

Second Edition

# SOFT TISSUE AND TRIGGER POINT RELEASE



**JANE JOHNSON**

HANDS-ON GUIDES  
FOR THERAPISTS



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# Soft Tissue and Trigger Point Release

Hands-On Guides for Therapists

Second Edition

Jane Johnson, MSc



HUMAN KINETICS

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The updated and revised edition of *Soft Tissue Release* is again dedicated to my son, Jake Johnson, who was 10 years old at the time the first edition was published. He has now reached the age of 19 and seems unscathed by having been brought up by a less than conventional mother. I am every day grateful to have him in my life.

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# Series Preface

The Hands-On Guides for Therapists series was originally developed to provide the best clinical and educational resources for massage therapists, who were growing in number but for whom scant material existed to support the techniques they were learning and using. *Soft Tissue Release*, *Deep Tissue Massage* and *Sports Massage* were the first titles to be published for this growing market. They proved so popular that they were soon followed by *Therapeutic Stretching* and *Myofascial Release*. As professionals from other disciplines began to use and enjoy the material in this series, the range of titles was expanded to include *Postural Assessment* and *Postural Correction*, appealing particularly to students of physiotherapy, osteopathy and chiropractic, as well as to sports therapists, fitness instructors and teachers of yoga and Pilates.

The core focus of the Hands-On Guides for Therapists series remains the provision of specific tools of assessment and treatment that may be utilized by bodyworkers. Each book in the series contains simple explanations of a technique, often using a step-by-step approach, and full colour photographs throughout. With many years' experience, authors have provided tips containing handy advice to help therapists adjust their technique to help them become proficient. Client Talk boxes contain examples of how the techniques have been used with clients who have particular problems. At the end of each chapter are questions that enable readers to test their knowledge and skill, particularly helpful for those about to sit exams in the subject. Answers are provided at the back of the book.

Information in the Hands-On Guides for Therapists series has also proved useful for course tutors who have used these titles as textbooks to support courses in these subjects.

*Postural Assessment* and *Postural Correction* are each supported by an online CE course that, once completed, provides CE credits for a wide variety of governing bodies. Similar courses are being developed for other titles in the series.

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Written for all therapists wishing to add to their existing soft tissue skills, the first edition of *Soft Tissue Release* was published in 2009. Designed to be used as a stand-alone text, with photographs supporting the step-by-step explanations, the first edition proved to be a valuable support text for therapists attending workshops in soft tissue release (STR) or studying on longer courses where STR formed one of the modules, such as sports massage therapy. Therapists who were already trained in the technique found it a helpful reference. Because this form of stretching may also be performed through clothing, fitness instructors, sport coaches, sport therapists, physiotherapists, osteopaths, chiropractors and other bodyworkers were also able to utilize this material.

Almost 10 years since publication of this hands-on guide, the new edition of *Soft Tissue Release* builds on the original text with the addition of text, photographs, illustrations and tables. One of the most significant additions is material describing how STR may be used to deactivate trigger points.

Introductory chapter 1 provides answers to common questions about use of the technique, such as How does the technique work? Who should have it? Where and when should it be applied? and What are the benefits of the technique? This chapter has two new sections, one describing the use of STR technique for deactivating trigger points and one about current research on the topic of stretching. The new section on trigger points describes what they are, why they should be treated, how to identify them and how to use STR to deactivate them. To clarify these points, eight photographs have been added to the step-by-step description of passive STR.

Chapter 2 is about preparing for STR, and it has new photographs illustrating additional handholds and methods of locking tissues. An illustration of the visual analogue scale (VAS) has been added, plus photographs of simple muscle length tests have been added to the section on measuring your effectiveness.

Chapters 3, 4 and 5 provide detailed information about how to apply different forms of STR: passive, active-assisted and active, respectively. Within each of these chapters three new sections have been added: the direction of locks, how to take up slack in the skin and the direction of pressure. Arrows have been added to photographs in each of these chapters to show in which direction pressure needs to be applied in order to take up slack in tissues as a lock is applied. Each chapter now has a section about how to use that form of STR to deactivate trigger points.

In addition, each chapter has an overview table with thumbnail photographs showing all of the techniques described in that chapter. The reader may use it as a checklist when learning to use STR. Finally, each chapter has a new section with ideas for how to become proficient in the use of that particular form of STR.

Chapter 3 has new photographs and illustrations as well as a new section describing how to apply passive STR to shoulder adductors.

Chapter 4 has new photographs and illustrations. In addition, a new table shows which muscles are usually treated in a neutral position and which are usually shortened. A new section describes how to incorporate active-assisted STR into an oil massage, and a new form of this technique is introduced—gliding STR. New sections have been added describing active-assisted STR to the iliotibial band (ITB), infraspinatus, biceps brachii and triceps.

Chapter 5 has new photos and illustrations plus new sections describing how to apply active STR to gluteals, trapezius, scalenes, rhomboid and pectoral muscles.

Part III contains three chapters, each focusing on the application of STR to a different body part. Chapter 6 describes the application of STR for these muscles of the trunk: rhomboids, pectorals, levator scapulae, upper trapezius, erector spinae and scalenes. Chapter 7 contains stretches for the lower limbs: hamstrings, calf, tensor fasciae latae and the ITB, foot (underside), quadriceps, tibialis anterior, peroneals, gluteals and iliacus. Chapter 8 focuses on the application of STR to these muscles of the upper limbs: triceps, biceps, shoulder adductors, infraspinatus, wrist and finger extensors, and wrist and finger flexors. Illustrations of each of the muscles in these three chapters have been added, along with illustrations showing common trigger points and a description of how STR might be used to address them. References pertaining to the deactivation of trigger points in specific muscles have been included throughout. Arrows have been added to photographs in these chapters, showing in which direction slack in the skin is taken up at the start of the technique. Alternate treatment positions have been added to all chapters.

Chapter 6, *Soft Tissue Release for the Trunk*, has been improved by the addition of photographs, anatomical illustrations, and new sections on active-assisted STR to rhomboids and pectorals and active STR to trapezius, pectorals and scalenes.

New photographs, anatomical illustrations and sections on passive STR to gluteals, active STR to gluteals and active-assisted STR to the ITB have been added to chapter 7, *Soft Tissue Release for the Lower Limbs*.

Chapter 8, *Soft Tissue Release for the Upper Limbs*, has new photographs and illustrations along with new sections on passive STR to shoulder adductors, active STR to shoulder adductors and active-assisted STR to infraspinatus.

Finally, part IV includes a comprehensive chapter on client consultation and designing individualised STR programmes. Two new case studies have been added to this chapter, specifically about the use of STR to deactivate trigger points.

In summary, this edition of *Soft Tissue and Trigger Point Release* contains the following additions:

- 153 new photographs
- 21 anatomical illustrations

- More photographic examples of handholds used to apply locks
- Arrows showing the direction in which to apply pressure to take up slack in soft tissues
- Photographs and text describing variations on treatment positions
- Information about current research on stretching
- A new section on the use of STR to deactivate trigger points
- Illustrations of common trigger points found in each of 21 muscles
- More tips throughout the text
- Overview tables in chapters 3 through 5 with thumbnail photographs showing all of the techniques and positions described in the chapter
- A new section in each chapter with ideas for how to become proficient in the use of that particular form of STR
- A new section describing how to apply passive STR to shoulder adductors
- New sections describing active-assisted STR to the iliotibial band (ITB), infraspinatus, biceps brachii and triceps
- New sections describing how to apply active STR to gluteals, trapezius, scalenes, rhomboid and pectoral muscles

## How to Use This Book

You have several different options for using this book to help you become proficient in the application of STR technique.

- *Option 1:* The easiest way might be to use it in conjunction with the continuing education (CE) course and video, in which the technique is demonstrated. Both review questions and exam questions in the CE course will help consolidate your learning.
- *Option 2:* You could learn the technique by choosing to concentrate on one of the three different forms of STR (passive, active-assisted and active), described in chapters 3, 4 and 5.
- *Option 3:* You could practise applying any of the STR variants but focus on one particular part of the body. For example, you could practise working through chapter 7 for the lower limbs.

As you will discover, there are many different ways to apply STR. I hope that you will experiment with them all in order to find the ones that work best for you. Massage therapy is a vibrant, dynamic profession that gains from collaboration and discussion. Feel free to send comments, enquiries and suggestions to me by posting these to The Friendly Physio group on Facebook.



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# Acknowledgements

It is with grateful thanks that I acknowledge everyone at Human Kinetics who has helped bring this title to print. Decision makers, editors, designers, artists, proofreaders and photographers have each contributed, and as author, I am honoured to be part of this team.

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# Getting Started With Soft Tissue Release

This first part of the book provides everything necessary to help you get started with the great technique of soft tissue release (STR).

Chapter 1 teaches you about the kinds of clients for whom STR is appropriate, how the technique works, the kinds of settings in which it can be performed, its benefits and the kinds of conditions for which it is helpful. Here you will also find information about trigger points and how you can utilise STR to help deactivate them. As STR is a stretching technique, this chapter concludes with some research on this topic. Chapter 2 describes how to use your body to apply STR and when the use of tools might be indicated. Also covered in this chapter is the importance of the client consultation, simple safety points and a brief description of the three methods of applying STR. The chapter includes ideas for measuring the effectiveness of STR as well as answers to frequently asked questions and lots of troubleshooting tips, which are useful to refer back to as you work through the book. At the end of these chapters and each subsequent chapter you will discover some quick questions, which you may wish to answer to determine your level of understanding.

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# Introduction to Soft Tissue Release

Soft tissue release (commonly called STR) is an advanced massage technique widely used in assessing and stretching soft tissues. Soft tissues include muscle fibres, their tendons and the deep and superficial fascia surrounding and invaginating these tissues. Stretching is often used for easing the pain of muscle tension and realigning the body so that it functions in a more optimal way. However, unlike generalised stretching, soft tissue release targets specific areas of tension within a muscle. It is also useful for targeting muscles that are difficult to stretch actively (the fibularis muscle group, or peroneals, for example) and for isolating a muscle within a group of muscles that would normally stretch together (the vastus lateralis from the quadriceps, for example). It has proven useful in the treatment of certain conditions such as medial and lateral epicondylitis and plantar fasciitis, perhaps because it stimulates tissue repair in these conditions.

There are many different forms of stretching. Unlike traditional stretching, STR involves the application of pressure to part of a muscle during the stretch. In this respect, it may be likened to Thai yoga massage. However, unlike Thai yoga massage, it does not target specific acupressure points and is not applied along specific *sen* lines (meridians; *sen* means 'channel'). When applying STR, pressure is applied either generally (for the purposes of general stretching) or, more commonly, to a specific area of soft tissue that the therapist and client perceive to be tensioned, regardless of whether this happens to fall on a particular acupoint or meridian. The field of STR stretching needs more scientific research; however, the information in this book is based on the author's experience over many years of clinical practice. Stretching in general is believed to be beneficial for overall health, and the American College of Sports Medicine (2018) recommends that stretching is performed 2 to 3 days a week, with each stretch held for 10 to 30 seconds, repeated 2 to 4 times per muscle group, to include the neck, shoulders, trunk, lower back, chest, hips, anterior and posterior legs, and ankles. Because

there has been no research into the use of STR as a stretching technique, it is not known whether these guidelines would also apply to STR. STR is almost always performed as part of a massage routine, where massage is used to soothe and stretch tissues following this lock-and-stretch approach; therefore, it is likely that benefits of STR reported by clients and therapists are the result of both the stretch and the massage combined. It is unknown to what extent the individual modalities contribute to achieving the overall treatment outcome.

One of the uses of STR is to help reduce feelings of tension in muscles. It seems logical to therefore use it when a client reports tightness or stiffness. However, a recent study by Stanton et al. (2017) found that participants who reported feeling stiff in the spine did not have a reduced range of motion (mechanical stiffness) of the spine, compared to participants who reported no stiffness. It is not known why this was, but the authors suggested that the participants who reported stiffness overestimated the amount of force being applied to their spine and were better able to detect changes in that force. Interestingly, they then applied the force they were using as different sounds were played. Not surprisingly, when a creaky sound was played, participants reported thinking a higher level of force was being applied compared to when a 'whoosh' sound was played. The authors concluded that feelings of stiffness were not related to actual biomechanical stiffness but may represent a protective construct. In a similar fashion, this raises the question as to whether so-called tight muscles are actually tight. Do people with tight muscles have a reduced range of motion compared to those who do not report tightness? If you have ever treated professional dancers, you will know that they have greater than normal range of motion in the joints compared to the general population and yet still often complain that their muscles feel tight. Does this mean that we should stop stretching people who report back stiffness or tight quadriceps and that stretching is of no benefit to them in feeling less stiff or less tight? No, it means that all forms of stretching, including STR, need to be evaluated in light of ongoing research and that you should determine in advance how you are going to measure the effect of your treatment so that you and your client can decide afterwards whether it was effective. The science of stretching is complex. Until definitive protocols are established, it is likely that different forms of stretching will continue to be of value to different clients.

## Who Should Have Soft Tissue Release

Almost anyone will benefit from STR. It is particularly useful for the following people:

- *Anyone who takes part in sports or exercise.* Those taking part in a regular stretching programme will benefit from STR. It is useful before an event when time is limited and the athlete wants to target specific areas of tension; in this case, STR may be applied in a light and brisk manner. Between events it is useful as an assessment tool for identifying tightness in tissues that may limit performance.

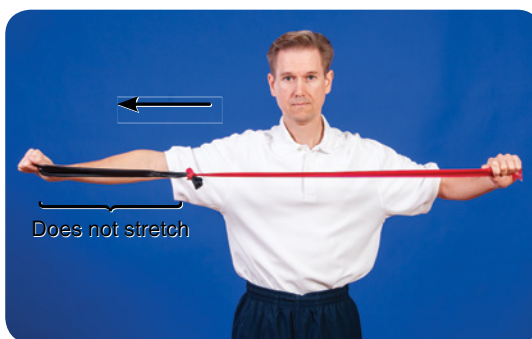
- *Anyone recovering from a musculoskeletal injury.* Soft tissues shorten, atrophy and weaken as a result of immobility. Used correctly, STR may help to lengthen and encourage pliability in tight tissues. In this way it helps a client regain range of motion in a joint. Active stretching is known to help with the orientation of collagen fibres during healing.
- *Anyone who maintains a static posture for long periods.* Office workers and drivers who remain seated for long periods often have neck and shoulder pain due to increased muscle tension. STR may be used for alleviating neck pain associated with static postures.
- *Anyone seeking treatment for lateral epicondylitis, medial epicondylitis or plantar fasciitis.* It is also used as an adjunct in the treatment of shin splints and tight hamstrings. Applying STR to the pectorals is helpful for overcoming kyphotic postures.
- *Anyone needing treatment for increased muscle tension and for old scar tissue.* Such areas are palpable, and STR provides the therapist with an additional massage tool to help stretch and realign areas of soft tissue popularly described as being congested.
- *Anyone who needs treatment of trigger points* (localized muscle fibres believed to be in an unhealthy state of contraction and tender to the touch).

## How Soft Tissue Release Works

Take a look at the pictures shown in figures 1.1 through 1.3. They represent what happens when a gross stretch is applied to a muscle. The therapist is holding two resistance bands tied together—one red, the other black. The red resistance band is extremely stretchy; the black is tough and less stretchy. The red resistance band represents normal, healthy muscle tissue; the black resistance band represents an area of tight muscle tissue. Together these bands represent one whole muscle. Look at what happens in figure 1.1 when the therapist moves his right hand. Which part of the muscle does the stretching—the pliable (red) part or the tough (black) part? Clearly, the pliable band is doing the most stretching.

Now look at figure 1.2. What happens when the therapist moves his left hand? Which part of the muscle stretches the most—the pliable (red) part or the tough (black) part? Again, the pliable band is doing most of the stretching.

Finally, notice what happens when the therapist moves both his right and left hands apart so they are equidistant (figure 1.3).



**Figure 1.1** Notice which band is doing the stretching.



You can see from the illustrations that the pliable part of the muscle (the red band) does most of the stretching, irrespective of which end of the muscle is moved. To target the less pliable part of the muscle—the area of palpable tightness—you need to localize the stretch. This is exactly what STR does.

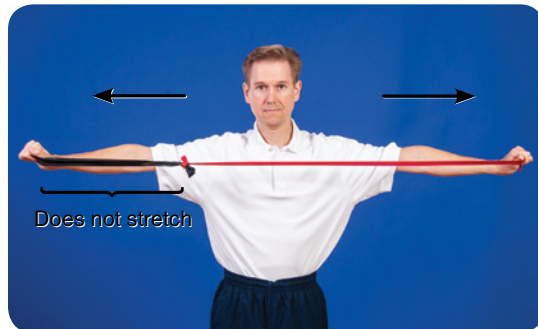
To localize the stretch, you need to ‘fix’ part of the muscle against underlying structures to create a false insertion point. The fixing—described throughout this book as a *lock*—prevents some parts of the muscle from moving and is achieved when a therapist uses his or her own upper body or a massage tool. When a muscle is stretched, its insertion points are moved apart from one another; that is, the area of tissue between the insertion points stretches. Creating false insertion points results in a more intense stretch in some parts of the muscle.

Look at figure 1.4a, which is an illustration of the soleus. You probably already know that the soleus originates from the posterior shaft of the tibia and inserts into the calcaneus. When resting in the prone position, the foot naturally falls into plantar flexion (figure 1.4b). If you pull up your toes (dorsiflexing your foot and ankle), it stretches the muscles of the calf (which are the plantar flexors). Dorsiflexion is therefore a way of applying a gross stretch to the soleus and may be achieved passively, as illustrated in figure 1.4c.

Now look at figure 1.5a. Imagine locking the muscle to the tibia slightly distal to its actual origin (lock A; figure 1.5b). Can you see that if you were to stretch the muscle now (figure 1.5c), only those fibres running from the new origin (lock A) to the calcaneus would be able to stretch? Would you agree that, providing you are able to dorsiflex through the *same* range of motion as in the first stretch, greater force has been placed on those fibres being stretched? This occurs because the small amount of muscle tissue superior to lock A is no longer being stretched.



**Figure 1.2** Which band is doing the stretching now?



**Figure 1.3** Even with an equidistant stretch, the more pliable band does the most stretching.



**Figure 1.4** (a) The soleus; (b) the ankle falls into plantar flexion in the prone position; (c) performing a passive calf stretch.



**Figure 1.5** (a) Locking the soleus muscle slightly distal to its actual origin (lock A); (b) applying the lock; (c) performing the stretch.

Now look at figure 1.6a. A second imaginary origin (lock B) for the soleus is even more distal on the tibia, broadly locking it to the underlying structures (figure 1.6b). Performing a stretch now (figure 1.6c) will place even greater tension on the stretching fibres than if the lock had remained at lock A.



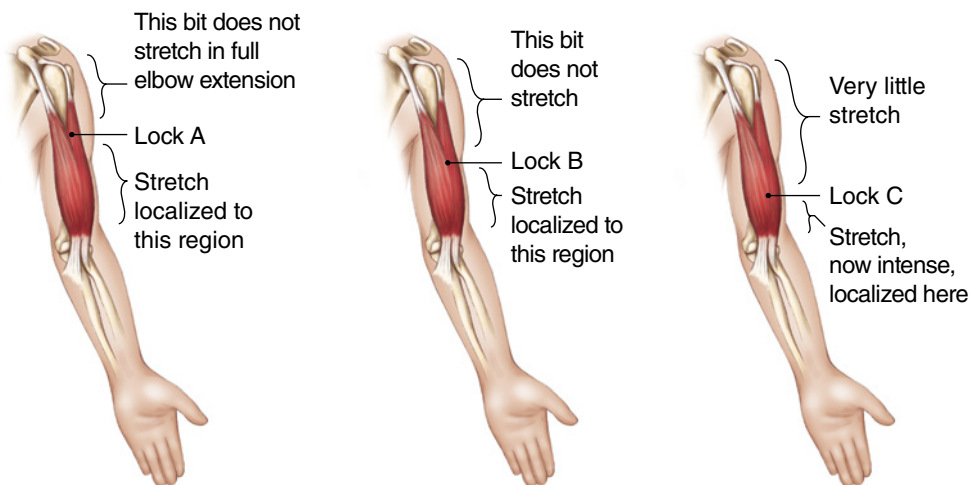
**Figure 1.6** (a) Locking the soleus more distal on the tibia (lock B); (b) applying the lock; (c) performing the stretch.

Finally, you could create a third false origin (lock C) yet more distal to the actual origin (see figures 1.7a and 1.7b). In this example, only the most distal portion of the soleus stretches when the foot and ankle are dorsiflexed (figure 1.7c).



**Figure 1.7** (a) Locking the soleus even more distal on the tibia (lock C); (b) applying the lock; (c) performing the stretch.

In reality it is not possible—or advisable—to lock the entire breadth of the muscle, but this is the principle behind how STR works. An alternative is to apply a specific rather than a broad lock—for example, on the biceps brachii, as illustrated in figure 1.8. The areas of muscle fibre distal to each of the locks are put under greater stretch each time the elbow is extended. To understand this concept of a specific stretch, think of muscle fibres as the strings of a guitar. Placing your finger across all of the strings, as in the previous example of the soleus, is quite different from placing your finger across one string, as in the case of using your elbow to apply a lock to the biceps. For a start, it is quite difficult to exert the same pressure across all strings that you would use to fix just one string. When playing the guitar, if you use the tip and pad of your finger to fix just one string, with one specific lock, only that string is affected, yet it is affected intensely. However, if you use more of your finger in an attempt to make a lock across all of the strings, you affect all of the strings when you play, though perhaps not as intensely.



**Figure 1.8** In applying specific locks, the areas of muscle fibre distal to each of the locks are put under greater stretch each time the elbow is extended.

## Where to Perform Soft Tissue Release

You can use STR anywhere because it may be performed through clothing or a towel and in prone, supine or seated positions.

- *In the office.* When working at a computer or with other office equipment, office workers may find it useful to apply active STR to their wrist and finger flexors and extensors.
- *Whilst seated.* STR can be applied actively to the soles of the feet using a spikey ball or foot roller. STR may also be applied actively to the quadriceps when sitting. Therapists who provide seated, on-site massage may benefit from applying STR to the levator scapulae and the upper trapezius.
- *In the park.* STR to the hamstrings and tibialis anterior can be performed in the park or by the side of a running track.
- *On the tennis court.* After a match, STR to wrist and finger extensors can provide temporary relief from the discomfort of lateral epicondylitis (tennis elbow).
- *On the golf course.* STR may provide temporary relief from medial epicondylitis (golfer's elbow).
- *By the pool.* By working through a towel and taking care to keep the client warm, a therapist may apply STR to all major muscle groups.
- *In the clinic.* STR can be performed as part of a holistic massage treatment, or it could form an entire treatment session in itself. Clinic sessions are useful when working with sensitive areas such as the iliacus because the client needs to be comfortable and relaxed.
- *At home.* Almost anyone can follow a home stretching programme using simple tools to apply a gentle lock into soft tissues.

## When to Perform Soft Tissue Release

When performed slowly and conscientiously, soft tissue release may be used before, during or after a massage treatment or as a treatment in itself. Soft tissue becomes more pliable when warm, and most forms of stretching may be more effective when applied to warm tissues. However, increases in joint range are also attainable when STR is applied to tissues that have not been warmed. It is a perfectly safe form of stretching, providing movements are slow and controlled.

Stretching decreases muscle force and should therefore be used with caution in a pre-event setting. In this case it could help increase range of motion in joints, as long as care is taken not to overstretch the associated muscles. It may be valuable in helping to overcome excessive tightness or spasming in localized areas of tissue that need immediate attention before a sporting event.

When using STR in a post-event setting, take care not to work too deeply. There may be microtrauma to tissues, so it is best to use STR conservatively as an assessment tool and save deeper work for part of a maintenance massage. Also, after excessive exercise or training, increased levels of pain-relieving hormones may

decrease a client's perception of pain, and as a result, a client may be less able to give accurate feedback relating to the degree of pressure he or she is sensing. In both pre- and post-event work, STR tends to be used as an adjunct to other forms of treatment for overcoming cramping and for maintaining muscle length. Between training sessions and as part of some forms of rehabilitation, it may be used as a form of deep, intense stretching.

Overall, STR should be used when there is a reason to use it. This reason could be simply because the client likes the sensation of STR or because as a therapist you have identified areas of tension that need to be addressed. It is unlikely that you will be working with the same client on a daily basis unless the client is preparing for or involved in an ongoing sporting event. STR can certainly be used weekly, and perhaps two or three times a week, on the same muscle. Use your own judgement to ensure you do not overwork an area. Once STR has been applied two or three times to a muscle within a treatment session, the muscle will be noticeably more pliable.

## Benefits of Soft Tissue Release

Soft tissue release is used for a variety of reasons, perhaps most commonly because it stretches soft tissues. It is therefore beneficial because it improves flexibility and posture, alleviates the pain of muscle tension and takes pressure off associated joint structures. It helps maintain or increase range of motion within a joint and, combined with excellent palpation skills, helps therapists assess the degree of tension within and between soft tissues. Many clients also enjoy the sensation of STR and are happy to have it incorporated into their massage routines. It provides therapists with another tool they can employ and may thus help keep massage routines varied. STR is especially useful in clinical settings where clients need to stretch muscles but cannot take joints through a full range of motion. For example, after many forms of knee surgery, patients are encouraged to flex and extend their knees to maintain joint integrity and pliability of surrounding tissue. Movement is believed to facilitate the healing process but is often limited due to pain and

### CLIENT TALK

I used STR for the quadriceps of a client who had been in a full-length leg cast and, because of tightening of the knee joint capsule, was initially unable to gain full knee flexion. We started cautiously, gaining very small increases in joint range initially, combining STR with massage in an attempt to stimulate the quadriceps. I had to hold the client's leg in extension and lower it passively because he did not have strength in his quadriceps to do this. I learned that applying passive STR to the quadriceps is actually quite strenuous for the therapist, and I had to take great care not to strain my back whilst performing it.

swelling. Used at the right juncture in treatment, STR can help in stretching the tissues without causing the joint to move through its full range; for example, STR can be applied to the quadriceps with the client flexing the knee to only 90 degrees. STR is particularly useful as part of the rehabilitation process when used for achieving small increases in range that might not otherwise be possible.

## Soft Tissue Release and Trigger Points

Myofascial trigger points are specific spots within skeletal muscle that are palpably tensioned and that clients report as being uncomfortable or painful when pressed; they refer pain in a characteristic pattern and may be eliminated with manual therapy. They were described by Simons, Travell and Simons (1999) as 'a hyperirritable spot in skeletal muscle that is associated with a hypersensitive palpable nodule in a taught band' (p.5) and by Leon Chaitow (2000) as 'localized areas of deep tenderness and increased resistance, and digital pressure on such a trigger will often produce twitching and fasciculation' (p.35). Although debate continues within the scientific community as to the presence of trigger points, they are widely acknowledged by manual therapists who report being able to identify them with palpation. Massage and other modalities such as dry needling, anaesthetic injection and cryostretching are reported to reduce the hypersensitivity of these points and thus reduce the pain associated with them. Both massage and stretching are used to deactivate trigger points. As STR combines these methods, it is postulated that STR can be used as a meaningful treatment in its own right. This book guides you in the application of STR to treat trigger points, with illustrations showing common trigger points in the trunk (chapter 6), lower limbs (chapter 7) and upper limbs (chapter 8).

### Why You Should Treat Trigger Points

Trigger points are associated with a variety of problems, such as the following:

- Tight and weak muscles
- Decreased muscular strength
- Stiff joints
- Joint pain
- Muscle pain

They have also been associated with headaches, blurred vision, dizziness and sinus problems (Davies, 2004).

### How to Identify a Trigger Point

Trigger points emit electrical signals that are measurable. Clinically, they are easily detected because they are located in the belly of the muscle, hurt when pressed firmly, and refer pain in a predictable pattern. If you run your finger or thumb

firmly over a muscle containing a trigger point it can be felt as a pea-shaped area of increased tension, and your client will no doubt inform you that you have located it. The muscle here is firm to touch and resistant to pressure and may feel warm. When pressed, tissues elicit what is called a jump sign; that is, when you twang them they produce a characteristic twitch. Another interesting characteristic of trigger points is that they may be latent or active. Simons, Travell and Simons (1999) describe latent trigger points as 'clinically quiescent with respect to spontaneous pain' (p. 4), meaning these points are only painful when pressed. By comparison, an active trigger point 'is always tender' (p. 1) and produces referred pain and tenderness. Both forms of trigger point have a taught band within them that restricts range of motion (p.4).

## How You Should Treat Trigger Points

Trigger points may be reduced by the application of gentle pressure. Techniques vary. Davies (2004) suggests stroking the point 6 to 12 times a day. For a client self-treating, this advice is valuable, but for a therapist it is obviously impractical. The use of STR can be beneficial in reducing trigger points, using the following method:

1. Identify the trigger point. Palpate the area and elicit feedback from your client.
2. Follow the guidelines for the application of passive or passive-assisted STR, and passively shorten the muscle in which the trigger point is located, where this is possible.
3. Apply gentle pressure. On a scale of 0 to 10, with 10 being worst pain ever and 0 being no pain at all, ask your client to inform you how painful the pressure is that you are applying. Whilst many therapists use a level 7 pain as a guide when treating trigger points, the author recommends working at around a level 5. The rationale for this approach is twofold. Firstly, as soft issues are lengthened and stretched with STR, tension increases naturally and pain can increase. Secondly, increased pain causes more muscle tension or muscle guarding by the patient, which is counterproductive to reducing trigger points.
4. Following the guidelines for the application of STR to whichever muscle you are treating (which can be found in chapters 6, 7 and 8 of this book), gently stretch the muscle using STR and then soothe the area with massage.
5. Relocate the trigger point, apply gentle pressure, and ask your client to inform you whether the same level of pressure elicits the same level of pain. If the use of STR has been successful, your client should report that he or she feels less pain when you apply the same degree of pressure as previously. You can repeat the technique a second time if necessary. Often releasing a trigger will increase joint range of motion and muscle extensibility.



## Closing Remarks

You have learned that soft tissue release targets specific areas of tension in a muscle. It especially stretches the muscle fibres, their tendons and the fascia. It is safe and effective for most people.

Now that you have an idea of what STR is, how it works, who could receive it and when and where you can use it, you are ready to discover more about the various ways of locking muscles and using massage tools. In addition, you are ready to learn lots of tips and tricks for using this technique as well as ideas for measuring your effectiveness.

## Quick Questions

1. How does STR differ from generalised stretching?
2. Give three examples of how a muscle might be locked.
3. When applying a lock, do you start at the proximal or distal end of the muscle?
4. Why should STR be used cautiously in a pre-event setting?
5. Why should deep STR be avoided in a post-event setting?
6. Give three examples of the kinds of muscular problems associated with trigger points.
7. Give two examples of the kinds of joint problems associated with trigger points.

# Preparing for Soft Tissue Release

In this chapter, you will learn the following basics of STR: various methods of locking tissues, including their advantages and disadvantages; using massage tools to apply STR; potential safety issues; and an overview of the three types of STR—passive, active-assisted and active. At the end of the chapter, you'll find frequently asked questions and troubleshooting tips, as well as a section on measuring the effectiveness of your treatments. After completing the chapter, you will have everything you need to get started with this versatile stretching technique.

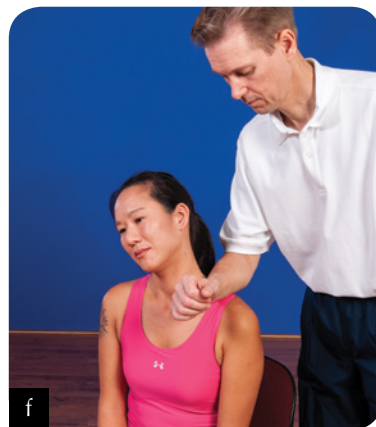
## Using Your Body to Apply STR

STR may be applied without any equipment at all. In a later section, you'll read about using tools to help lock muscles. This section explains how your upper body provides an array of options for applying STR. Forearms can provide broad locks, and elbows can provide localized locks; similarly, you can use each part of the upper limb for unique purposes. Massage therapists are notorious for sustaining upper limb injuries due to overuse. You can easily avoid these injuries by using your forearms, fists and elbows as described in the following text and photos.

### Forearm

Forearms are used on large, bulky muscles, such as the calf (*a* and *b*), hamstrings (*c*), quadriceps (*d*) and gluteals (*e*). They can also be used when working on the upper fibres of the trapezius (*f*), using less pressure than when working on the lower limbs. Your forearm provides a strong, broad lock, good for providing overall stretch and for use with clients who cannot tolerate a more specific lock. These locks are easy to apply. The amount of contact with the client's muscles can be varied; for example, a forearm lock to the quadriceps is broad, whereas a lock

to the calf is a little more specific. Even though forearm locks create more leverage and are safer for the therapist's own joints, some therapists avoid these locks, claiming they find it difficult to assess tissues without using their hands. It is worth practicing STR using your forearms in order to avoid potential overuse injuries. The disadvantage of using your forearms is that they provide a less specific stretch than your elbow does, and forearms are difficult to use on small muscle groups.



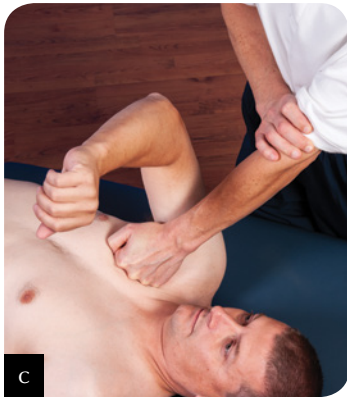
## Elbow

Elbows are used in applying firm, deep pressure, which locks tissues in such a way as to direct the stretch to the tight parts of the muscle. Elbows are good for working large, bulky muscles as when treating clients with well-developed calves (a), especially when a client wants to stretch a muscle actively or where palpable tightness exists, perhaps resulting from scar tissue. Elbows are also useful for targeting strap-like muscles, such as the levator scapulae (b), or on muscles that would not be properly locked with the use of forearms due to their location, such as tibialis anterior (c) and fibularis (peroneal) muscles. Using an elbow to lock tissues does not necessitate the application of force. With practice, elbows may be used sensitively on levator scapulae and around the upper fibres of the trapezius in order to provide a localized lock. As with the finger or thumb, the elbow provides such a specific lock that it can be used to apply STR to help deactivate trigger points once they have been identified through palpation.



## Single Fist

Sometimes it is necessary to provide a broad lock, but there is not enough room for your forearm or hands. To work an area more specifically than with a forearm but less specifically than with an elbow, you could use a single fist. Using cupped fingers and applying a soft fist works well on pectorals (*a*, *b* and *c*), hamstrings (*d*), biceps (*e*) and even tibialis anterior (*f*) when working with a client in the prone position. Notice from these photographs how, when using your fist to apply STR to the pectorals, the client's arm can be held in various different positions (*a* and *b*) to suit your preferred application of the technique.



## Double Fist

Where firm pressure is required, use of a double fist can be helpful, cupping one fist inside the other as in the photograph of STR to the iliotibial band (ITB; *a*) on the side of the thigh. However, you can use fists side-by-side to provide a softer lock, as when working on the calf with your client in either the prone position (*b*) or side-lying position (*c*).



## Palm

Palms provide a flat surface for a lock but place some stress on the therapist's wrist joint, so you should use them with care. Because palm pressure is not deep, it is good for providing a gentle lock, which is useful for the application of mild STR before or after sporting events, for example. Use of the palm as a lock can be helpful when working latissimus dorsi (*a*) and the tissues around the armpit (*b*), with your client in either the prone position or the side-lying position.



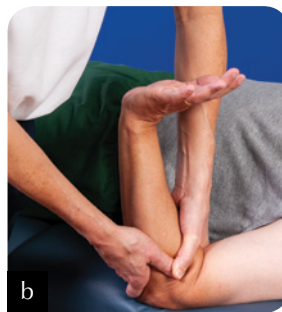
## Gripping and Squeezing

Sometimes simply gripping the muscle can be a way of providing a lock. Gripping works best on small biceps and triceps (a) that do not require a great degree of stretch. To avoid pinching the muscle, simply apply some oil and grip through a facecloth or small towel. Another use of this type of lock is as a squeezing motion to the calf when the client is in the prone position (b).



## Reinforced Thumbs

Reinforced thumbs are used in locking specific areas of muscle, generally smaller muscles that do not require much force for a lock. They work well on the common flexor (a) and extensor (b) origins of the wrist, and the fibulari (c). You can use reinforced thumbs even when working on the calf (d), but take care as this stronger muscle usually requires the force of a stronger lock. If you discover that you need to apply a lot of pressure through your thumbs, then change the form of lock you are using. Practise applying gentle pressure through your forearms or elbow rather than risk damaging your thumb joints. It may necessitate working with the client in a seated position.



## Single Thumb

Thumbs must be used with caution and only to lock tissues when gentle pressure is required; for example, when working on the biceps (*a*), wrist flexors (*b*) and wrist extensors (*c*). The thumb can be helpful in identifying levator scapulae (*d*) prior to the application of a deeper lock using an elbow, for example; but when this area is tender and only light pressure is required, you can use the thumb here, too. You can use the thumb when applying STR to the rhomboids with the client in a seated position (*e*). However, in so doing, it is used to take up slack in the skin, pushing it gently toward the spine rather than using it to place downwards pressure into the rhomboids. In such cases, it is not as effective as when working with a client in the prone position, but it can help when treating a client who cannot rest prone, or when applying STR to help eliminate trigger points. Overuse of thumbs during treatment is a common cause of injury for massage therapists. Wherever possible, use an alternative method of locking.





## Fingers

It is useful to use fingers to lock sensitive tissues, such as the scalene muscles (a), that require very little pressure, with your client either seated or in the supine position. You may also use fingers to apply gentle STR to the upper part of the chest when working with a client for whom very little pressure is needed (b), or where the chest area is small. Fingers may also be useful in applying STR to the iliacus, and you may cup them for reinforcement (c).



## Knuckles

Knuckles are useful for applying a lock to erector spinae muscles with your client seated and are a good alternative to thumbs. As with the application of all forms of STR, it is important to keep your knuckle lock static. Avoid *worrying* the tissues (rubbing in a manner that causes friction), because it simply grinds your knuckle joints.



Using knuckles to erector spinae.

## Using Tools to Apply STR

As with the application of all forms of therapy, you need to protect your own body when working. Fortunately, you can apply STR safely and effectively if you follow certain guidelines, and a variety of tools provide additional support. Shown here is a selection of tools designed for use in bodywork as well as some objects that have been improvised for this purpose.



1. Wooden 'mouse'
2. Plastic therapy ball with spikes
3. Wooden foot roller (convex)
4. Tennis-type balls from a pet shop
5. The Knobble massage tool
6. Hard plastic Quad Nobber
7. Wooden foot roller (concave), also used on forearms
8. Wooden spheres from a hardware store
9. Index Knobber
10. Child's wooden skittle from a thrift shop
11. Hard plastic massage tool
12. Plastic high-bounce ball (soft) from a toy shop
13. Child's wooden toy soldier
14. Plastic Jacknobber

Shown here is an Index Knobber being used in treating the sole of the foot. It could work equally well on any area that required deep, localized pressure; it makes a good alternative to using your thumb, as does the Jacknobber, shown here being applied to the sole of the foot with the client in the supine position.



Index Knobber to sole of foot with client in the prone position.



Jacknobber to sole of foot with client in the supine position.

The spikey therapy balls are useful for applying active STR to the soles of the feet when sitting.

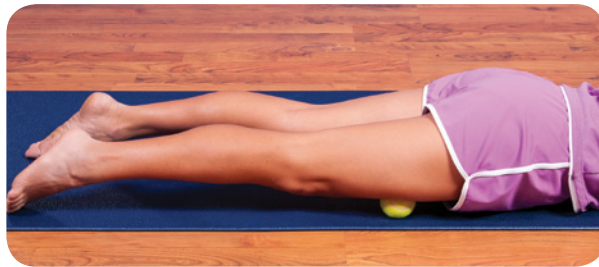


Spikey ball to sole of foot.

The tennis-type balls are actually for dogs and deform much less readily than regular tennis balls. They are useful for applying active STR to hamstrings or quadriceps, as shown here.



Tennis-type ball to hamstrings.



Tennis-type ball to quadriceps.

Both an Index Knobber and tennis-type ball can be useful for active-assisted STR to the upper trapezius, as shown in the following photographs.



Index Knobber to upper trapezius.



Tennis-type ball to upper trapezius.

Other pieces of useful equipment include a facecloth or small towel and some massage oil. STR can be applied through clothing, but for a stronger lock, apply oil to the client's skin and work through a facecloth or small towel.

## Consultation With the Client

As with all forms of therapy, when you meet a client for the first time, start with an initial client consultation in which you discover the nature of your client's problem and what he or she hopes to gain from your treatment. Take a detailed history, making note of any medication the client is taking, and identify any contraindications to your treatment plan. Then carry out a physical assessment, which will vary depending on what it is you will be treating. For example, in assessing someone who has come to you because he or she still has a stiff joint from an old ankle sprain, you will need to test the ankle's range of motion; if you are dealing with an office worker who has neck pain, you may want to do a seated postural assessment of the upper body.

When using STR to help deactivate trigger points, establish how your client is going to feed back to you with regards to their level of discomfort. Remember, trigger points are uncomfortable—even painful—when pressed, so it is important to determine how you will gauge this response. Recall from chapter 1 that many therapists like to imagine that 10 is a number used for describing severe pain, and zero for describing no pain. Using a 0 to 10 pain scale, advise your client to alert you if discomfort exceeds a level 5. Remember to err on the side of caution, at least initially, advising your client that discomfort should not exceed a level 5. Many clients enjoy the sensation of deep tissue massage, and some believe that suffering discomfort is beneficial and a worthwhile means to an end if it reduces feelings of muscle soreness or stiffness. Pain is counterproductive to relaxation. Any client in pain when receiving STR is not likely to benefit, as trigger points are unlikely to be treated effectively when your client is unable to relax.

At the end of your consultation, you will likely set out the aims of your treatment (e.g., to alleviate pain, increase range of motion, reduce the sensation of muscle stiffness following exercise), if necessary describing these aims in lay terms to ensure your client is in agreement with what you plan to do and hope to achieve. Chapter 9 covers the topic of client consultation in detail, with suggested questions, possible physical assessments and methods of documentation.

## Caution and Safety Issues

Soft tissue release is a form of assisted stretching that is safe and effective for the majority of clients. Use this one simple rule to decide whether or not a client may receive soft tissue release: If you would not normally treat the client with massage, bodywork or stretching, the client should not receive STR.

Because the technique involves gentle pressure into soft tissue, exercise caution when applying it to clients who bruise easily or who have thin skin. When treating clients who are hypermobile (increased range of motion in the joints, common amongst professional dancers, for example) consider whether stretching the tissues, and thus improving joint range, is actually desirable. Soft tissue release is not suitable for clients with hypermobility syndromes because the clients already have excessive pliability of tissues.

When first receiving a lock, most clients feel no stretch at all. It is not until the lock nears the distal end of the muscle that the stretch intensifies. If you happen to lock a trigger spot, the client will report slight discomfort. This discomfort should be expressed in terms of being 'comfortably tolerable' or 'it hurts, but it feels good'. If you are a massage therapist, you are probably familiar with such statements. However, if the client reports that the sensation has become truly uncomfortable, you should not perform STR. It may be that there is some underlying inflammation not yet palpable. A general rule is that the feeling of increased localized tension should dissipate within about a minute of applying a lock. If it does not, remove the lock. This feeling is quite unlike that of old scar tissue, which is palpably tight but causes no discomfort.

Although rare, clients sometimes report feeling sore after STR, as with some other forms of stretching. The feeling has been likened to delayed onset muscle soreness (DOMS). For this reason, you should avoid overworking any one particular area and aim to incorporate STR with oil massage if possible. Theoretically, massage between sessions of STR helps flush fresh blood into tissues and improve muscle health. Some therapists like to warn clients that in rare cases soreness may occur but will resolve itself within about 12 hours. However, others argue that this statement sets up a self-fulfilling prophecy and promotes the likelihood that the client will experience that exact soreness.

Pre- and post-event STR should not be applied too deeply. Before an event, it could decrease muscle power and may also be deeply relaxing. Pre-event STR should be used in an upbeat manner and with the aim of invigorating the client and maintaining joint range of motion. Post-event STR may increase the likelihood of bruising after microtrauma to tissues. Post-event STR should be used generally and to help overcome cramping.

As a therapist, you should avoid overusing your upper limbs when applying any technique, including STR. Wherever possible, transfer your body weight through your forearms and elbows or use a massage tool as an alternative to using your thumbs. Save your thumbs and fingers for delicate work on smaller, more pliable tissues. To get even more leverage, try working with your treatment couch an inch or two lower than you have it at present. Practise leaning in to your client, transferring your weight to his or her tissues. Many therapists adopt the position of leaning in but actually use a lot of energy holding the leaning-in stance because they are fearful of hurting the client. Make it your intention to create locks by gently but firmly leaning in towards your client *before* beginning treatment. By working slowly and conscientiously, you will discover that with practice, STR is a powerful, safe and effective tool for stretching soft tissues.

## Three Methods of STR

The three ways of performing STR are passive, active-assisted and active (see the examples from Using Wrist Flexors to Compare the Three Types of STR on the next page). They are defined as follows:

1. *Passive*. When STR is performed passively, the therapist applies a lock and moves the client's body part to facilitate a stretch.
2. *Active-assisted*. This form of STR requires the client and therapist to work together. Usually, the therapist applies a lock, and the client moves his or her body part to bring about the stretch.
3. *Active*. In active STR, the client applies a lock to himself or herself and also performs the stretch without assistance. Almost anyone can perform active STR, and the presence of a therapist is not required.

This book uses common anatomical language. However, clients are unlikely to understand these terms unless they are therapists or health professionals themselves. It takes practice to explain to clients what they are required to do for active-assisted STR without using technical language. Many clients may not understand what you mean if you ask them to invert or evert a foot, for example, or to flex or extend a wrist. One tip is to demonstrate the action you require before making your lock. If you want to give the command of 'up' or 'down' when referring to a wrist movement, for example, then you need to demonstrate what you mean by those commands. Another tip is to avoid mixing different types of STR within the same treatment. If you start with active-assisted STR, a client may think he or she is required to assist throughout a treatment and may not relax when you want to perform passive STR. However, many clients soon become accustomed to STR and will demonstrate a preference for whether they want to take part (active assisted) or whether they prefer to receive the treatment passively.

## Measuring the Effectiveness of STR

It is useful to have a benchmark against which to measure whether a treatment has been effective. This is equally true of STR. Here are some ideas to help you measure the effectiveness of STR.

- *Pain*. If STR is being used to alleviate the discomfort of muscle tension, one of the easiest methods for measuring effectiveness is simply to use self-reporting measures. Not surprisingly, most clients feel better after massage and report feeling less discomfort, whether this was initially described as pain, pulling, cramping or aching. Most therapists are familiar with asking clients how they feel after treatment.
- *Visual analogue scale (VAS)*. This scale is simply a horizontal line onto which two extremes have been written (figure 2.1). One extreme could be 'no discomfort' and the other extreme could be 'worst discomfort ever.' Before and after treatment, ask the client to mark the scale according to how he or she is feeling. A VAS is useful for measuring subjective descriptors such as pain or stiffness.

## Using Wrist Flexors to Compare the Three Types of STR

**PASSIVE STR.** The therapist locks the common flexor origin with the client's wrist in flexion and then moves the wrist into extension.



**ACTIVE-ASSISTED STR.** The therapist locks the client's common flexor origin and then asks the client to extend the wrist actively.



**ACTIVE STR.** The client locks her own common flexor origin and then extends the wrist.







**Figure 2.1** Visual analogue scale (VAS).

- Movement and muscle length tests.** If STR has been applied to help increase range of motion in a joint, you could do tests such as the straight-leg raise for hamstring length (figure 2.2). Measure the straight-leg raise before and after applying STR to the hamstrings, and record whether any increase in range at the hip joint has occurred as a result of your treatment. A simple test for quadriceps flexibility is the prone knee bend (figure 2.3). Ask the client to flex his or her knee whilst in a prone position; observe how close the client's foot comes to the buttock on that side. After treatment to lengthen the quadriceps, the client should be able to reach his or her foot closer to the buttock than before treatment. Make sure the client avoids excessive lordosis in the lower back.



**Figure 2.2** Straight-leg raise test.



**Figure 2.3** Prone knee bend test.

■ *Sit-and-reach test.* A simple way to measure the effectiveness of active STR to the hamstrings is to ask your client to reach forward and try to touch his or her toes (figure 2.4). Notice how far the client can reach, and ask what sensations are felt in the hamstring muscles. If you have a tape measure, document how far they can reach with respect to their feet. Spend 5 to 7 minutes applying STR to the hamstrings, then retest the client. Was the client able to touch the toes more easily? Did the client have less tightness in the hamstring muscles? This test also tests flexibility in the muscles of the back and should not be performed by clients who have recently suffered trauma to the lumbar spine.



Figure 2.4 Sit-and-reach test.

## Frequently Asked Questions and Troubleshooting Tips

### ***How long should I hold my lock at the end of the stretch?***

Once the tissues are stretched, remove the lock.

### ***How much pressure should I apply when locking in?***

Enough to lock the tissues. If it causes discomfort to the client or to you, read the troubleshooting tips that follow these questions.

### ***Should I encourage the client to tolerate pain?***

Never. STR should be comfortable. Clients should feel a mild stretch, but the sensation may vary depending on which part of the muscle you are working.

### ***How many times should I perform STR on one muscle?***

You may find that for large muscles, such as hamstrings, you need to work all over them in lines, from proximal to distal, to cover the tissues adequately. Once you have done each line three times, both you and the client should sense that the tissues have stretched. Overall, you need to avoid overworking one muscle

group. Sometimes it is a good idea to apply STR two or three times, move to a different part of the body, then return to the original STR site and check to see whether both you and the client perceive the tissue to have stretched.

If after working through this book you are still having difficulty applying STR, here are some things you can try:

- If you can't seem to get a grip on the soft tissue, practise changing your lock. Have you tried using the flat of your palm or a soft fist, forearm, elbow or knuckles? An alternative is to apply a small amount of oil onto the skin, then work through a towel. The towel will grip the oil and provide a stronger lock.
- If the lock is uncomfortable for the client, try using less pressure. Try working through clothing or a small towel to dissipate your lock. Alternatively, make sure you are not putting pressure on bone. It is a common mistake people make when first learning to apply STR to the rhomboids; avoid pressing into the medial border of the scapulae. When working the pectorals, avoid pressing perpendicularly into the ribs. Check that you are not pressing into a nerve plexus, which can cause a tingling sensation for the client. Check that you are not pulling on the skin too hard.
- If your client does not seem to feel the stretch, try adding more pressure. To increase pressure, use your elbows or forearms and lean into the lock. Alternatively, make sure you take up the slack in the soft tissues before performing the stretch. Check that you are directing your pressure towards the proximal end of the limb. Many clients do not experience much of a stretch with passive STR. In this case, try using active STR and see what happens.
- If it is uncomfortable for you to apply the lock with your fingers, hands or thumbs, try using a massage tool. Always aim to protect your own joints. If you still can't apply the lock comfortably, don't do it at all.
- If you can't seem to get comfortable yourself, try changing how you hold the client, altering the height of your couch or adjusting the position of your client on the couch or chair.
- If you are still having difficulty after trying various ways to apply STR, stop using that particular stretch.

## Closing Remarks

This chapter has shown the advantages and disadvantages of using different types of locks and considered how and when to use massage tools. The section on commonly asked questions and troubleshooting tips, plus information concerning safety issues and how to measure the effectiveness of STR has helped provide the foundation for using this technique. Now you are ready to practise the three different forms of STR.

## Quick Questions

1. Give an example of when you might use your palm to lock tissues.
2. Give examples of three kinds of clients for whom STR is not appropriate.
3. List the three types of STR.
4. For how long do you hold a lock at the end of a stretch?
5. List three ways you could measure the effectiveness of STR.

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