lengthen by moving the body, can be addressed with local bending, shearing, and torsion in order to lengthen and stretch the local area, and this is easy to accomplish during the course of the massage.

Regardless of the massage methods practiced, or the massage style, the previous explanations: qualities of touch, mode of application to apply mechanical forces to affect the body in various mechanical and reflexive ways, in order to achieve specific outcomes, should create a generic base for communicating and understanding massage application.

### MASSAGE APPLICATION FOR LOW BACK PAIN AND DYSFUNCTION

This section of the chapter provides suggestions and protocols (based on the author's experience) for using massage to address low back pain.

Information provided includes:

- general suggestions for massage for those with low back pain

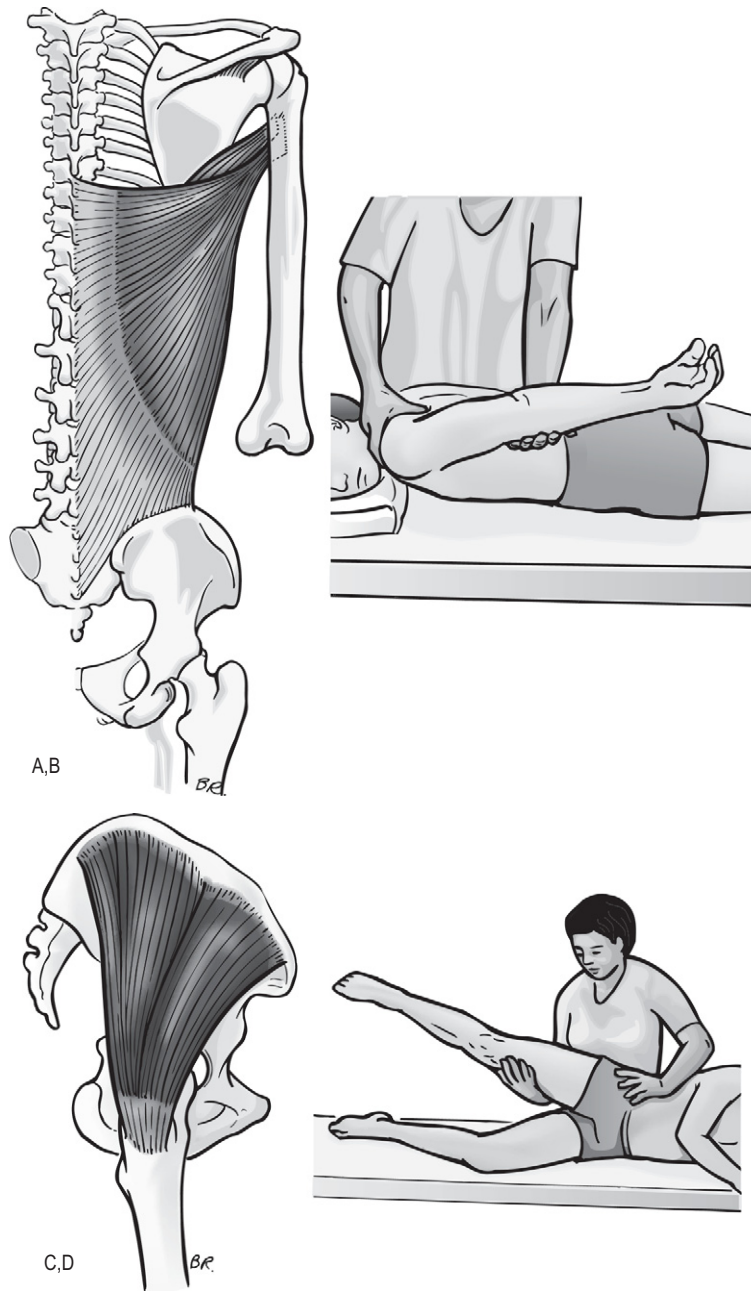


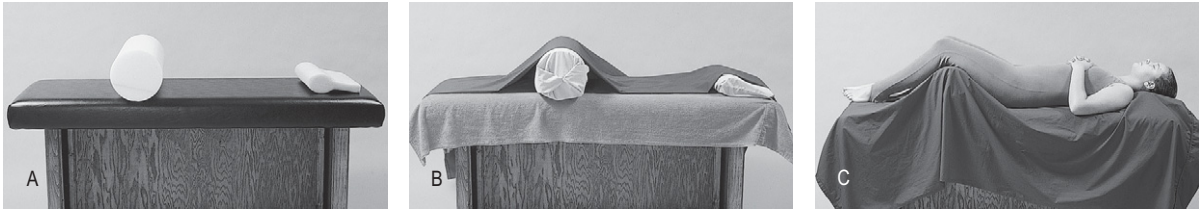
Figure 7.6 Examples of using joint movement to position muscles for treatment such as muscle energy techniques. (A,B) Latissimus dorsi, (C,D) gluteus medius.



**Figure 7.6, cont'd** (E,F) gluteus maximus and hamstrings. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)

#### Box 7.1 Sequence of massage based on clinical reasoning to achieve specific outcomes

- Massage application intent (outcome) determines mode of application and variation on quality of touch:
  - *Mode of application*: influenced by type/mode of application (glide, knead, oscillation compression, percussion, movement, etc.)
  - *Quality of touch*: location of application, depth of pressure (light to deep), tissue drag, rate (speed) of application, rhythm, direction, frequency (number of repetitions) and duration of application of the method
- Mode of application with variations in quality of touch generate:
- Mechanical forces (tension, compression, bend, shear, torsion to affect tissue changes from physical loading) leading to:
  - Influence on physiology
    - mechanical changes (tissue repair, connective tissue viscosity and pliability, fluid dynamic)
    - neurologic changes (stimulus response-motor system and neuromuscular, pain reflexes, mechanoreceptors)
    - psycho-physiologic changes (changes in mood, pain perception, sympathetic and parasympathetic balance)
  - Interplay with unknown pathways and physiology (energetic, meridians, chakras, etc.)
    - contribute to development of treatment approach
    - resulting in desired outcomes.



**Figure 7.7** Supine positioning. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby/Elsevier, St Louis).



**Figure 7.8** Prone positioning. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby, St Louis.)

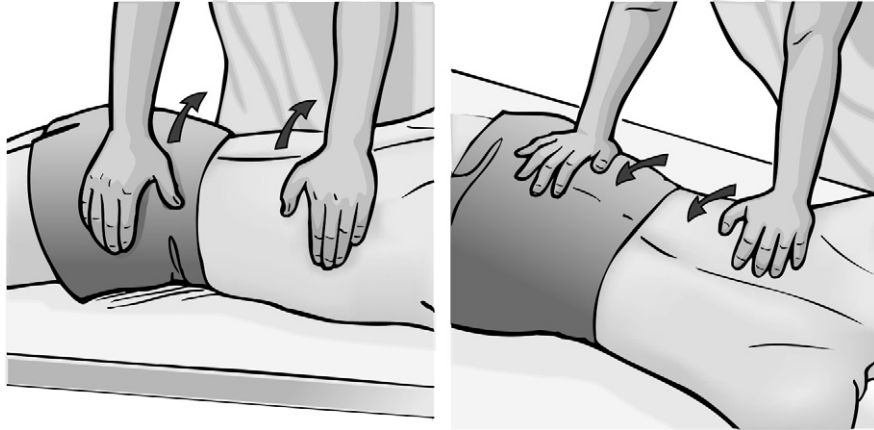
- massage strategies for back pain, connective tissue dysfunction and breathing dysfunction
- strategies for specific muscles involved in low back pain
- strategies for joints involved in low back pain
- massage treatment for acute back pain
- massage protocol for common low back conditions.

**General suggestions for using massage to treat low back pain**

- When the person is supine (Fig. 7.7), make sure the knees are flexed slightly and bolstered so that strain is taken off the low back.
- Do not keep the person with low back pain in the prone position (Fig. 7.8) for too long since this stresses the back musculature
- Use side-lying position with bolstering
- When the person is prone, place a pillow under their abdomen so the spine is in a more normal position
- The surface muscles of the low back region are typically larger and thicker than the muscles in other body areas. This makes reaching the deeper soft tissue structures more difficult. It is necessary to systematically work through the muscle layers and maintain a broad based contact on the surface tissues as increasing pressure is applied to reach the more problematic deeper structures
- The postural muscles and the surface phasic muscles of the low back region often increase in motor tone to stabilize instability in the joints. This is resourceful compensation. Do not over-work the area by expecting complete relief after the massage.

More realistic goals are a 50% reduction in pain and increased mobility with the remaining sensations interpreted as stiffness rather than pain

- Trigger point activity in the belly of muscles is usually located in short concentrically contracted muscles
- These are the trigger points to be targeted during the massage if they relate to the low back pain
- Trigger points located near the attachments are usually found in eccentric patterns in long inhibited muscles acting as antagonists to concentrically contracted muscles and it is usually best to leave these trigger points alone
- Do not over-treat in any one session
- Only address the soft tissue dysfunctions that recreate the symptoms the client is experiencing; this is especially true of the specific muscle releases and trigger points
- Remember anything can feel like a trigger point or a painful muscle if pressed on hard enough
- Only address the trigger points that are most painful, most medial and most proximal and that recreate the client's low back symptoms
- Leave the rest alone and monitor them over the course of three or four massage sessions to identify improvement
- When the posture and function normalize with regular massage, the trigger point activity will often resolve
- When performing the specific muscle releases, choose one or two muscles to address during the massage session and then monitor the results



**Figure 7.9** Example of rocking the lumbar area. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)

- It is best to address the low back issues in the short tissues first, and wait to see if the soft tissue dysfunctions in 'lengthened muscles', and at the attachments, resolve, as the posture of muscle interaction normalizes
- Both the massage methods and the joint movements (active and passive) used during massage should be applied in a slow, deliberate manner
- Sudden, quick movements can lead to spasm and are likely to increase muscle tension by over stimulating the nerve receptors
- Oscillation movements, such as shaking and rocking, are very effective in reducing motor tone in hyperreactive muscles, especially those that are guarding. Unfortunately, most of the muscles responsible for low back pain are not easily shaken and so sustained rhythmic rocking of the whole body may be effective
- During the massage, intermittently gently rock the person for 1–2 min, then return to the massage strokes (Fig. 7.9)
- Expect that it will take a series of 12 massage sessions before sustainable improvement is noticed
- If the client feels very loose after the massage and is much worse the next day, the massage may have destabilized adaptive compensating mechanisms in the low back area. The work was probably too aggressive, resulting in a reflexive increase in the guarding response. The client should improve over the next 3–4 days. Reduce the intensity of the massage and target general relaxation responses.

## MASSAGE STRATEGIES FOR BACK PAIN

### Generalized pain management

Massage application targeted to low back pain management incorporates the following principles:

- 1 General full-body application with a rhythmic and slow approach, as often as feasible with 45–60 min durations. *Goal:* Parasympathetic dominance with reduced cortisol.
- 2 Pressure depth is moderate to deep with compressive broad-based application. No poking, frictioning, or application of pain-causing methods. *Goal:* Serotonin and GABA support and reduce substance P and adrenaline.
- 3 Drag is slight unless connective tissue is being targeted. Drag is targeted to lymphatic drain and skin stimulation. Massage for simple back pain is best combined with hot and cold hydrotherapy, and counterirritant ointment. *Goal:* Reduce swelling and create counterirritation through skin stimulation.
- 4 Nodal points on the body that have a high neurovascular component are massaged with a sufficient depth of pressure to create a 'good hurt' sensation but not defensive guarding or withdrawal. These nodal points are the location of cutaneous nerves, trigger points, acupuncture points, reflexology points, etc. The foot, hands and head, as well as along the spine, are excellent target locations. *Goal:* Gate control response, endorphin and other pain-inhibiting chemical release.

**Figure 7.10** Using tension force to hold tissue at bind. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)



- 5 Direction of massage varies, but deliberately targets fluid movement. *Goal:* Circulation.
- 6 Mechanical force introduction of shear, bend, torsion, etc., are of an agitation quality to 'stir' the ground substance and not create inflammation. *Goal:* Increased tissue pliability and reduced tissue density.
- 7 Mechanical force application of shear, bend and torsion is used to address adhesion or fibrosis but needs to be specifically targeted and limited in duration. *Goal:* Reduced localized nerve irritation or circulation reduction.
- 8 Muscle energy methods and lengthening are applied rhythmically, gently, and targeted to shortened muscles. *Goal:* Reduced nerve and proprioceptive irritation and circulation inhibition.
- 9 Stretching to introduce tension force is applied slowly, without pain and targeted to shortened connective tissue. *Goal:* Reduce nerve and proprioceptive irritation.
- 10 Massage therapists are focused, attentive, compassionate, but maintain appropriate boundaries. *Goal:* Support entrainment, bioenergy normalization and palliative care.

Additional methods that modulate pain sensation and perception that can be incorporated into the massage are: simple applications of hot and cold hydrotherapy, analgesic essential oils, calming and distracting music.

### Connective tissue approaches

Changes in the connective tissue structures in the low back area are often identified as short or thick during assessment. The lumbo-dorsal fascial, iliotibial band

and associated fascia of the thigh, and fascial structures of the anterior thorax are typically involved. Increasing pliability in these structures seems to reduce the symptoms of stiffness. Be cautious in how intensely the connective tissue is massaged, since the shortening may be an aspect of increased stability in the area.

The important consideration for connective tissue massage methods is that the pressure vertically and horizontally actually moves the tissue to create tension, torsion, shear or bend forces, which triggers alteration of the ground substance long enough for energy to build up in it and soften it. The development of connective tissue patterns is highly individualized, and because of this, systems that follow a precise protocol and sequence are often less effective in dealing with these complex patterns.

A good grip with the skin is essential, so there must be no lotion or oil present. This grip can be with the hands or forearms. The technique is sometimes performed without a towel, to provide stronger contact with the skin.

Tissues can be moved towards 'ease' (the way they want to move) and the position is held for a few seconds to allow the tissues to soften. The client can move the tissues by contracting or relaxing the muscle as the massage therapist holds the tissue at ease. The entire procedure can be repeated holding the tissues at 'bind' (the way they do not want to move) (Fig. 7.10).

### Tissue movement methods

The more subtle connective tissue approaches rely on the skilled development of following tissue movement. The process is as follows:

- Make firm but gentle contact with the skin
- Increase the downward, or vertical, pressure slowly until resistance is felt; this barrier is soft and subtle
- Maintain the downward pressure at this point; now add horizontal pressure until the resistance barrier is felt again
- Sustain the horizontal pressure and wait
- The tissue will seem to creep, unravel, melt, slide, quiver, twist, or dip, or some other movement sensation will be apparent
- Follow the movement, gently maintaining the tension on the tissue, encouraging the pattern as it undulates through various levels of release
- Slowly and gently release first the horizontal force and then the vertical force.

Twist-and-release kneading and compression applied in the direction of the restriction can also release these fascial barriers.

## BREATHING DYSFUNCTION

As described in Chapter 4, dysfunctional breathing is a common aspect of back pain.

The massage therapist influences breathing in two distinct ways:

- 1 Supporting balance between sympathetic and parasympathetic autonomic nervous systems function. This is generally accomplished with a relaxation focus to the general full body massage.
- 2 Normalizing and then maintaining effective thoracic and respiratory muscle function.

The following protocol specifically targets these areas. The applications would be integrated into the general massage protocol to work more specifically with breathing function if assessment indicates any tendency to breathing pattern dysfunction. It is strongly recommended that the reader studies the textbook *Multi-disciplinary Approaches to Breathing Pattern Disorders* (Chaitow et al 2002).

### Assessment

Observe and palpate for overuse of upper chest breathing muscles during normal relaxed breathing using the information in Chapter 4.

In addition, the following assessments are easily incorporated into the massage:

- The massage therapist stands behind the seated client and places his or her hands over the upper trapezius area so that the tips of the fingers rest on the top of the clavicles
- As the client breathes, determine if the accessory muscles are being used for relaxed breathing. If the shoulders move up and down as the client breathes,

it is likely that accessory muscles are being recruited. In normal relaxed breathing, the shoulders should not move in this way. The client will be using accessory muscles to breathe if the chest movement is concentrated in the upper chest instead of the lower ribs and abdomen

- Using any of the accessory muscles for breathing results in an increase in tension and tendency towards the development of trigger points. These situations can be identified with palpation. Connective tissue changes are common, since this breathing dysfunction is often chronic. The connective tissues are palpated as thick, dense and shortened in this area
- Have the client inhale and exhale, and observe for a consistent exhalation that is longer than the inhalation. Normal relaxed breathing consists of a shorter inhalation phase in relationship to a longer exhalation phase. The ratio of inhalation time to exhalation is one count inhalation to four counts exhalation. A reverse of this pattern indicates a breathing pattern disorder. The ideal pattern would range between 2–4 counts during the inhalation and 8–10 counts for the exhalation. Targeted massage and breathing retraining methods can be used to restore normal relaxed breathing
- Have the client hold their breath without strain to assess for tolerance to carbon dioxide levels. They should be able to comfortably hold the breath for at least 15 s, with 30 s being ideal
- Palpate and gently mobilize the thorax to assess for rib mobility. This is done in supine, prone, side-lying and seated positions. The ribs should have a springy feel, and be a bit more mobile from the 6th to the 10th ribs.

### Treatment

The following muscles are specifically targeted by massage because they tend to shorten during breathing dysfunction:

- scalenes
- sternocleidomastoid
- serratus anterior
- serratus posterior superior and inferior
- levator scapulae
- rhomboids
- upper trapezius
- pectoralis major and minor
- latissimus dorsi
- psoas
- quadratus lumborum
- all abdominals
- calf muscles.



The intercostals and diaphragm, which are the main breathing muscles, should also be addressed.

- All of these muscles should be assessed for shortening, weakness and agonist/antagonist interaction. Muscles that orient mostly transverse, such as the serratus anterior, serratus posterior superior and inferior, rhomboids and pelvic floor muscles, are difficult to assess with movement and strength testing. Palpation (see Ch. 6) will be more accurate. The typical patterns of the upper and lower crossed syndromes are often involved
- Muscles assessed as short need to be lengthened. If the primary cause of the shortening is neuromuscular, then use inhibitory pressure at the muscle belly and lengthen either by moving the adjacent joints, or more likely, by introducing tension, bend or torsion force directly on the muscle tissues
- For the scalenes, sternocleidomastoid, serratus anterior, pectoralis minor, latissimus dorsi, psoas, quadratus lumborum, diaphragm, rectus abdominis and pelvic floor muscles, follow recommendations about specific release methods later in this chapter
- Work with each area as needed, as it becomes convenient during the general massage session. Use the least invasive measure possible to restore a more normal muscle resting length
- If the breathing has been dysfunctional for an extended period of time (over 3 months) connective tissue changes are common. Focused connective tissue massage application is effective
- Once the soft tissue is more normal, then gentle mobilization of the thorax is appropriate. If the thoracic vertebrae and ribs are restricted, chiropractic or other joint manipulation methods may be appropriate and referral is indicated. The massage therapist can use indirect functional techniques to increase the mobility of the area as well. These methods are described in general in Chapter 6.

Methods and sequence used to address the breathing function need to be integrated into a full body approach, since breathing is a whole body function. A possible protocol to add to the general massage session would be as follows:

- Increased attention to general massage of the thorax; posterior, anterior and lateral access to the thorax is used primarily to address the general tension or dysfunctional patterns in the respiratory muscles of this area
- Address the scalenes, psoas and quadratus lumborum and legs, especially calves
- Use appropriate muscle energy techniques to lengthen and stretch the shortened muscles of the cervical, thoracic, and lumbar regions and legs
- Gently move the rib cage with broad-based compression
- Assess for areas that move easily and those that are restricted
- Assess the anterior, lateral and posterior areas
- Identify the amount of rigidity in the ribs with the client supine by applying bilateral compression to the thorax beginning near the clavicles and moving down towards the lower ribs maintaining compressive force near the costal cartilage
- Identify rigidity in the ribs with the client prone bilaterally (on both sides of the spine) at the facet joints beginning near the 7th cervical vertebra and moving down towards the lower ribs maintaining compressive force near the facet joints
- The breathing wave assessment can also confirm areas of restriction (see p. 51, Fig. 4.13)
- Compression against the lateral aspect of the thorax with the client in a side-lying position will assess rib mobility in both facet and costal joints
- Begin applying the compression near the axilla and then moving down towards the lower ribs
- Sufficient force needs to be used while applying the compression to feel the ribs spring but not so much as to cause discomfort
- Normal response would be a feeling of equal mobility bilaterally
- A feeling of stiffness or rigidity would indicate immobility
- Identify the area of most mobility and the area of most restriction
- Position the client so that a broad-based compressive force can be applied to the areas of ease – the most mobile
- Gently and slowly apply compression until the area begins to bind
- Hold this position and have the client cough
- Coughing will act as a muscle energy method and also support mobility of the joint through activation of the muscles
- Repeat three or four times.

If areas of rigidity remain, the following intervention may be useful:

- Apply broad-based compression to the area of immobility (Fig. 7.11) using the whole hand or forearm
- Have the client exhale, then increase the intensity of the compressive force while following the exhalation
- Hold the ribs in this position
- Have the client push out against the compressive pressure
- Instruct the client to inhale while continuing to hold the compressive focus against the ribs



**Figure 7.11** Examples of broad based compression to the ribs. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- Then have the client exhale while following the action of the ribs. There should be an increase in mobility
- Gently mobilize the entire thorax with rhythmic compression. Reassess the area of most bind/restriction. If the areas treated have improved, then a different area is located and the sequence is repeated. It is appropriate to do three or four areas in a session
- Palpate for tender points in the intercostals, pectoralis minor and anterior serratus (clients are not very tolerant of this so be directive and precise).

Use positional release to release these points by moving the client or having them move into various positions until the pain in the tender point decreases. The procedure for positional release is as follows:

- Locate the tender point
- Gently initiate the pain response with direct pressure (remember the sensation of pain is a guide only)
- The pain point is not the point of intervention
- Slowly position the body, actively or passively, until the pain subsides. This position can be focal and accomplished by moving the client's ribs, arm or head, or a whole body process involving many different areas to achieve the position where there is a decrease in the pain
- Maintain the position for up to 30s or until the client feels the release, while encouraging them to breathe from the diaphragm, lightly monitoring the tender point
- Slowly reposition the client to neutral and then into a stretch position for the tender point
- Direct tissue stretching is usually most effective.

If the client is sniffing, coughing, sneezing, or has been laughing a lot, then the posterior serratus inferior can be the cause of back pain. This muscle tends to shorten due to its stabilizing function of the lower ribs.

- Because of its fiber direction, it is very difficult to stretch
- The symptoms include an aching sensation just below the scapula at the location of the muscle



**Figure 7.12** Compression on posterior serratus inferior. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- Compression into the muscle belly (Fig. 7.12) with local tissue stretching usually relieves the symptoms.

Once the thorax and breathing function begins to normalize – usually after 4–6 focused sessions – then it is appropriate to teach a simple breathing exercise. Often massage focused to normalized breathing is sufficient to address most causal factors in low back pain.

## STRATEGIES FOR SPECIFIC MUSCLES INVOLVED IN LOW BACK PAIN

Muscle firing pattern dysfunction is almost always present and is discussed in Chapter 5. Assessment and treatment should be included in massage and suggestions will be provided later in the sample protocol.

Massage should be targeted at the following muscles: paravertebral muscles, psoas, quadratus lumborum, groin muscle attachment, hamstrings, and gluteal group including deep lateral rotations.

Specific assessment and release methods for these muscles that are easily incorporated into massage are described below. The intervention used to normalize muscle motor tone and length is inhibitory pressure in the belly of the muscle if possible and occasionally at the attachments if access to the muscle belly is difficult. The client is positioned so the compression applied to the muscle is effective.

### Paravertebral muscles

Multifidi, rotators, intertransversarii and interspinalis: as a combined group, these muscles produce small



**Figure 7.13** Friction of paravertebral muscles. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

refined movements of the vertebral column. They work in coordination, with each small group of muscle fibers contributing to the entire action.

### Symptoms

- Clients often feel as though they want to have their back 'cracked' yet manipulation does not necessarily provide relief
- There is stiffness upon initiation of movement but once the movement begins, the stiffness is reduced
- The client is unable to stretch effectively to affect these muscle groups
- The client experiences an aching as opposed to a sharp pain.

### Assessment

Palpation is an effective assessment. These are small deep muscles basically located between the vertebrae. A history of sitting or fixed standing for extended periods of time is common. Palpation, with the client both prone and side-lying, deep into the spaces between the vertebrae will reveal tough tissue bands that may replicate the symptoms. Effective palpation must go deep enough to contact the muscle group and get under the erector spinae muscles.

### Procedures

- Meticulous frictioning of the tight muscle bands combined with tissue stretching (Fig. 7.13)
- Softening and lengthening the erector spine and associated fascia are necessary before beginning the methods
- Position the client in the side-lying position with the affected side up and with a small amount of passive extension



**Figure 7.14** Position for massage of paraspinals. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- Angle in at 45° against the groove next to the spinal column using braced double fingers or a massage tool (Fig. 7.14)
- Sink in until you can feel the spinous processes
- Hold the compression firmly against the affected tissue and have the client slowly move the area back and forth from extension to flexion. This movement is very small and focused and is performed in a rocking fashion
- Then have the client remain in a slight extension while you move your fingers down in a deep scooping action and then out again, as if you were digging or scooping
- After the tissue has softened further, firmly hold the compression and have the client move into spinal flexion very slowly until you feel the tissue become taut, in order to stretch the area
- Hold this position until the tissue softens.

## Psoas

### Symptoms

- Client complains of generalized lumbar aching
- Aching into top of the thighs
- Low back pain when coughing, sneezing
- Pain when lying on the stomach
- Pain when lying flat on back.

### Assessment

- Gait stride shortened, more so on the short side
- Externally rotated leg on the short side
- Bracing with hands when sitting down or standing up
- Leg unable to fall into full extension, as shown in the supine edge of table test below (see Positioning)
- Anteriorly tipped pelvis.

*Note:* A tight and/or shortened quadratus group and tensor fasciae latae are often found together with psoas dysfunction, and should be addressed before dealing with the psoas muscles.

**End of table psoas test** This test is done by having the client place their ischial tuberosities on the edge of the table, bringing one leg to the chest and rolling back to lie on the table. When the leg is held tightly to the chest the other leg should lie horizontally, parallel with the table. If the thigh is angled upward from the table, psoas on that side is short.

**Sit-up test** Client lies supine on the table with the knees bent. Arms are extended and slightly angled towards the ceiling ('sleep walking position').

- The client then lifts his/her torso off the table by reaching for the ceiling
- The practitioner holds or observes both feet
- The foot on the side of a short psoas will lift off the table first.

### Procedures

Muscle energy lengthening and stretch in all positions: edge of table, side-lying, supine edge of table, over side of table and prone.

### Positioning (Fig. 7.15)

- 1 *Supine edge of table:* Make sure pelvis is fixed firmly to the table and the knee on the opposite side is rolled as close to the chest as possible. Hand placement for resistance force and lengthening is above the knee.
- 2 *Supine:* Client lies close to the edge of the table and bends the knee not near the edge. The psoas being addressed is accessed by having the client drop the leg over the edge of the table to achieve lengthening and stretching. The pelvis must be fixed and stabilized.
- 3 *Side-lying:* Bottom leg is drawn up towards the chest and the practitioner is positioned behind the client. The torso remains fixed and the lumbar area is stabilized. The client bends the top knee and the practitioner cradles the thigh in her arm. The top leg is then slightly internally rotated, abducted and extended.
- 4 *Prone:* Pelvis is fixed to the table. The practitioner is positioned opposite the side to be addressed. The leg remains straight on the side closest to the practitioner. The knee of the target leg is flexed past 90° and the hip slightly internally rotated (accomplished by allowing the foot to fall a bit to the outside) to prepare that side to be lengthened and stretched. The practitioner reaches across and cradles the anterior thigh in her arm, lifts up and leans back.



**Figure 7.15** Positions for muscle energy methods and stretch of the psoas (A) supine (B) side-lying (C) prone. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

*Note:* Decisions on which of these four positions is the most effective will depend on the reports of the client and the size of the client in relation to the practitioner.

*Direct access of psoas using hand and/or fist*

The psoas muscle can be accessed in either the supine or side-lying position, whichever is most effective.



**Figure 7.16** Direct inhibition of psoas supine using fist. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)



**Figure 7.17** Direct inhibition of psoas side-lying using braced hand. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- Client is supine with the knees flexed to at least 110°
- Both feet are flat on the table
- The practitioner stands on the side to be addressed
- Either a flat stabilized hand or a loose fist can be used
- Decision is based on the size and comfort of the client
- For the practitioner, the fist position will withstand a longer duration of treatment (Fig. 7.16)
- With client side-lying and knees flexed, the practitioner kneels in front of the client and leans in using a stabilized hand or loose fist (Fig. 7.17)
- The leg can be used to pull the client towards the pressure

- The muscle location is best accessed midline between the iliac crest and the navel and can usually be found by placing the metacarpophalangeal joint on the iliac crest
- The fingers remain straight and the tip of the fingers identifies the location of the muscle
- This muscle is located deep against the anterior aspect of the lumbar and lower thoracic spine
- Slow deliberate compression into the lower abdomen is required
- The ovary is tucked under the ilea and must not be compressed
- The abdominal aorta can be palpated as pulsation and must not be compressed
- The small and large intestine will slide out of the way with an undulating action as the downward and angled force towards the spine is exerted
- Identification of the proper location can be confirmed by having the client flex the leg which would activate the psoas
- A flat sustained compression is used in conjunction with having the client slowly move the head and neck into flexion, side flexion and rotation in all directions in order to facilitate the psoas and act to contract/then relax the muscle while pressure is maintained
- The psoas can also be inhibited by having the client activate the neck extensor by slightly tipping the chin towards the ceiling and pushing the back of the head against the table
- Alternating flexion and extension of the neck is valuable while maintaining inhibitory pressure against the psoas
- All these neck actions can be supplemented with eye movement: eyes look downward during forward flexion, sideways during lateral flexion and upward during extension
- Additionally, the client can slowly slide the heel of the foot out so that the leg becomes straight
- When the leg is straight, if the client contracts the buttock muscles, the psoas is further inhibited
- Then the client relaxes the gluteal muscles and draws the heel as close to the buttocks as possible to contract the psoas
- This action is repeated while the compression on the psoas is maintained.

Release at the distal attachment:

- If it is difficult to access the psoas through the abdomen then inhibiting pressure near the distal attachment where the muscle crosses the pubic bone is possible. Usually the leg is moved into an ease or bind position, while the inhibiting pressure is held

- The compression of the psoas acts to lengthen and stretch this muscle.

After this treatment, make sure the client does not get right off the table, but instead rolls first to the side and then rolls up. Assist if necessary. Do not let the client sit straight up.

- Having the client lay prone is a gentle lengthening position for this muscle
- Then have the client assume a four-point position by getting on to hands and knees in order to perform the cat or sway back position and camel or hunch back position
- Then have the client slide his/her arms in front while bringing the buttocks back against the hamstrings
- Apply broad based compression against the lumbar area in this position
- If the psoas is not acute, then have the client drop gently into the cobra position by lifting the head and chest, straightening the arms, and placing the pelvis flat against the table
- Each position is held up to 3 min based on what feels good
- The client then assumes the hands and knees position to get off the table.

All methods described can be used in coordination for a more intense interaction. The goal is to reduce tension in the psoas muscles. This is usually palpated as a sinking-in, or a feeling of 'giving' of the tissues. The client will usually modify the breathing pattern by taking a deep breath and relaxing when the muscle lets go.

This is a painful and intense procedure. Give the client breaks during the procedure by decreasing the pressure a bit but do not lose contact with the muscle since it is uncomfortable to relocate it. Expect the muscle to relax in 30 s.

If no change is identified in 60 s, it is likely that the muscle will not respond to treatment during that session.

*Rehabilitation exercises (see Ch. 8)*

### **Quadratus lumborum**

#### *Symptoms*

- Deep local low back pain which may be more on one side
- Pain radiation into buttocks and down the side of the leg to the knee (nerve entrapment)
- Tends to wiggle or attempts to stretch with lateral trunk flexion
- May have restricted breathing
- Short leg on affected side (may be functional or physical).

### Assessment

- Position client on their side. Palpate with either the forearms or hands in the space between the ribs and the iliac crest. Have the client straighten and then lift the top leg. The area being palpated should not activate until the leg is raised above 20°. If it does, the quadratus is tense and short
- Have the client lie prone with legs straight and assess leg length. The short leg may indicate a tight quadratus lumborum. If lateral flexion of the torso is restricted or asymmetrical, the most restriction will be on the side away from which lateral flexion is taking place.

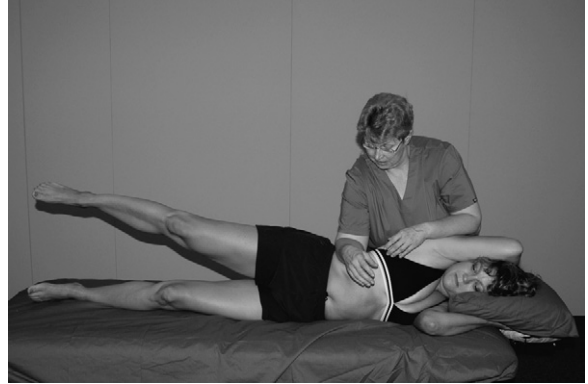
### Procedures

- Position client on side with bottom leg bent and top leg straight and in slight hip extension
- While standing behind the client, apply compression into the space between the last rib and the top of the iliac crest
- The angle of force is about 70° (angled towards the navel)
- When resistance is felt in the muscle, have the client lift the top leg up and down
- Make sure the hip stays in extension
- Have the client alternately move the neck and head back and forth in lateral flexion and extension
- Both of these moves facilitate or inhibit the quadratus lumborum muscles
- These neck movements can be supplemented with side-to-side eye movements
- After the muscle releases it will need to be lengthened and stretched
- Stabilize the thorax and lengthen by dropping the top leg even more into a lengthened and stretched position
- Use a manual stretch by alternately exerting a force into the low back towards the navel and side-bending the client in extension, with both the torso and the leg
- Self-help could include: fingers interlaced, palms turned up and arms extended over the head. The pelvis is held stable and rolled forward either standing, or on knees. Side bend and twist into slight flexion. Perform the stretch on both sides with more emphasis on the affected quadratus lumborum (Fig. 7.18).

### Deep lateral hip rotators

#### Symptoms

- Externally rotated foot
- Pain deep in gluteal region, which may be in conjunction with impinged sciatic nerve.



**Figure 7.18** Compression on quadratus lumborum with leg movement. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)



**Figure 7.19** Compression with movement on deep lateral hip rotators. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

### Assessment

- Physical assessment for externally rotated foot
- Palpation into the belly of the muscle to identify tender points that recreate symptoms.

### Procedures

Compression with internal and external rotation of deep lateral rotators.

### Stretching

While in the prone position:

- Lean into upper gluteal area on the target side, delivering pressure by using fist or forearm (Fig. 7.19)
- Without extending the hip on the target side, passively flex the knee to 90° by using your other hand to lift ankle



**Figure 7.20** Assessment and treatment of groin area muscles. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- When you move that lower leg medially so the ankle is behind the knee of the other leg, this places muscles in passive contraction (lateral rotation of hip)
- If you are leaning on the correct gluteal spot, the client's contracting muscles will push back against your pressure
- Change position of your pressure until this passive contraction does push back. Then perform an opposite lateral motion of the lower leg (medial rotation of hip), which places muscles into passive stretch
- You can use tense and relax, reciprocal inhibition, contract-relax-antagonist-contract, or pulsed muscle energy to accomplish release
- While in the supine position, the muscles can be stretched
- Due to the placement of attachments, in the supine position with the hip flexed to 90° the leg is externally rotated and pulled towards the chest.

### Groin area muscles

#### Symptoms

- Sensation of high groin pull, but not able to palpate tenderness in the adductor region
- Restricted breathing
- Shortened stride.

#### Assessment

- Assess by palpation (Fig. 7.20)
- Have client lie on side with top leg bent and pulled up
- Using the supported hand position with flat fingers, contact the ischial tuberosity from the

inferior approach on the bottom and slide over it with a downward 45° angle, moving superiorly and medially on the client's body

- Shift direction of force to identify tender areas that recreate symptoms.

#### Procedures

- Maintain contact with the tender points that create symptoms, increase compressive force and have the client slightly extend and gently adduct bottom leg
- Continue pressure until you feel the muscle give way and let you in deeper
- Be sure to perform this procedure on both right and left sides, or the client will feel unbalanced when walking.

## MASSAGE STRATEGIES FOR JOINTS RELATED TO LOW BACK PAIN

Sacroiliac (SI) joint dysfunction is a major cause of pain that requires a multidisciplinary approach (see Ch. 5). The joint can be jammed, unstable or fused, which interferes with pelvic function and movement during gait. The restricted pelvic movement creates increased movement at L4–5, S-I area or to the hip, or both. Pain commonly occurs in the hip abductors and around the coccyx/sacrum area on the affected side. Proper mobilization of the joint by an appropriate professional may be necessary. Massage supports the mobilization process by reducing muscle guarding and increasing tissue pliability. Once the joint is adjusted, the mobilization sequence for the SI joint can be incorporated into the general massage.

- The latissimus dorsi muscle opposite the symptomatic SI joint is part of the force couple that stabilizes the SI joint. The lumbo-dorsal fascia needs to be pliable but not so loose that stability is affected
- Commonly, the symphysis pubis is somewhat distressed in conjunction with SI joint dysfunction. A simple resistance method can address this condition. The client is supine, the knees are bent, and the massage therapist provides resistance against the action of the client's attempt to pull the knees together
- Apply a resistance force against the medial aspect of both knees. This can be done by holding the knees apart or placing the hand against one knee and the flat of the elbow against the other as the client attempts to pull their knees together
- The action activates the adductors and this may pull the symphysis pubis into a better alignment. Sometimes there is a 'popping' sound when the symphysis resets but that is not essential for effective results.



Often the sacrotuberous and sacrospinous ligaments are short, or the hamstring and gluteus maximus attachments near these ligaments are binding.

- Assess by palpation
- Have client lie on one side with the top leg bent and pulled up
- Using the supported hand, position with flat fingers, contact the ischial tuberosity from the inferior approach on the bottom (similar to position for groin muscle attachments)
- Shift direction of force to identify tender areas that recreate symptoms
- These ligament structures are difficult to reach, and when located, a compressive force is applied to the ligament while the client activates the hamstrings and gluteus maximus
- The results should be increased pliability of the ligament releasing the muscles to move more freely without bind.

If there is a functional long leg, the SI joint can become jammed on the long leg side.

- Typically the pelvis is anteriorly rotated on the symptomatic affected side and posteriorly rotated on the non-symptomatic side with quadratus lumborum short on the non-symptomatic side
- An indirect functional technique for anterior rotation, combined with quadratus lumborum release is often effective. The physical therapist (PT) or chiropractor rotates the pelvis and the massage therapist applies methods to normalize the soft tissue compensation. Firing patterns need to be assessed and normalized.

### **Sacroiliac (SI) joint and pelvis alignment (see p. 69)**

The following describes assessment and treatment of back pain related to SI joint and pelvis issues, which can easily be incorporated into massage (Fig. 7.21).

#### *Symptoms*

- Pain over SI joint
- Increased symptoms when standing on one leg or when sleeping at night

#### *Assessment*

- With the client prone, apply direct compression over SI joint to identify if symptoms increase.

#### *Treatment*

- Stabilize the sacrum with the hand, foot or leg
- Have the prone client extend the hips alternately as if they were walking backwards



**Figure 7.21** SI joint mobilization. (A) Stabilize sacrum and alternately extend thigh. (B) Compression to mobilize SI joint in multiple direction. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- Next, move the joint by applying compression down (towards the table) alternately at the iliac crest and ischial tuberosity
- While the client is side-lying, compress the SI joint up and down, back and forth.

### **Indirect functional technique for the pelvis**

First, assess for asymmetry by comparing both anterior superior iliac spines (ASIS) while the client is in the supine position.

Dysfunction includes:

- Bilateral anterior rotation: ASIS palpates as forward and low
- Bilateral posterior rotation: ASIS palpates as backward and high
- Right or left anterior rotation: ASIS palpates as one low and one high
- Right or left posterior rotation: ASIS palpates as one low and one high
- Inflare is left, right or bilateral: ASIS angled towards midline

- Outflare left or right or bilateral: ASIS angled away from midline.

To correct using indirect functional technique: client is supine.

#### *Anterior rotation*

- Use leg to rotate pelvis into increased anterior rotation by bringing leg over edge of table
- Have client pull leg towards shoulder
- Apply moderate resistance and repeat three or four times
- Then on the final move, with the patient fully relaxed, ease the pelvis posteriorly by taking the knee towards the shoulder, without undue force, increasing posterior rotation.

#### *Posterior rotation*

- Begin with leg bent towards the shoulder increasing posterior rotation
- Have client push leg out and down over the table
- Apply moderate resistance and repeat three or four times
- Then on the final move, with the patient fully relaxed, ease the pelvis anteriorly by taking the knee towards the floor without undue force, increasing anterior rotation.

#### *Inflare*

- Position hip in flexion and internal rotation, increasing inflare
- Have client push out against moderate resistance
- Result is external rotation of hip
- Repeat three or four times
- Then on the final move, with the patient fully relaxed, ease the pelvis laterally by taking the knee away from the midline without undue force.

#### *Outflare*

- Position the hip in flexion and external rotation, increasing outflare
- Have client move the full leg towards the midline against resistance
- Then, on the final move, with the patient fully relaxed, ease the pelvis medially by taking the knee towards the midline without undue force.

Regardless of the corrective procedure, reset symphysis pubis by having the client supine with knees and hips flexed and instruct the client to firmly push the knees together against resistance applied by the massage therapist.

#### **Massage treatment for acute back pain**

- Side-lying position is recommended
- If prone, support with pillows under the abdomen and ankles

- *Do not* keep the client in prone position for an extended time – 15 min maximum
- When moving the client from a prone to a side-lying position, have the client slowly assume a hands and knees position, then slowly arch and hunch back (cat/camel move, valley/hill). Then, stretch back towards the heel with arms extended
- Then slowly have him/her move to the side position and bolster for stability
- Target pain control mechanisms
- *Do not* do deep work or any method that causes guarding, flinching or breath holding
- Use rocking, gentle shaking, combined with gliding and kneading to the area of most pain and symptomatic muscle tension
- This will most likely be on the back even though the causal muscle tension and soft tissue problem is usually in the anterior torso
- Massage the hamstring and adductors, gluteals and calves as these are usually short and tight and the firing is out of sequence
- *Do not* attempt to reset firing patterns during acute symptoms
- Turn client supine after working with both left and right sides – bolster under the knees
- The rectus abdominis and pectoralis muscles are likely short and tense
- Use kneading to lengthen these muscles
- Psoas muscles and adductors are likely short and spasming but it is advisable to wait 24–48 h before addressing these muscles
- Continue rocking and shaking.

#### **Subacute treatment using massage**

##### *Subacute treatment 24–48 h after onset*

- In the context of general massage, repeat acute massage application but begin to address second and third layer muscle shortening, connective tissue pliability and firing patterns
- Use direct inhibition pressure on the psoas, quadratus lumborum, paravertebrals, especially multifidi, always monitoring for guarding response
- *Do not* cause guarding or changes in the breathing
- It is likely that the hip abductors will have tender areas of shortening but lengthen the adductors first
- Gently begin to correct the trunk, gluteal and hamstring firing patterns
- Include massage application for breathing dysfunction since it is commonly associated with low back problems
- Do not over-work or fatigue the client.

*Subacute treatment 3–7 days after onset*

- Continue with subacute massage application in context of general massage, increasing intensity of the massage as tolerated
- In addition, muscle firing patterns and the short muscles of the upper and lower crossed syndrome need to be normalized
- It is appropriate to gently mobilize the pelvis and ribs
- No pain should be felt during any active or passive movements
- Positional release methods and specific inhibiting pressure can be applied to tender points
- The pressure recreates the symptoms but does not increase the symptoms
- Address trigger points that are most medial, proximal, and painful
- Do not address latent trigger points at this time or work with more than 3–5 areas
- Continue to address breathing function
- The client should be doing gentle stretches and appropriate therapeutic exercises.

*Post subacute treatment*

- Continue with general massage and address muscles that remain symptomatic
- Begin to assess for body-wide instability, compensation patterns, etc. that are predisposed to an acute back pain event
- Usually, the core muscle firing is weak with synergistic dominance of rectus abdominis and psoas (Chs 4, 5, 6)
- If breathing is dysfunctional, there can be midback pain as well
- Continue to normalize breathing pattern disorder
- For chronic back pain, continue with post subacute treatment and support rehabilitative exercises including breathing retraining (see Ch. 8).

**Massage protocol for common back conditions**

The protocol offered is only one example of how assessment and treatment of low back dysfunction is integrated into a general massage application. Based on assessment the appropriate methods to treat specific low back pain would be introduced into the massage as is convenient.

**FACE AND HEAD**

Working with the face is relaxing, therefore, if the face is done first, it can set the stage for a calming massage, or if the face is done at the end of the session, it will gently finish the massage (Fig. 7.22).

- Lightly and systematically stroke the face in multiple directions assessing for temperature, tissue texture changes and tissue ease and bind directions



**Figure 7.22** (A) Massage of face supine. (B) Massage of face side-lying. (C) Massage of head prone. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby, St Louis.)

- To increase circulation to the area of tissue bind and shift neuroresponses, move the skin into multiple directions of ease, and hold the ease position for up to 30–60 s

- Address the muscle structures. Light to moderate compressive force is adequate to address the area
- The muscles that clench the jaw (muscles of mastication) can shorten when a person is stressed
- Stress can cause low back dysfunction and/or the pain experienced from back problems can cause grimacing and stress
- It is prudent to make sure these muscles are functioning normally
- The muscles of mastication often house trigger points
- Hold the tissues housing the trigger point in the ease position using bending forces and move the tissues into bind to stretch the area
- Use gliding and gentle kneading to stretch the areas
- To finish the face, return to the initial light stroking of the lymphatic drain style to support fluid exchange in the area.

General massage of the head begins the assessment process. The connective tissue of the head connects into the lumbo-dorsal fascia. Bind in the connective tissue of the head can also cause bind in the low back. Typically, hair prevents using skin drag palpation methods, however the scalp can be moved into ease and bind positions and the muscles can be palpated for trigger point symptoms. Any soft tissue dysfunctions identified that are appropriate to treat during the massage are most easily addressed with compression methods and then manually stretched using ease and bind movement of the scalp in a connective tissue approach.

- Some clients enjoy having their hair gently stroked and pulled during massage and pulling large bunches of the hair in a slow steady manner can also stretch the tissue
- Compression to the sides of the head and to the front and back coupled with a scratching motion to the scalp can be very pleasant.

## NECK

Address this area with the client prone, side-lying and seated (Fig. 7.23).

- Systematically, lightly stroke the area, including assessment methods of scanning and skin drag
- Then, increase the pressure slightly and slowly move the tissue into ease and bind (Fig. 7.24)
- Identify any potential areas that can influence the low back, especially connective tissue structures and tendency to upper and lower crossed syndrome patterns
- Use gliding with a compressive element beginning at the middle of the back of the head at the trapezius attachments and slowly drag the tissue to



**Figure 7.23** (A) Neck massage prone, (B) neck massage side-lying, (C) neck massage seated. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby, St Louis.)

- the distal attachment of the trapezius at the acromion process and lateral third of the clavicle
- With client prone, begin again at the head and glide towards the acromion



**Figure 7.24** (A) Seated position for moving tissue of the neck, (B) prone position for moving tissue of the neck. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby, St Louis.)

- Then, reverse the direction and work from distal to proximal applying tension force to stretch the area
- Next knead and glide across the muscle fibers, making sure that bending, shear and torsion forces are only sufficient to create a pleasurable sensation while assessing for changes in the tissues
- Use muscle energy methods (Fig. 7.25) and/or direct pressure to inhibit and then stretch short muscles
- Increase intensity of the kneading to further stretch the local tissue if needed and then again apply tension force this time by passively or actively using joint movement and stretching the area
- Integrate specific methods to normalize breathing
- Gentle rocking rhythmic range of motion of the area (oscillation) may be used to continue to relax the area.



**Figure 7.25** Seated position for using muscle energy methods on the neck. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby, St Louis.)

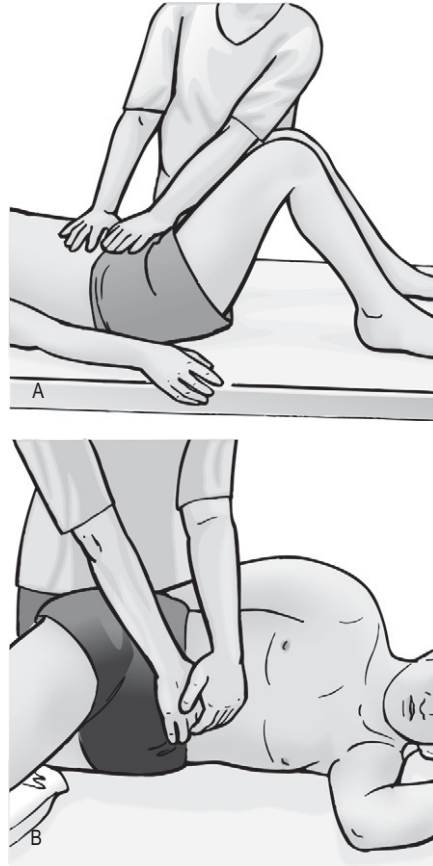
## TORSO ANTERIOR

When massaging this area, generally target breathing mechanisms. Breathing dysfunction and low back dysfunction are interrelated. The massage therapist influences breathing by maintaining soft tissue mobility in the area and supporting balance between sympathetic and parasympathetic autonomic nervous systems function. This is generally accomplished with a relaxation focus to the general massage.

- This is an appropriate time to assess for trunk flexion firing patterns and then apply corrections as convenient during the massage. The pelvic assessments performed supine (as described earlier) can also be incorporated (rotation and flair)
- Massage begins superficially and progresses to deeper tissue layers and then finishes off with superficial work again
- During the massage, various forms of palpation, joint movement and muscle assessment for tissue changes occur
- In general, if soft tissue dysfunctions are identified related to the low back problem as the massage progresses, hold the tissue in ease position until release is felt, or up to 30–60 s, and then the tissues are moved into bind using connective tissue approaches to stretch the tissue
- Use gliding with a compressive element beginning at the shoulder and work from the distal attachment of the pectoralis major (Fig. 7.26) at the arm towards the sternum following fiber direction
- This can be done in supine or side-lying position
- Repeat three or four times each time increasing the drag and moving more slowly



**Figure 7.26** Massage of pectoralis major. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)



**Figure 7.27** (A) Kneading abdominal muscles, supine; (B) kneading abdominal muscles, side-lying. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)

- If short muscles are located, muscle energy methods can be used to facilitate lengthening
- Positional release methods are especially effective for treating various tender points in this area
- Then, reverse the direction and work from distal to proximal applying tension force to stretch the area
- Knead and glide across the muscle fibers, making sure that bending, shear and torsion forces are only sufficient to create a pleasurable sensation while assessing for changes in the tissue
- If the breathing has been dysfunctional for an extended period of time (over 3 months) connective tissue changes are common
- Focused connective tissue massage application is effective
- Once the soft tissue is more normal, then gentle mobilization of the thorax is appropriate
- If the thoracic vertebrae and ribs are restricted, chiropractic or other joint manipulation methods may be appropriate and referral is indicated
- Incorporate all anterior thorax methods for breathing dysfunction
- Move to the abdomen and knead slowly across the fiber direction, as always assessing for dysfunction related to low back issues and then determining appropriateness of treatment based on the history and outcome goals (Fig. 7.27)
- Skin drag palpation is often ticklish in this area so is not used but scanning for heat is possible
- The psoas would be assessed and treated at this time using inhibitory pressure on the muscle belly or by using muscle energy methods and stretching

- Rhythmic compression to the entire anterior torso area stimulates the lymphatic flow, blood circulation and relaxed breathing
- Any areas or functions that received specific treatment should be reassessed for changes.

## TORSO POSTERIOR

This area can be addressed in the prone or side-lying position. It is appropriate to assess for hip extension and abduction firing patterns before actually beginning to massage the area and then correction can be incorporated as convenient during the massage. With the client positioned prone, SI joint assessments can be performed and then treatment would be included in the massage as it is convenient.

This area becomes involved in breathing function difficulties as well as low back symptoms.

The muscles commonly problematic are:

- serratus posterior superior and inferior
- levator scapulae
- rhomboids
- latissimus dorsi
- erector spinae and paravertebral especially the multifidi
- quadratus lumborum.

As described previously, massage begins superficially and progresses to deeper layers and then finishes off with superficial work.

- Begin with skin drag palpation and scanning to assess for possible tissue changes related to low back issues
- Use gliding (Fig. 7.28) with a compressive element beginning at the iliac crest and work diagonally along the fibers of the latissimus dorsi ending at the axilla
- Repeat three or four times, each time increasing the drag and moving more slowly to address deeper tissue layers
- Identify areas of tissue bind, heat, increased histamine response and muscle 'knots'
- Move up to the thoracolumbar junction and repeat the same sequence on the lower trapezius (Fig. 7.29)
- Then begin near the tip of the shoulder and glide towards the middle thoracic area to address the middle trapezius
- Repeat three or four times increasing drag (Fig. 7.30) and decreasing speed
- Begin again near the acromion and address the upper trapezius with one or two gliding strokes to complete the surface area



**Figure 7.28** Example of gliding with compressive force, prone. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)



**Figure 7.29** Example of gliding with compression using forearm. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)

- Muscle energy methods and stretching (Fig. 7.31) can also be used to address short muscles that relate to the low back condition
- Reverse the direction and work from distal to proximal applying tension force to stretch the area
- Knead (Fig. 7.32) and glide across the muscle fibers, making sure that bending, shear and torsion forces are only sufficient to create a pleasurable sensation while assessing for changes in the tissue
- Increase intensity of the kneading to further stretch the local tissue in the trigger point area and then again apply tension force this time by passively or actively using joint movement and stretching the area



**Figure 7.30** Example of gliding with drag on posterior torso. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)



**Figure 7.32** Kneading posterior thorax. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)



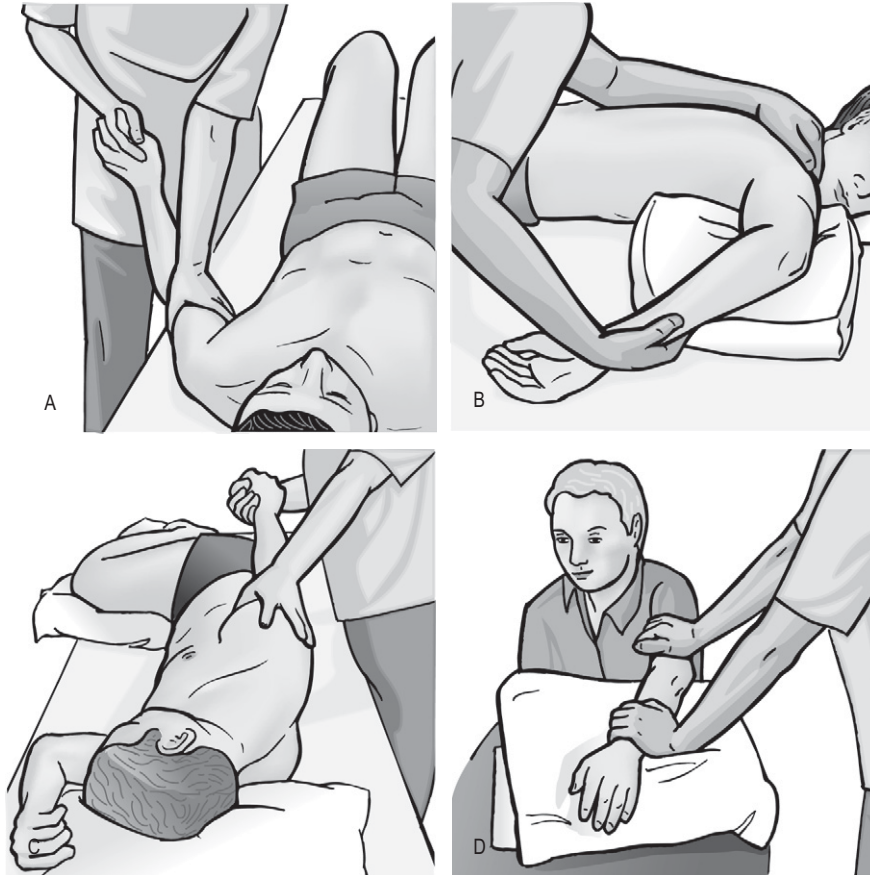
**Figure 7.31** (A) Positioning for muscle energy method. (B) Stretching using movement and gliding with drag to affect connective tissue. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)



**Figure 7.33** Skin rolling along spine. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- Knead the area again to increase circulation to the area and shift nervous system responses
- Skin roll (Fig 7.33) from the occipital base to the sacrum
- Move the skin into multiple directions of ease, and holding the ease position for up to 30–60 s. If appropriate use lymphatic drain methods in the area
- Gentle rhythmic rocking within the ranges of motion of the area (oscillation) may be used to continue to relax the area
- Identify rigidity in the ribs with the client prone bilaterally (on both sides of the spine) at the facet joints beginning near the seventh cervical vertebra and moving down towards the lower ribs maintaining compressive force near the facet joints





**Figure 7.34** Positions for moving tissue of the shoulder and arm. (A) Supine. (B) Prone. (C) Side-lying. (D) Seated. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby, St Louis.)

- If an area identified relates to the low back issue, treat with various muscle energy techniques
- Rhythmic compression to the area stimulates various aspects of fluid movement, supports relaxed breathing and finishes the massage of the area
- Any areas or function that received specific intervention should be reassessed for changes.

## SHOULDER, ARM AND HAND

The area is massaged in supine, prone side-lying and seated positions. Massage of the torso and neck naturally progresses to the shoulder, arm and hand. All assessment methods described in Chapter 4 can be incorporated during the massage application. The most common muscle in this area related to low back problems is the latissimus dorsi. It is often short and various methods can be used to inhibit the muscle and then stretch it. During the general massage, tissue is

assessed for low back issues relating to any symptoms the client may have.

- Commencing with the client prone, massage begins superficially, progresses to deeper layers and then finishes off with superficial work
- Finish the area with kneading, compression and gliding
- To increase circulation to the area and shift nervous system responses, move the skin into multiple directions of ease, and hold the ease position for up to 30–60 s
- Then move the tissue into bind to stretch the area
- Stretch the area with either active or passive joint movement or direct tissue application incorporating gliding and kneading, whichever is more effective. It is also appropriate to use a combination of stretching methods (Fig. 7.34).



**Figure 7.35** Massage of lumbar area, (A) prone, (B) side-lying. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

The intrinsic muscles of the hand are addressed next.

- Systematically work the area, using compression and gliding of the soft tissue between the fingers, the web of the thumb and on the palm that opposes the thumb and little finger
- There is also a network of lymphatic vessels in the palm that when rhythmically compressed assists lymphatic movement.

## LOW BACK AND HIP

This area would be a major target area of the massage for managing low back pain and dysfunction. The low back and hip area is massaged in prone and side-lying positions (Fig. 7.35).

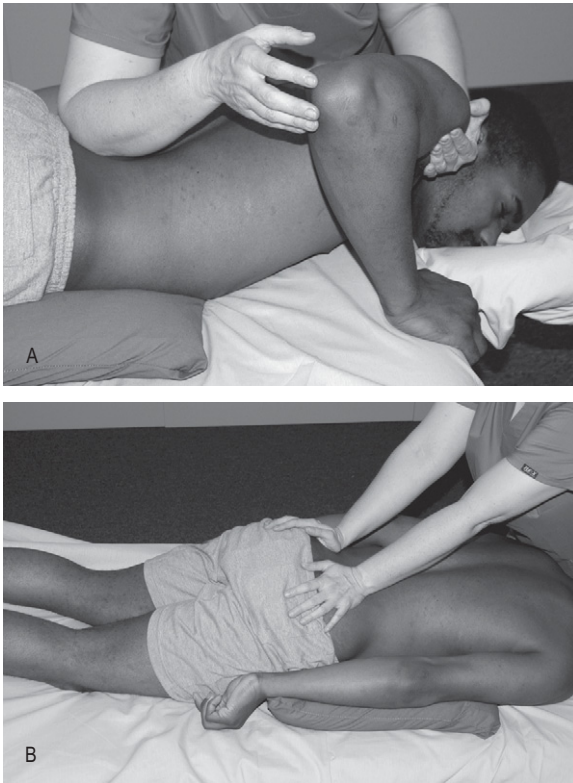
Massage of the torso naturally progresses to the low back and hip area. If there are indications of pelvic distortion patterns, it may be prudent to use massage to normalize hamstrings, quadratus lumborum, tensor fascia latae and piriformis.

- Massage begins superficially and progresses to deeper layers and then finishes off with superficial work
- Systematically, lightly stroke the area. This is the assessment of tissue changes related to low back issues
- Various firing pattern assessments, strength testing for muscle weakness and SI joint assessments can be performed at this time, if not previously done
- To increase circulation to the area and shift nervous system responses, move the skin into multiple directions of ease, and hold the ease position for up to 30–60 s
- Methods of lymphatic drainage are also appropriate if edema is present



**Figure 7.36** Compressive gliding from shoulder to opposite hip. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- Increase the pressure slightly
- Begin on the posterior to address the lumbar region that connects with the hip
- This area was addressed while massaging the torso but now is massaged in relationship to the low back and hip
- Carry the strokes into the gluteus maximus
- Repeat with the latissimus dorsi again in relation to low back function. Begin at the shoulder and carry the stroke all the way into the opposite gluteus maximus (Fig. 7.36)
- Systematically repeat the gliding, interspersing with kneading to assess the deeper tissue layers for trigger point symptoms, or the tell-tale knots that refer pain in trigger point patterns, SI joint dysfunction, quadratus dysfunction and any other low back concerns. Palpate for sacral tender points



**Figure 7.37** (A) Example of compression with shear force. (B) Example of stretching after compression. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

- If trigger or tender points are identified, address with the least invasive method of skin ease and bind movement or skin rolling
- Progress to compression methods with positional release. As a last resort, if there are connective tissue changes, shear forces introduced with friction can be used (Fig. 7.37)
- Stretch the area with direct tissue methods by kneading and slow gliding and connective tissue methods. MET and stretching are also options
- Lymphatic drainage methods support fluid movement in the area
- Finish by gliding and kneading the entire area.

## THE THIGHS, LEGS AND FEET

The area can be massaged in all basic positions (Fig. 7.38). Massage of the area naturally progresses from the hip. As with other body regions, massage begins superficially, progresses to deeper layers and then finishes off with superficial work.

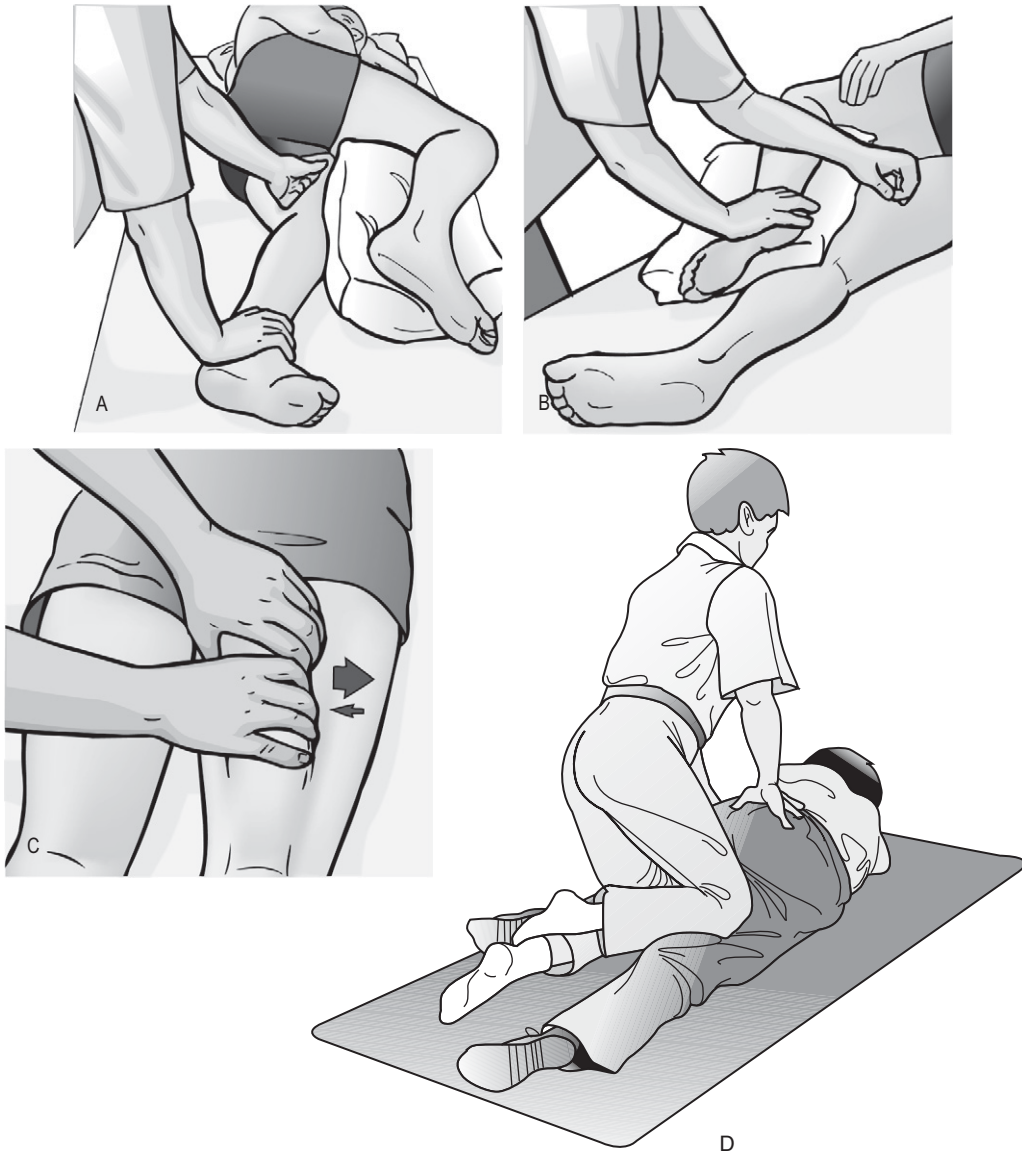
- To increase circulation to the area and shift nervous system responses, move the skin into multiple directions of ease, and hold the ease position for up to 30–60 s
- Increase the pressure slightly again gliding and kneading the entire area. Systematically repeat the gliding interspersing with kneading to assess the deeper tissue for tissue changes and treat appropriately
- If there are connective tissue changes, shear forces introduced with friction can be used. Stretch the area with direct tissue methods by kneading and slow gliding and connective tissue methods
- The hamstrings, quadriceps and adductor muscles are all factors if low back pain is present
- Assess to determine if these muscles are short, weak, or activating inappropriately (usually hamstring and erector spinae are overactive due to inhibited gluteus maximus)
- Move the hip and knee passively through flexion, extension, internal and external rotation to assess for restrictions in joint function
- Trigger point activity can be addressed with compression and muscle energy methods. Binding at the joint can be addressed with indirect functional methods (move into ease and hold for up to 60 s and then move into bind and the stretch just beyond bind) and connective tissue methods
- Use active and passive joint movement (Fig. 7.39) to reassess the area
- Lymphatic drainage methods support fluid movement in the area
- Finish by gliding and kneading the entire area
- Add gentle shaking and oscillation in various positions.

The intrinsic muscles of the foot are addressed next.

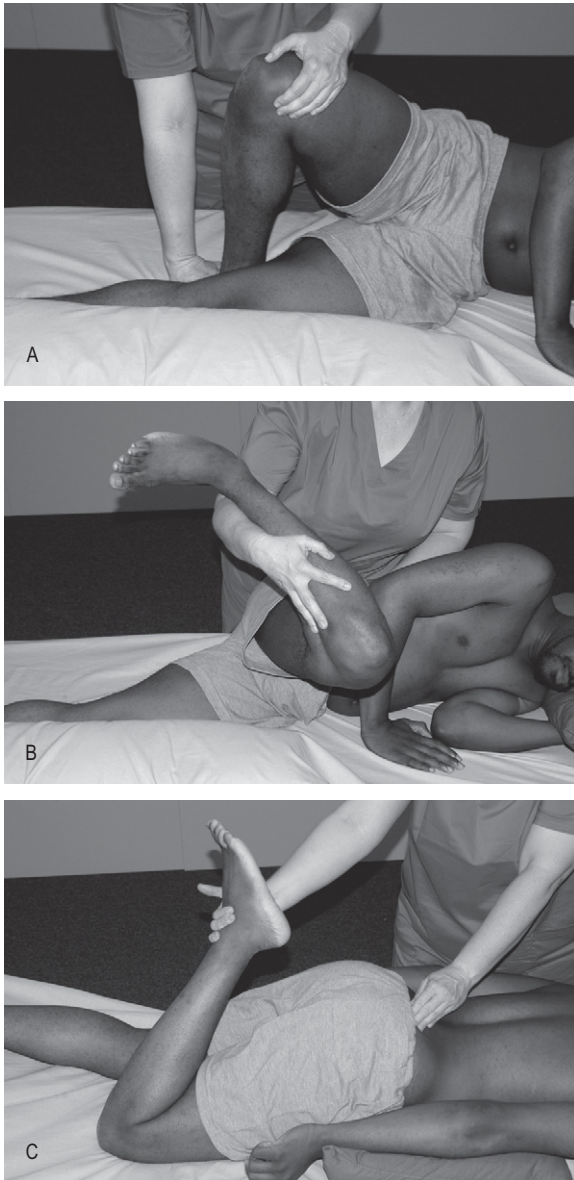
- Side-lying is the best position
- Work systematically using compression and gliding of the soft tissue of the sole of the foot (Fig. 7.40)
- There is also a network of lymphatic vessels in the sole of the feet that, when rhythmically compressed, will assist lymphatic movement
- To finish off, use gentle shaking and oscillation and compression and passive movement.

## RE-EVALUATION

The specific areas addressed during massage should be re-evaluated for results and this information incorporated into the plan for the next massage session. Use the same methods for reevaluation as were used for initial assessment.



**Figure 7.38** (A,B) Side-lying position massage of leg. (C) Prone shaking of hamstrings. (D) Compression of hamstrings. (From Fritz S 2004 *Fundamentals of therapeutic massage*, 3rd edn. Mosby, St Louis.)



**Figure 7.39** Examples of joint movement of the hip and knee. (Reproduced with kind permission from Mosby's Massage Career Development Series 2006.)

#### Massage and prevention of low back pain:

- Massage may be one of the most effective measures for preventing low back dysfunction
- Massage can address causal factors before they become serious enough to cause back pain
- General full body massage that incorporates application to the various tissue types and layers of soft tissue may shift the circulation and metabolic dysfunction to a more normal state
- Muscles with the tendency to form soft tissue dysfunctions can be maintained in a more pliable and lengthened state
- The soft tissue is regularly searched for changes during general massage and the soft tissue can be normalized before the trigger point develops, becomes fibrotic, or sets up satellite points
- Tendency to postural distortion from non-optimal use patterns during work or daily and recreational activities can be managed. Massage can also help maintain a more normal breathing pattern and autonomic nervous system balance
- For massage to be effective, the person would need to have massage on a regular basis, with weekly sessions ideal and at the minimum a monthly massage
- The basic prevention strategy for back problems is to develop a strong back. Since most injuries are due to muscle weakness, increased strength is the answer to almost every back problem.
- Strengthening the core is essential
- Stamina is equally important, strength is not enough, and the Chapter 8 will discuss this in more depth.



**Figure 7.40** Massage of foot. (From Fritz S 2004 Fundamentals of therapeutic massage, 3rd edn. Mosby, St Louis.)

## KEY POINTS

- Massage can be an effective approach to incorporating and blending various assessment and treatment options for low back pain
- Massage is generally enjoyed by clients/patients so compliance with treatment may be increased
- Massage can be a satisfactory treatment option for symptom management if the client/patient will not make the behavior changes necessary to address causal factors
- Massage for low back pain is an outcome based process that incorporates many different modalities and methods to achieve the goals identified including pain management, increased mobility and normalization of soft tissue structure and function
- To implement an outcome based massage application, it is necessary to perform appropriate assessments to target massage
- Massage can be generically explained by describing qualities of touch and application of mechanical forces to influence the body's structure and function
- Generalized full body massage application can ease low back symptoms. These include pain management, connective tissue normalization and breathing function normalization
- Specific massage strategies can address local dysfunctional areas such as short muscles, altered firing patterns and areas of fibrosis and adhesion and joint dysfunction
- Massage methods for acute back pain are more general and less specific than methods for chronic back pain
- Massage focused for chronic back pain is both symptom management and reversal of causal factors
- Massage is an effective aspect of a program to prevent low back pain.

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