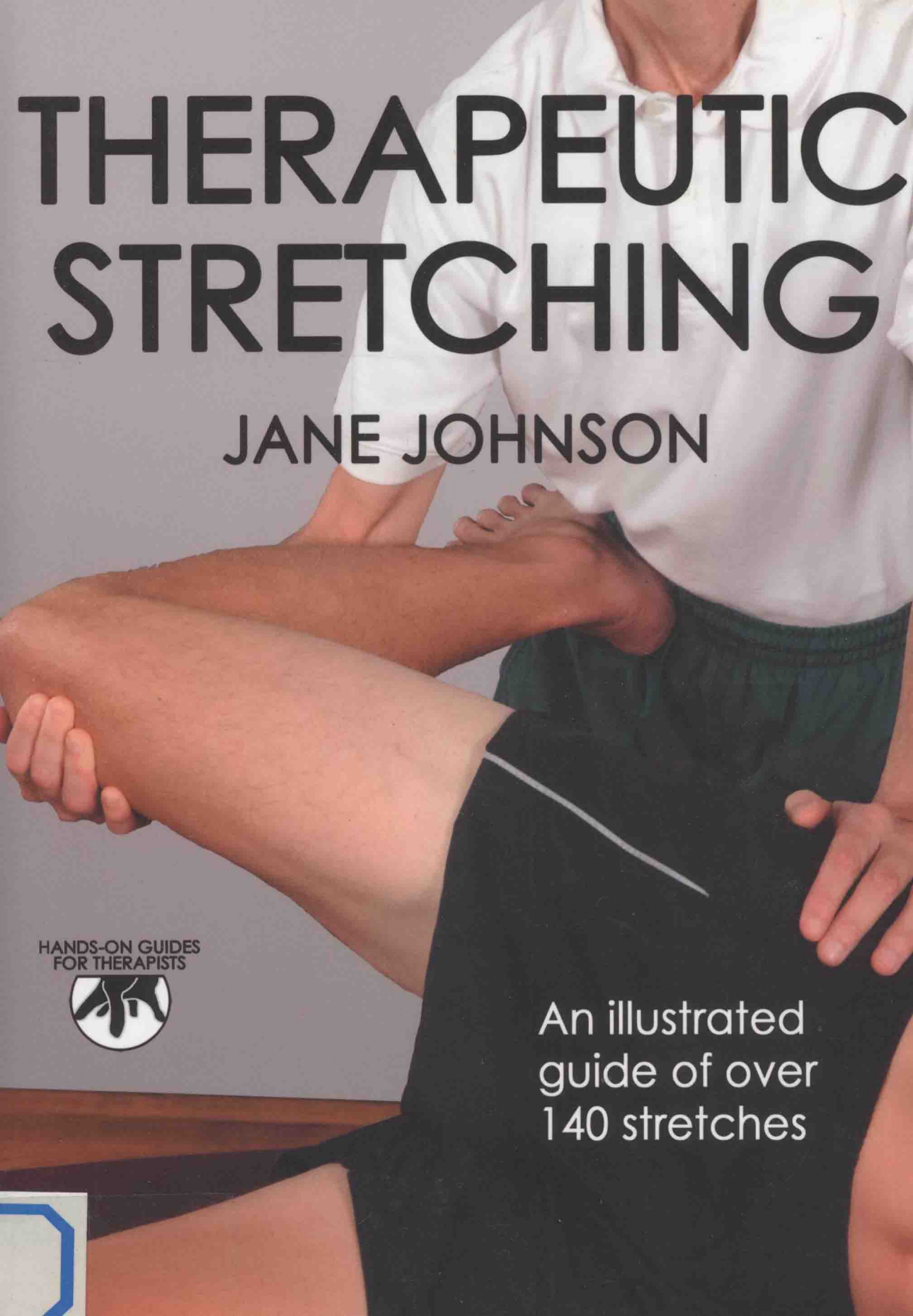
THERAPEUTIC STRETCHING

JANE JOHNSON



HANDS-ON GUIDES FOR THERAPISTS

An illustrated guide of over 140 stretches

The first workshop I ever ran was called Effective Stretching. This book is dedicated to the handful of therapists who took part in that workshop and to the hundreds who have since attended my stretching workshops in order to gain extra therapeutic skills. Your questions and comments have helped inform my understanding of how and for whom stretching is a useful treatment intervention.

Series Preface

Massage may be one of the oldest therapies still used today. At present more therapists than ever before are practicing an ever-expanding range of massage techniques. Many of these techniques are taught through massage schools and within degree courses. Our need now is to provide the best clinical and educational resources that will enable massage therapists to learn the required techniques for delivering massage therapy to clients. Human Kinetics has developed the Hands-On Guides for Therapists series with this in mind.

The Hands-On Guides for Therapists series provides specific tools of assessment and treatment that fall well within the realm of massage therapists but may also be useful for other bodyworkers, such as osteopaths and fitness instructors. Each book in the series is a step-by-step guide to delivering the techniques to clients. Each book features a full-colour interior packed with photos illustrating every technique. Tips provide handy advice to help you adjust your technique, and the Client Talk boxes contain examples of how the techniques can be used with clients who have particular problems. Throughout each book are questions that enable you to test your knowledge and skill, which will be particularly helpful if you are attempting to pass a qualification exam. We've even provided the answers too!

You might be using a book from the Hands-On Guides for Therapists series to obtain the required skills to help you pass a course or to brush up on skills you learned in the past. You might be a course tutor looking for ways to make massage therapy come alive with your students. This series provides easy-to-follow steps that will make the transition from theory to practice seem effortless. The Hands-On Guides for Therapists series is an essential resource for all those who are serious about massage therapy.

Preface

As therapists and fitness professionals, many of us have worked with clients recovering from musculoskeletal injuries such as sprained ankles, pulled calves or tennis elbows. We have certainly helped clients suffering muscular tension in the form of tight hamstrings, a stiff neck or lumbar pain. For all these kinds of conditions, stretching is often recommended as part of the treatment solution in addition to modalities such as massage. This book provides a comprehensive range of stretches to help you safely and effectively treat clients rehabilitating from common musculoskeletal conditions.

Being able to safely stretch a client as part of your massage, physical therapy or fitness training programme is a valuable skill. So too is the ability to provide advice on the sorts of stretches clients might do at home as part of their rehabilitation from injury or to help them manage muscular pain or joint stiffness. In addition, modification of standard stretches is essential when treating people after injury or when working with special populations such as elderly clients. This guide will help you apply passive stretches in a confident and competent manner, teaching you how to best position your clients and which sorts of handholds to use when applying stretches to clients with musculoskeletal problems. Photographs throughout provide visual prompts to help get you started if you have never performed passive stretches before.

The book is organized into four parts. In part I you learn how to get started and prepare for stretching. Here you are encouraged to consider both why we need therapeutic stretching and the challenge of designing a stretching protocol. The rationale for stretching after musculoskeletal injury is outlined along with general safety guidelines, plus a full list is given of the musculoskeletal conditions covered and for which this book provides stretches. This part of the book also sets out the 10 steps to follow as you prepare a stretching programme.

In part II you will learn to differentiate between passive, active and advanced forms of stretching such as muscle energy technique (MET) and soft tissue release (STR). The advantages and disadvantages of each are explored in terms of how easy they are to apply, on which parts of the body they may be used and for which types of musculoskeletal injuries they are most appropriate.

Part III is the main part of the book and is divided into three chapters. Each of these chapters focuses on a different section of the body and the kinds of musculoskeletal conditions that are appropriate for rehabilitative stretching. Chapter 5 on the lower limb covers the foot and ankle, knee and leg, and hip and thigh and includes stretches for conditions such as a sprained ankle, shin splints and runner's knee as well as treatments for clients who report having tight calves or hamstrings. Chapter 6 provides stretches

for the upper limb—the shoulder, elbow, wrist, hand and fingers. Here you will find information for helping clients with conditions such as adhesive capsulitis, lateral epicondylitis and stiff wrists. Chapter 7 focuses on stretches relating to the back and neck and includes advice on the kinds of stretches suitable for treating clients who are kyphotic, suffer low back pain or a stiff neck or are recovering from whiplash injury.

Each of the chapters in part III includes both active and passive stretches; the main focus is on passive stretching (i.e., the stretches that may be performed safely by a sports massage therapist, sports rehabilitator, physical therapist or osteopath with a client sitting or lying on a treatment couch). Active stretches are included so that you may select from these in order to create a stretching programme for your clients to use at home.

Part IV sets out the stretches from the main part of the book in the form of routines. Here, illustrations from earlier chapters have been collated so you can perform a series of stretches in the prone, supine or seated position. This part will help you practise and become confident in applying the stretches without having to turn a subject from one position to another. As with other titles in the Hands-On Guide for Therapists series, the quick questions appearing at the end of most chapters will ensure you have grasped the main ideas being presented.

I began writing this book knowing you cannot please all of the people all of the time, and that to provide information on all stretches in all positions for every type of client, as well as cover a variety of musculoskeletal conditions, was not going to be possible in a book of this size. However, I hope the stretches that are included will be useful to many readers. These are stretches I have found particularly helpful in my own work as both a physiotherapist and sport massage therapist. Many of the stretches I used when working as a personal trainer. Please share this information with your colleagues, and as with the other books in this series (*Soft Tissue Release*, *Deep Tissue Massage* and *Postural Assessment*), please feel free to contact me with your comments and suggestions.

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PART IV Stretching Routines

PART I

Getting Started With Therapeutic Stretching

If you have been wanting to know how to incorporate stretching into your treatments, or if you are curious as to how to provide safe stretches for clients to use at home, here in part I you will find two chapters containing everything you need to help get you started. Chapter 1 lists some of the reasons people are already using stretching and explains what makes *therapeutic* stretching special. This chapter lists the pathologies (such as frozen shoulder, sprained ankle, stiff low back) for which you will find stretches in later chapters of the book, along with the reasons these stretches have been suggested. As you would expect, there are also some guidelines to help you apply stretches safely when treating clients with musculoskeletal conditions.

Chapter 2 provides easy steps to help you decide how to plan, implement and review a stretching programme. There are examples of the kinds of goals you might wish to set with your clients, the advantages and disadvantages of providing stretches in various environments, plus ideas for measuring the effectiveness of a stretching programme. This chapter also contains information on the use of therapeutic stretching when working with special populations. The three groups that have been selected are elderly clients, pregnant women and athletes.

At the end of each chapter are five quick questions, useful if you want to check what you remember as you progress through the book.

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Introduction to Therapeutic Stretching

This chapter describes therapeutic stretching, the rationale for its use and why you might want to consider using it with clients. Included is an overview of the musculoskeletal injuries and conditions for which you will find stretches in later chapters of this book, along with a brief description of each condition. The section on why people stretch leads to a discussion concerning the challenge of designing a stretching protocol for the rehabilitation and treatment of clients with common musculoskeletal conditions. This chapter also sets out the general stretching recommendations for each of the musculoskeletal conditions covered in this book (e.g., sprains, strains, stiff joints) along with the rationale for these recommendations. The general safety guidelines at the end of this chapter will help you feel confident incorporating stretching into your practice.

What Is Therapeutic Stretching?

Throughout this book, the term *therapeutic stretching* refers to any stretching that is performed with the intention of deliberately facilitating an improvement in a person's physical or psychological well-being. It could be argued that all forms of stretching are therapeutic. The difference here is in the intention of the person performing or assisting the stretches. Here we advocate the use of stretching not simply as a pre- or post-exercise habit but as a means of bringing about a specific therapeutic outcome. With therapeutic stretching, appropriate stretches are identified, modified where necessary, well planned and well executed, and their effects are monitored.

The Need for Therapeutic Stretching

One disadvantage of some stretching books is they assume the people for whom the stretches are recommended are fit and healthy and flexible enough to get into what are sometimes quite challenging positions. Consider the popular image of someone dressed in fitness clothing performing a hamstring stretch: The person is standing on one leg,

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reaching over to touch the toes of the opposite foot, which is resting on a gatepost or park bench. This position necessitates not only a straight leg raise of at least 90 degrees but also the ability to place almost the full weight of the body onto the supporting leg whilst remaining balanced. Although we should avoid pigeonholing elderly people as being frail and physically incapacitated, it is fair to say that the minority of seniors would be able to get into such a position to stretch the hamstrings. Most older adults lose strength in their lower limb muscles and experience joint stiffness, and they often have poor balance. So, too, might a person recovering from a knee, ankle or foot injury. A standing hamstring stretch is therefore not the best stretch to recommend to this group of clients, and alternatives are needed.

How might we as therapists help seniors and clients rehabilitating musculoskeletal conditions reap the benefits of stretching? The answer lies in our ability to modify stretches. Physical therapists, sports therapists and fitness professionals are used to designing exercise programmes tailored to the individual. Similarly, we need to identify and to modify stretches so they may be applied in such a way as to be both effective and safe for older adults and those recovering from musculoskeletal conditions. We need to embrace the concept of therapeutic stretching.

Why Should I Incorporate Stretching Into My Practice?

One doesn't randomly employ the use of ice (cryotherapy), immobilization, cognitive behavioural therapy (CBT), manual lymphatic drainage or balance training in a treatment. These, as with all interventions, are selected by therapists on the basis of believing they will help bring about a specific treatment outcome. Stretching is a treatment intervention just as is rest, exercise, massage and ultrasound. Whether you incorporate stretches into a treatment depends on your objectives. For more on the kinds of objectives for which stretching might be appropriate, see pages 9 and 20.

Overview of Musculoskeletal Conditions Covered in This Book

Therapeutic Stretching is part of a series of books primarily—but not solely—for massage therapists. It is likely that a large proportion of readers will be providing massage to people within the general population, some working in private practices (rather than in hospitals), some preferring to treat specific client groups such as athletes or the elderly. A great many people are affected by conditions that produce adverse changes in their muscles, tendons, ligaments and the associated soft tissues (skin, connective tissue, sometimes neural and vascular structures), and sooner or later most massage therapists find themselves treating a client recovering from one of these conditions—a sprained ankle, torn hamstring or stiff neck, for example. The pathologies covered in this book (and the pages on which you can find suitable stretches in later chapters) have been grouped according to the category of condition into which they fall (e.g., strains, sprains, stiff joints). Use the page numbers listed in the sidebar Musculoskeletal Condi-

tions to locate the conditions for which you require stretching ideas, or turn directly to the appropriate chapter for those conditions affecting the lower limb (chapter 5), the upper limb (chapter 6) and the trunk (chapter 7).

It is useful to quickly review each condition in order to understand the rationale behind the stretching recommendations set out in table 1.1 on page 12.

Musculoskeletal Conditions

Sprains

- Ankle sprain, page 54
- Wrist sprain, page 106

Strains

- Calf strain, page 63
- Hamstring strain, page 69
- Groin strain, page 75
- Rotator cuff strain, page 97
- Low back strain, page 125

Cramps

- In calf muscles, page 66
- In hamstring muscles, page 73
- In the neck (wry neck), page 115

Stiff muscles

- Tight calf, page 65
- Tight hamstrings, page 70
- Tight adductors, page 76
- Tight quadriceps, page 78
- Tight hip flexors, page 80
- Tight shoulder muscles (see adhesive capsulitis), page 89
- Tight neck muscles, page 120
- Tight chest muscles (see kyphotic postures), page 121

Stiff joints

- Ankle, page 59
- Shoulder, page 92
- Elbow, page 104
- Wrist/Fingers, page 107
- Neck, page 116
- Thorax (see kyphotic postures), page 121
- Lumbar spine, page 131

Tendon problems

- Achilles tendinopathies, page 56
- Supraspinatus tendinosis, page 99
- Lateral epicondylitis, page 102
- Medial epicondylitis, page 103

Fascia structures

- Plantar fasciitis, page 62
- Iliotibial band friction syndrome (runner's knee), page 82

Nerve compression

- Piriformis syndrome, page 83
- Carpal tunnel syndrome, page 109

After surgery

- Knee surgery, page 68
- Mastectomy, page 101

Other pathologies

- Ankle fracture, page 58
- Shin splints, page 64
- Osteoarthritis of the knee, page 66
- DOMS (delayed onset muscle soreness), page 85
- Adhesive capsulitis (frozen shoulder), page 89
- Shortened internal rotators of the humerus, page 95
- Whiplash, page 113
- Kyphotic postures, page 121
- Herniated disc, page 134

Sprains

A sprain is an acute injury involving the tearing of a ligament that would normally hold two or more bones together. Sprains are accompanied by damage to blood vessels, nerves and connective tissue and are graded according to the degree of fibre damage. Very generally, a grade I sprain indicates mild damage with just a few ligamentous fibres being torn, whereas a grade III sprain describes severe damage, with complete rupture of the ligament. A grade II sprain may be mild (less than 50 percent of fibres torn) or severe (more than 50 percent of fibres torn). The more severe the damage, the more severe the bleeding, swelling and pain. After severe sprains, a joint is less stable (with an increase in range of motion), yet range of motion is reduced in the acute stages because of swelling. A severe sprain may involve injury to bone, such as an avulsion fracture where the ligament is wrenched forcibly off the bone at the ligament's attachment point. Healing usually takes three to six weeks, and in severe cases the injured part may be immobilized for up to three weeks, resulting in a decreased range of motion and stiffening of the associated joint due to scar tissue formation and decreased synovial fluid. When pain subsides, the injury is described as sub-acute.

Strains

A strain is an acute injury involving the tearing of muscle fibres, the muscle's tendon, or both. As with sprains, this too may involve damage to blood vessels, nerves and connective tissues. There is usually more bleeding than with a sprain because muscles are more highly vascularized than ligaments. As with sprains, there are various grades of strain: mild, moderate or severe, each corresponding to the degree of fibre damage. Where there is complete rupture, function is impaired because the muscle can no longer generate force to pull a bone and move a body part. The more severe the damage, the more severe the bleeding, swelling and pain. Healing may take three to five weeks but can be much longer in the case of severe strains. As with sprains, when pain subsides the injury is described as sub-acute.

An important point to note with regard to both strains and sprains is that pain usually subsides long before healing is complete. This makes the potential for reinjury high if the client uses pain as a guide for deciding whether or not to use that body part. During therapeutic stretching, it is usually recommended that clients perform exercises or stretches that are *within their pain-free range*, using pain as a warning sign to stop the activity. This lessens the likelihood of reinjury.

Cramps

A cramp is a sudden, involuntary contraction in a muscle that is temporary but that can be very painful. The cause is unknown, although cramps are associated with peripheral vascular disease and may be precipitated by water and electrolyte disturbances. They are also reported by clients with hypotension or those taking certain medications. Muscles commonly reported to cramp are those of the feet, calf and hamstrings. This may occur during the night or after or during physical exertion. Sometimes muscles cramp when they have been held in a shortened position (an important point to note

when stretching the antagonist muscle). Although they have less severe consequences than some of the other musculoskeletal conditions listed here, cramps are nevertheless annoying for those who suffer them, especially when they occur at night and disturb sleep or when they impair sporting performance.

Stiff Muscles

This term suggests an increase in muscle tone and commonly refers to muscles that a client reports as feeling tight or that on palpation feel more stiff to a therapist. Tension (i.e., an increase in tone) in muscles is therefore measureable both objectively (by the client) and subjectively (by the therapist). Tight muscles may be shorter than the norm when measured using a standard muscle length test. However, in some cases a client may report feelings of tightness in muscles (such as the hamstrings) that are found to be of a regular or even a greater length than normal when measured by a therapist. Therefore muscle length tests are useful but limited when used to assess what clients describe as 'tight' muscles. In *Therapeutic Stretching*, the term is used to mean the subjective sensation of tension described by most clients when they say they have 'tight calf muscles', for example, whether or not this is measureable as a decrease in range of motion in the joint or joints associated with a particular muscle or as a perceived increase in stiffness on palpation by a therapist.

Stiff Joints

Stiff joints are those that a client reports as feeling stiff or that on testing have a less than normal range of motion (ROM). Joints may be stiff for a variety of reasons. Stiffness may result from direct immobilization of a joint (e.g., in a brace or cast), from injury (such as a severe ankle sprain) or from immobilization of some other part of the associated limb (e.g., when the whole arm is kept in a sling after an elbow injury, and the shoulder joint stiffens too). Sometimes clients complain of stiffness resulting from a previous injury where there was little or no intervention and where function has been restored but limitations in range of motion remain. For example, without intervention, joints commonly stiffen temporarily after surgery to them. This may be a result of effusion within the joint and surrounding tissues or the formation of excessive amounts of scar tissue. In the case of adhesive capsulitis, the shoulder joint stiffens with no known cause.

Stretching is not appropriate for all the causes of stiff joints. For example, in ankylosing spondylitis, joints fuse together over time, and stretching them would not necessarily be an appropriate intervention because the joints are mechanically fused, and their range cannot be improved (other than with surgery). Clients suffering rheumatoid arthritis experience pain, swelling and stiffness in joints, especially the small joints of the fingers and toes. Stretching is contraindicated (as is massage) during inflammatory periods when the stretching could exacerbate the inflammation.

Tendon Problems

Painful conditions resulting from overuse of tendons fall within a group of pathologies known as tendinopathies. Most massage therapists know that *-itis* means 'inflammation'.

Inflammation of a tendon (identified by histopathological sampling of the tissue) is known as tendin*itis* (or tendon*itis*). Conditions such as lateral and medial epicondyl*itis* were initially thought to fall into this category but are now better described as being tendinosies. Tendinosies are tendon problems resulting from overuse and are very painful. Yet on microscopic examination, the tendon is found to have fewer inflammatory markers than expected, indicating that the healing process has been interrupted. Medial and lateral epicondylitis are therefore not true tendinitises because they lack certain cellular characteristics that are indicative of inflammation.

As with sprains and strains, pain associated with tendon problems usually subsides long before tendon damage is fully resolved and tissues fully repaired. People recovering from conditions affecting their tendons are therefore at risk of reinjury if they return to physical activity too soon.

Fascia Structures

Two common conditions believed to be the result of fascial changes are plantar fasciitis and iliotibial band friction syndrome (runner's knee). There is growing interest in treatments aimed specifically at bringing about changes in fascia, generally known as myofascial release techniques. One could argue that myofascial release falls into the category of therapeutic stretching as it involves the gentle, sustained traction of soft tissues and thus embodies an element of stretching that is used to bring about a specific therapeutic outcome.

Nerve Compression

Whilst this book does not cover the kinds of stretches specifically designed to relieve tension in neural structures (sometimes adapted from neural tension tests), it does include two conditions that involve compression of nerves: piriformis syndrome and carpal tunnel syndrome. Descriptions of these can be found in chapters 5 and 6, respectively.

After Surgery

There are many common surgical procedures. The stretches included here (for use with patients after mastectomy and knee surgery) have been selected in order to demonstrate how stretches might be used post-surgically for one upper limb condition and one lower limb condition. Stress and motion are believed to stimulate collagen to form a more functional alignment of collagen fibres and a more functional scar (whether or not this scar can be seen) after surgery. Yet it is important not to stretch too early in the repair process because collagen must be matured. Stretch too soon and you risk tearing the connective tissue apart as it is undergoing remodelling. This could tear the vascular bed and lead to an increase in bleeding and pain. Pain may lead to muscle spasm. This in turn leads to increased inflammation and a prolonged period of rehabilitation.

Other Pathologies

In addition to these easily classified conditions, *Therapeutic Stretching* includes others that do not fit easily into the previous categories but that are nevertheless very common.

These are shin splints, osteoarthritis of the knee and DOMS (delayed onset muscle soreness) (chapter 5); adhesive capsulitis (chapter 6); and whiplash and kyphotic postures (chapter 7). Information about each can be found in their respective chapters.

Why Do People Stretch?

Before we turn to the rationale for stretching to treat the conditions described in the previous section, it might be useful to ask why people stretch. The answers might provide the basis for your treatment objectives. Some of the reasons cited for the use of stretching include the following:

- To help maintain normal muscle functioning
- To help alleviate pain due to muscle tension
- To overcome cramping in muscles
- To maintain or improve range of motion in a joint
- To facilitate muscle healing
- To help correct postural imbalances
- To help minimize the development of scar tissue
- To influence psychological factors, such as to aid relaxation, maintain or improve motivation or stimulate a sense of well-being

Let's consider some of these in turn. Most mammals stretch after a period of immobility. Cats and dogs, for example, stretch after sleep, as do humans. If you have ever had to remain in a stationary position, unable to stretch, you will know that pain in your muscles soon develops as tension increases, impairing normal muscle functioning. Perhaps you have experienced this after a long drive, train ride or plane journey, or if you have ever been bedbound as a result of injury or illness. Many people report having to get out of bed at night to walk off a cramp in a calf muscle. It feels instinctive to stretch one's muscles when they start to hurt or cramp. Stretching is therefore often used simply as a means of relieving muscle tension, and some professionals believe it may be helpful in preventing the development of trigger points. Perhaps the unplanned daily stretching most of us do helps maintain normal muscle functioning?

Stretching is also commonly used therapeutically in a variety of settings. For example, it is used in hospitals by physical therapists to maintain or improve range of motion in a joint, something that is particularly important after immobilization. Or it might be used in an attempt to combat the effects of muscle spasm and contractures. It may be used as part of a post-surgery rehabilitation protocol to help with the realignment of collagen fibres, decreasing the development of disadvantageous scar tissue adhesions. It is also used by athletes, traditionally as part of a team warm-up or cool-down, and is inherent to exercise classes where it is used in a similar manner. Sports and remedial therapists employ stretching to help correct postural imbalance: Exercises are used to shorten and strengthen weak muscles; stretches are used to lengthen shortened ones.

There are also psychological factors to consider. Many people experience a sense of well-being when they have stretched, and this may explain the popularity of yoga classes. Believing that stretching lessens their likelihood of injury, many people also

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