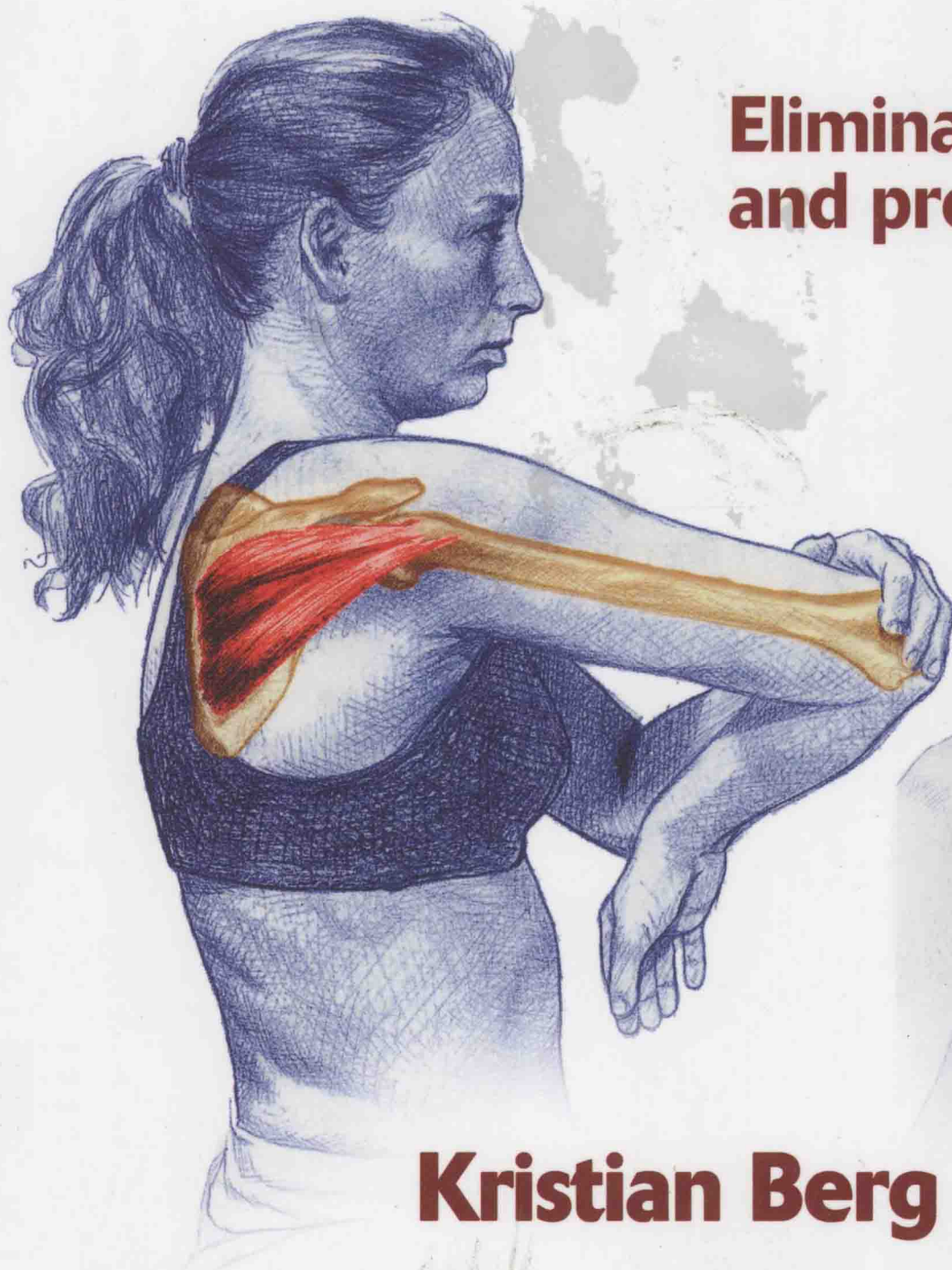


PRESCRIPTIVE STRETCHING

**Eliminate pain
and prevent injury**



Kristian Berg

PREScriptive STRETCHING

KRISTIAN BERG

Prescriptive stretching

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HUMAN KINETICS

Library of Congress Cataloging-in-Publication Data

Berg, Kristian, 1964-

Prescriptive stretching / Kristian Berg.

p. cm.

Includes bibliographical references and index.

ISBN-13: 978-0-7360-9936-3 (soft cover)

ISBN-10: 0-7360-9936-0 (soft cover)

1. Stretching exercises. 2. Exercise--Physiological aspects. 3. Physical fitness. I. Title.

RA781.63.B47 2011

613.7'182--dc22

2010046614

ISBN-10: 0-7360-9936-0 (print)

ISBN-13: 978-0-7360-9936-3 (print)

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This book is a revised edition of *Stora Stretchboken*, published in 1994 by Fitnessförlaget.

Acquisitions Editor: Tom Heine; **Managing Editor:** Julie Marx Goodreau; **Assistant Editor:** Elizabeth Evans; **Copyeditor:** Joy Wotherspoon; **Graphic Designer:** Jessica Stigsdotter Axberg; **Graphic Artist:** Kim McFarland; **Cover Designer:** Keith Blomberg; **Illustrator:** Erik Beijer; **Printer:** United Graphics

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Printed in the United States of America

10 9 8 7 6 5 4 3 2

The paper in this book is certified under a sustainable forestry program.

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INTRODUCTION

PEOPLE CAN BE CLASSIFIED
INTO TWO CATEGORIES—
THOSE WHO HAVE BACK PAIN
AND THOSE WHO WILL GET
BACK PAIN.

During my years as a naprapath treating neuromusculoskeletal conditions, the same question from patients pops up time after time: “Is it really necessary to stretch? Do I have to?”

The answer is neither yes nor no. Have to? Well, do you have to brush your teeth? No, not really, but most of us are fairly aware of the consequences if we don’t. Sadly enough, we do not see the consequences of neglecting to stretch and take care of our bodies until we are reminded by pain in all kinds of places.

We may not even realize then that the pain is connected to our behavior. Until now, our bodies have not required maintenance, so why is the pain starting now? Would we have been as surprised by a cavity if we hadn’t brushed our teeth for the past six months? You save up for pain. The body does not forget what you have been up to the last 20 years.

So, do we need to stretch? I believe that stretching and exercise are part of the body’s daily maintenance. It should be no different than the habit of brushing our teeth.

Stretching in one form or another has been habitually practiced by man and animal alike. Consider a cat or a dog that is waking up. They stretch their shoulder and hip muscles before starting any activity. Is it possible that we have lost this animal instinct as our lives have demanded less and less activity from us? Although this might be true, the instinct is still there. When we yawn in the morning, we tend to stretch our arms up and out and to bend our backs.

The last 10 years of my time as a gymnast were a real pain. My back constantly ached. I even got to experience throwing my back out before that career was over. As a gymnast, and a flexible one at that, I really thought I was an authority on muscles and flexibility. Later, during my studies to become a naprapath, I found out about muscles I never even knew existed.

However, even during my student years, my back continued to hurt. Regardless of the treatment, the pain only improved marginally. After a while, I started to feel some improvement from consistently stretching a particular muscle. I made up my mind that the muscle on the other side of my body should be just as soft and flexible. I started to see results. Nowadays, my back never bothers me. If I start to feel pain after training or negligence, I just stretch the same muscle that I stretched before. When I am done, the pain is gone. In retrospect, I sometimes wonder how I would have performed as a gymnast if I knew then what I know now. The health of a single muscle made a world of difference.

This is the experience that I try to pass on to my patients. Every patient gets one exercise to do at home. I can easily tell who has done the homework and who has forgotten to do it. By working together, we quickly reach the desired results of less pain and increased mobility.

Stretching books and magazines are often filled with miracle stretches. Sadly enough, they do not address the real reason why we need to stretch. The exercises in the articles are often wrong or dangerous, and the instructions for performing them are often incomplete, hard to follow, or nonexistent.

This book is a tool, and like all other tools, it should be handled carefully. Read it through and study the pictures thoroughly. The exercises work, but only if you do them correctly.

MUSCLES AND BONES OF THE HUMAN BODY

The Latin names for muscles usually describe what they look like or what their functions are. For this reason, it is useful to learn the Latin terms. Let's take the example of the levator scapulae muscle. *Levator* stems from *levatio*, which means *raise*. You can see this origin of the modern word *elevator*. *Scapula* is the Latin word for the shoulder blade. The examples are endless. You can easily deduce the use and position of the muscles if you are familiar with some Latin terminology. Here are some examples:

Abdominis = Abdomen

Abductor = Outward moving

Adductor = Inward moving

Antebrachii = Forearm

Anterior = Front side

Bi = Two

Brachii = Upper arm

Brevis = Short

Caput = Head

Dorsum = Back

Externus = Outer/External

Extensor = Muscle that extends/
straightens

Femoris = Thigh

Flexor = Muscle that bends

Infra = Below

Internus = Inner/internal

Lateralis = Toward the side

Levator = Muscle that raises

Longus = Long

Magnus/Major = Large/greater than

Minimus/Minor = Small/lesser than

Musculus = Muscle

Musculi = Muscles

Obliquus = Slanted

Posterior = Back side

Processus = Process

Rectus = Straight

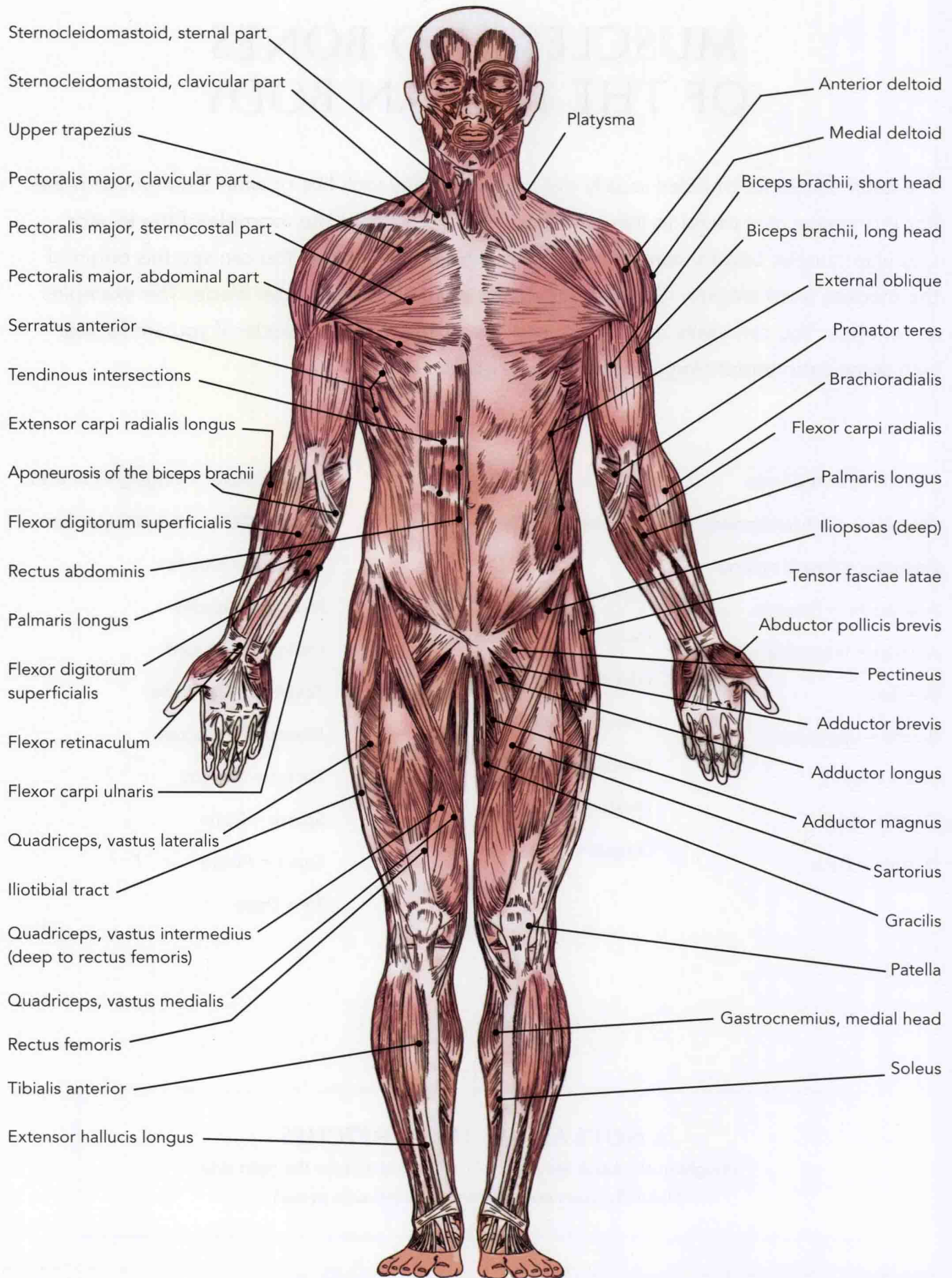
Spinae = Spine

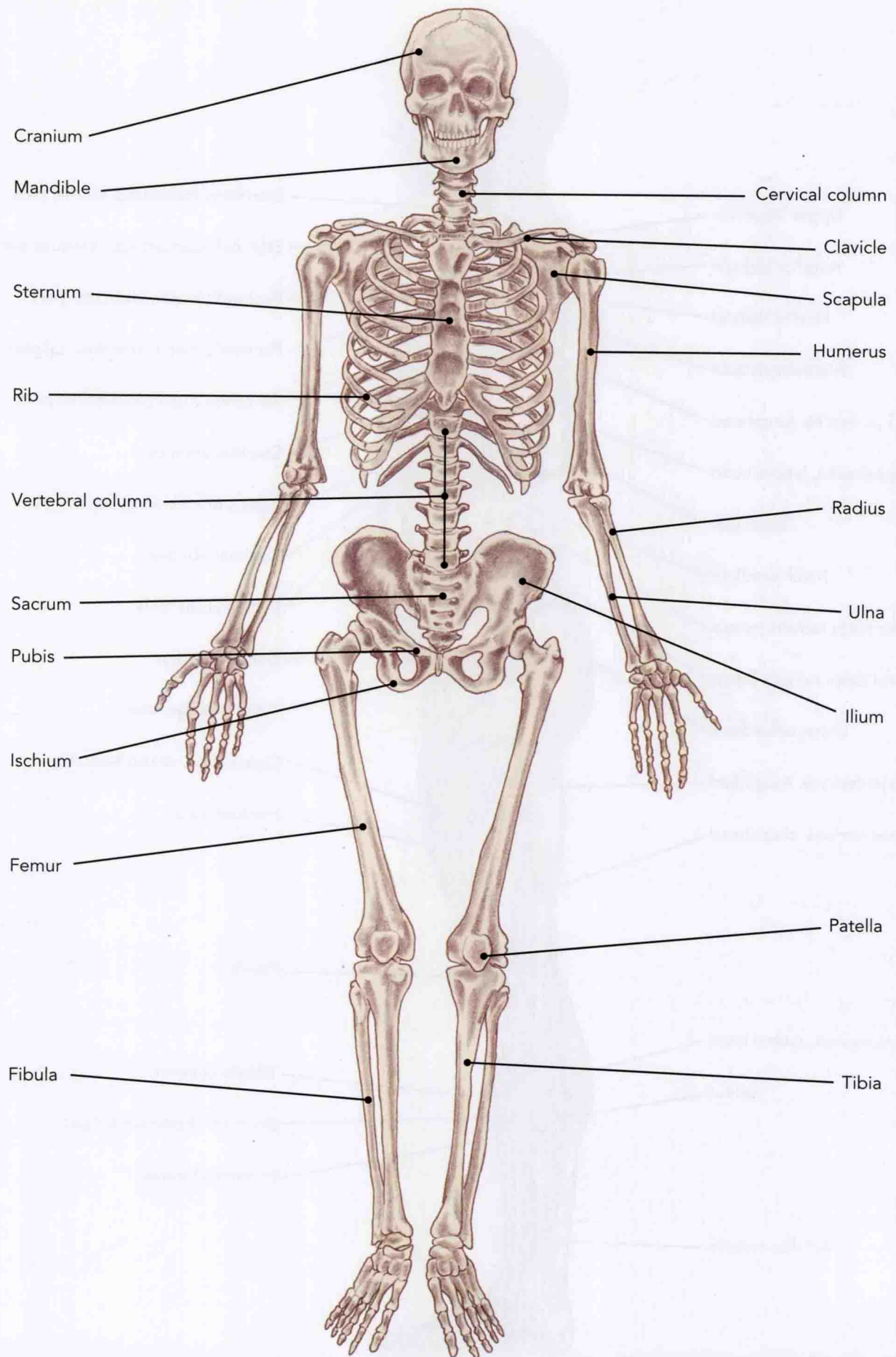
Supra = Above

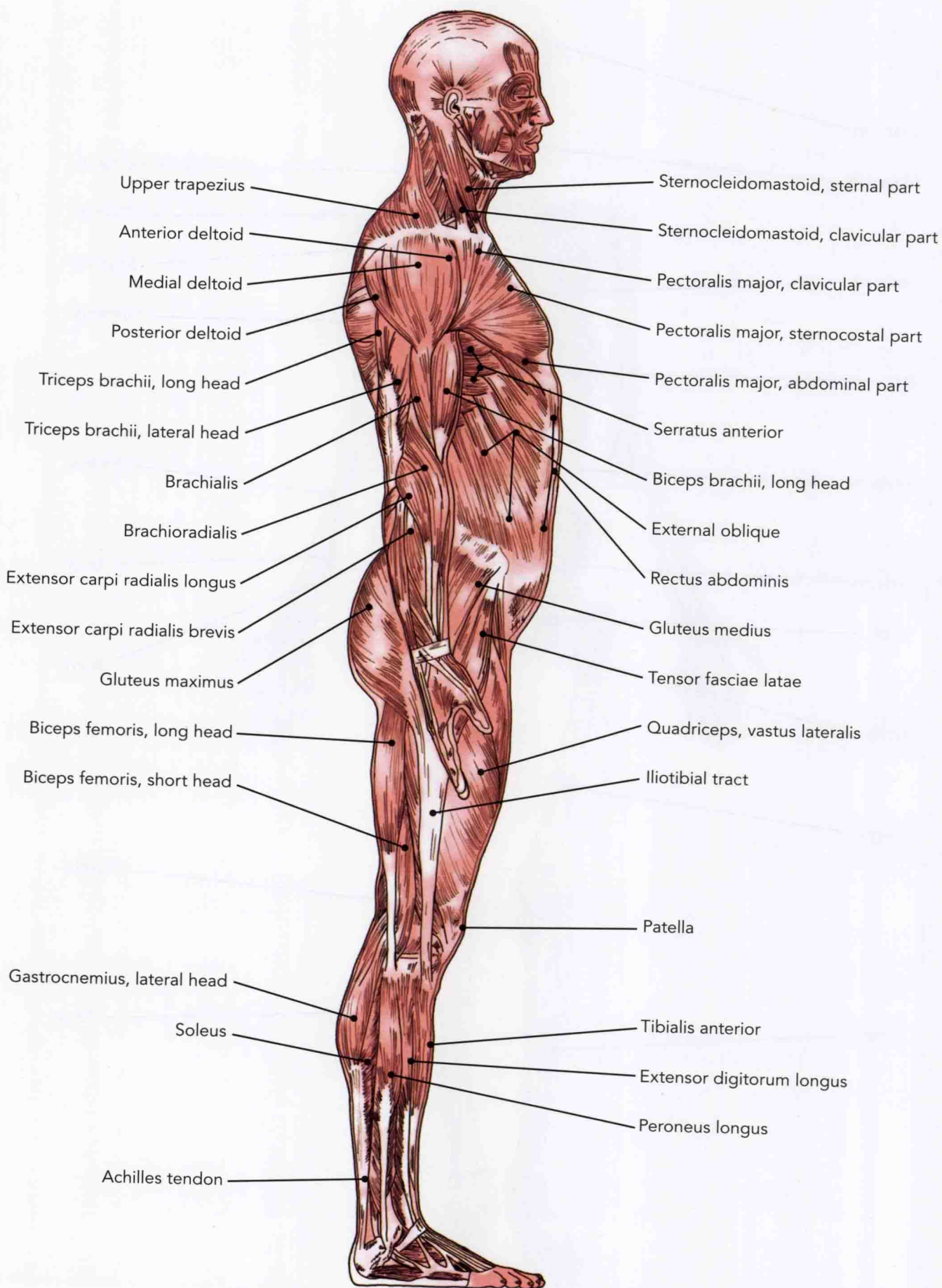
Tri = Three

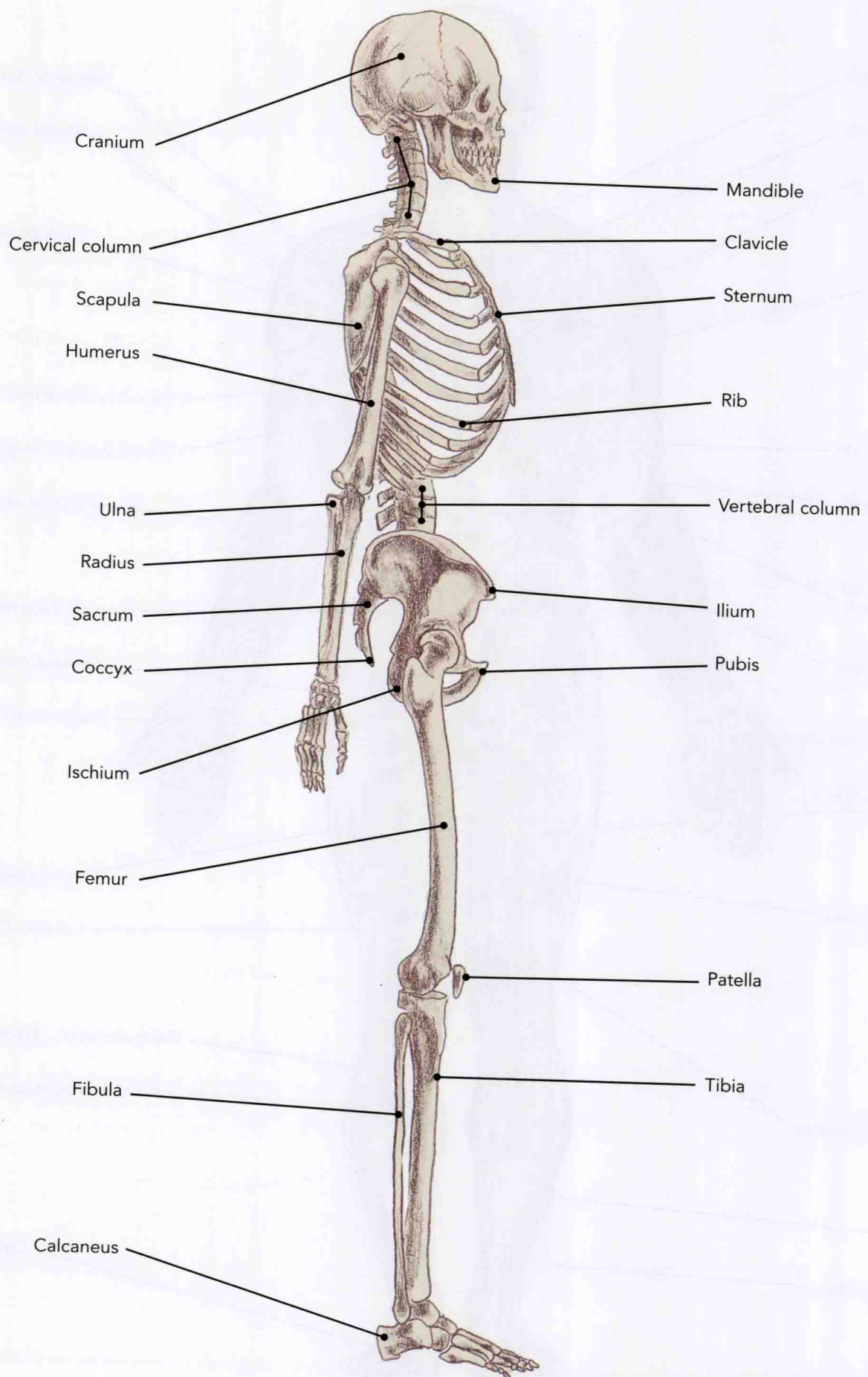
A NOTE ABOUT THE STRETCHES

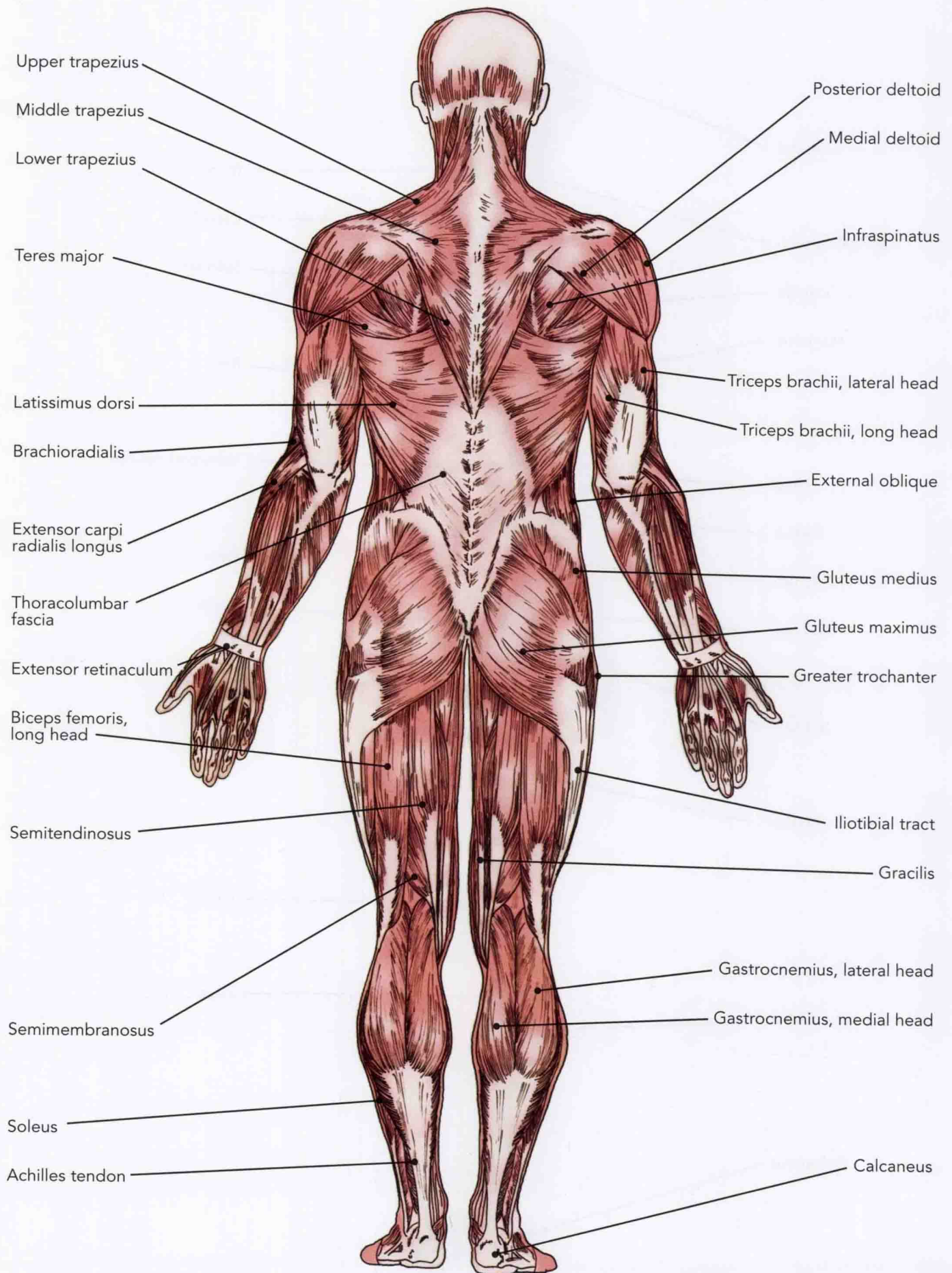
Throughout the book we show all of the stretches on the right side.
Naturally, you need to stretch the left side as well.

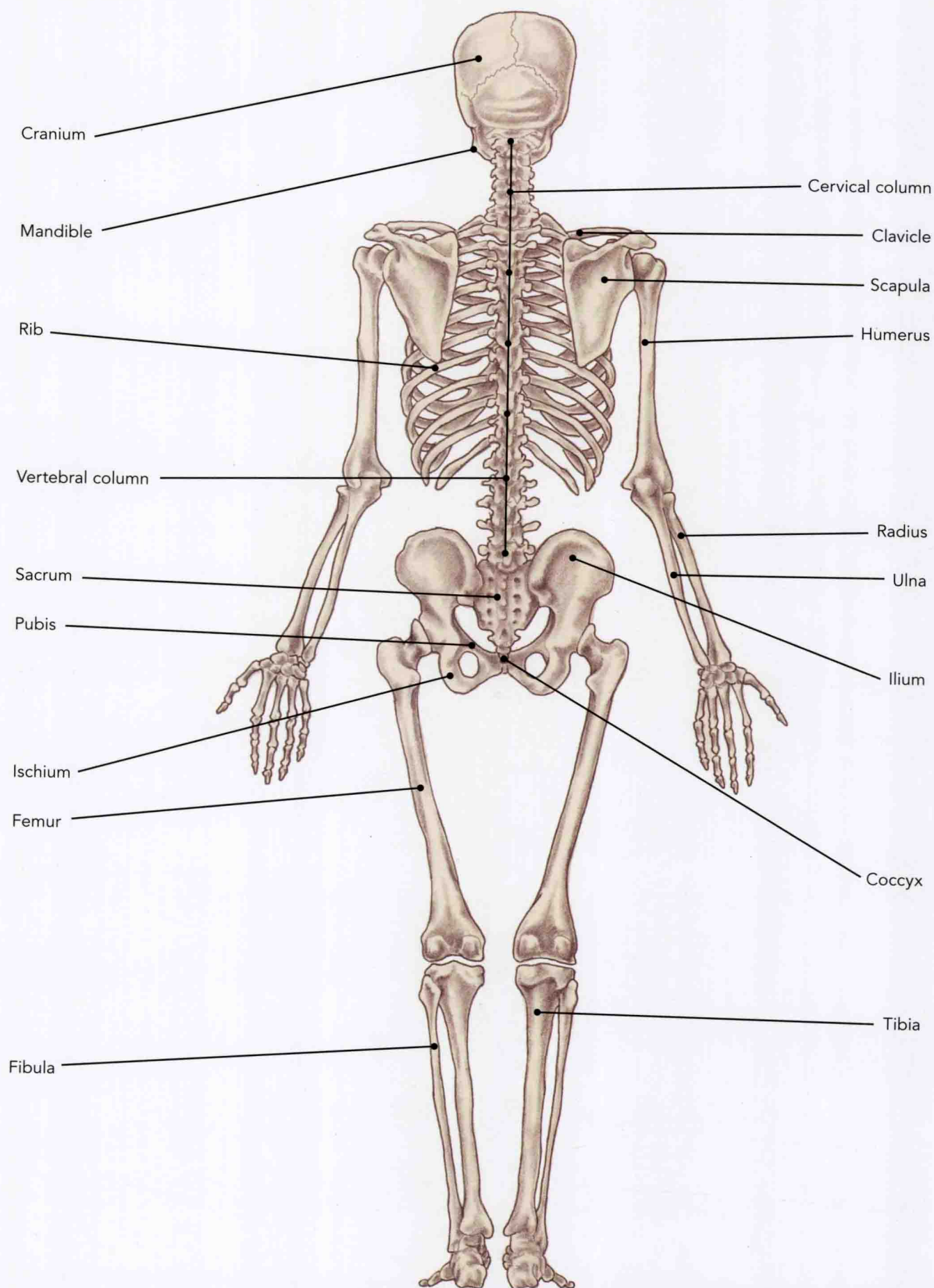












CONTENTS

INTRODUCTION iv

MUSCLES AND BONES OF THE HUMAN BODY.v

STRETCHING FUNDAMENTALS1

TARGETED STRETCHES.25

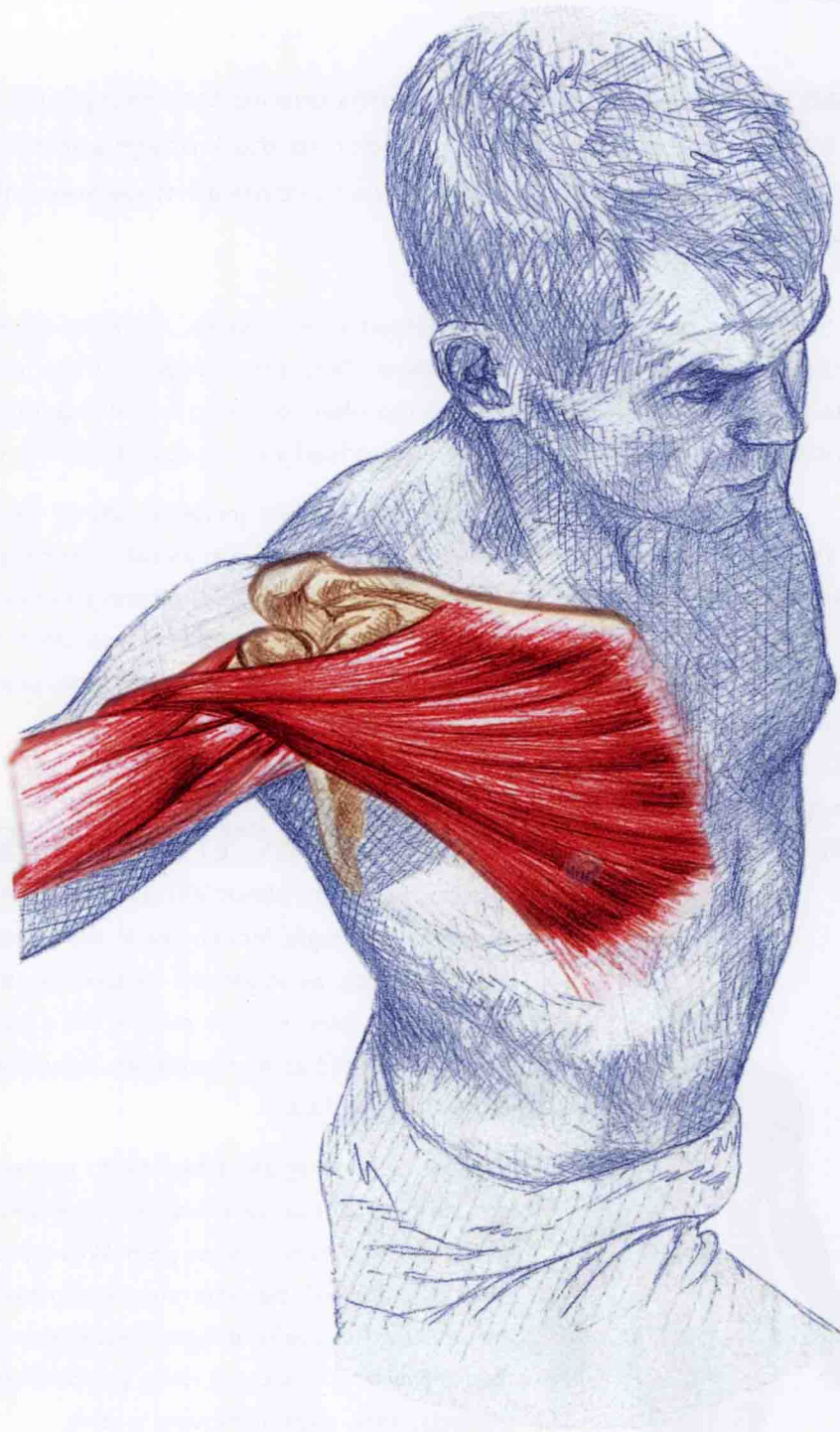
PROGRAMS FOR PAIN RELIEF.118

**ASSESSING FLEXIBILITY
AND MUSCLE BALANCE133**

STRETCH INDEX.135

REFERENCES.137

ABOUT THE AUTHOR139



STRETCHING FUNDAMENTALS

PHYSIOLOGY

The human body is an amazing creation. A variety of systems ensure that everything works just as it was intended to, from vision, hearing, and circulation to the kidneys and the heart. One of the most important systems is the motor system, which controls movement, flexibility, strength, coordination, and balance.

This group of systems contains the bones, joints, and the skeletal muscles, which all need resistance to stay healthy throughout your entire life. We put all the building blocks in place as children and must maintain them as adults.

When we move, the blood flow increases to the affected area. The blood carries oxygen and other nutrients that the muscles need. It also increases the temperature, making the muscles pliant. Muscle resistance stimulates growth so that the body will be stronger for the next exercise bout. You should increase resistance incrementally so that your body has a chance to adjust. If you increase the resistance too quickly, you

will overload your muscles. All forms of overloading are relative. They can include walking for too long, walking too often, or lifting something too heavy. You can even overload your muscles by sitting too much.

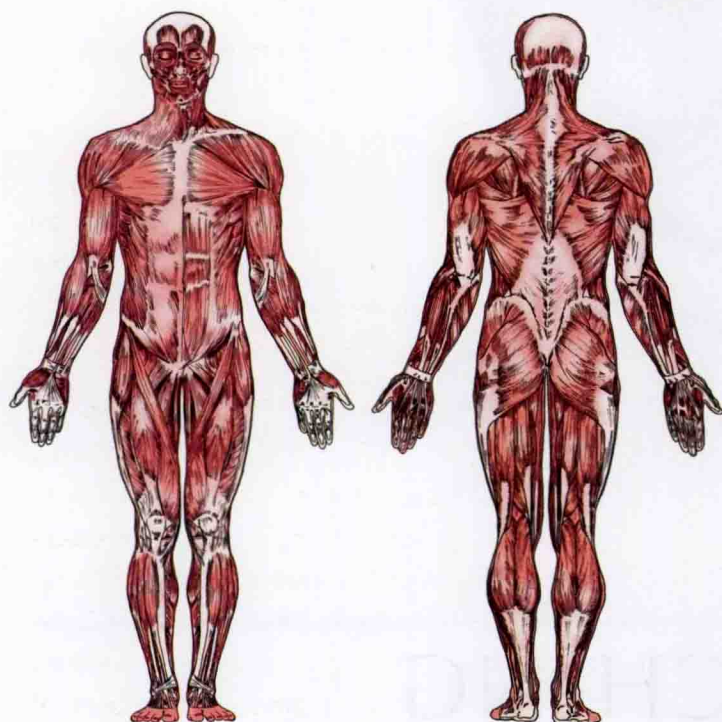
Increasing resistance incrementally is important for preventing injury during any kind of training or stretching. Even if you don't feel like taking it easy, your body registers everything you do. If you do too much of something over a short period of time, your body will let you know by registering pain.

THE MUSCULAR SYSTEM

The body contains about 300 skeletal muscles that are designed to create movement in the joints. Think of these muscles as stretched rubber bands. When a muscle goes into action, it pulls in like a rubber band. The more elastic your muscles are, the smoother your movements will be.

Muscles that never are asked to do any work do not get stronger during rest. Instead, they become tight and shortened, which cause pain. When you need the muscles, they will become tired easily because they are not used to performing any work. As a result, you may throw your back out while performing a simple, everyday task, such as moving a chair.

The body needs balance. When they are used, the muscles in the front of the body pull everything forward. If these muscles are shortened, a hunched-over posture will result. Therefore, in order to stand up straight, the muscles in the back need to be either equally long and strong or short and weak. In the best scenario, the muscles on the front and back of the



The human body contains 300 skeletal muscles.

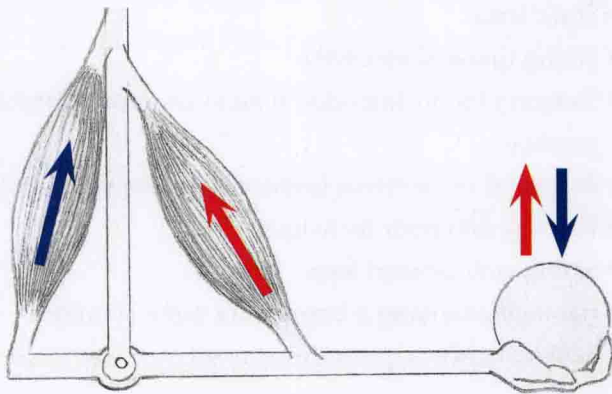
body are equally elastic, requiring less energy to stay balanced.

The relationship between the muscles on the different sides of the body (front and back or right and left) is very important for both performance and well-being.

Muscles that are repeatedly tightened (for example, during stress) will lose their elasticity and stiffen over time, since blood circulation decreases as we move less.

ANTAGONISTS

An antagonist is a muscle that creates the movement opposite to that of the muscle currently working or stretching. If the muscle that you are stretching bends the elbow, then its antagonist straightens the elbow. Therefore, when you execute a movement using a set of muscles, tight antagonists will provide resistance to that movement. If you are aware of the antagonists that cause most of the trouble, you can become much more efficient. For example, during running, you bring the leg forward using the hip flexors and the quads. The muscles on the back side of the thigh that move the leg backward will get stretched out as the leg moves forward. If these muscles are tight, they will hinder the movement. Stretching these muscles before running makes the activity more efficient.



Red will raise the ball and blue will lower the ball. They work in opposite directions, so they are antagonists.

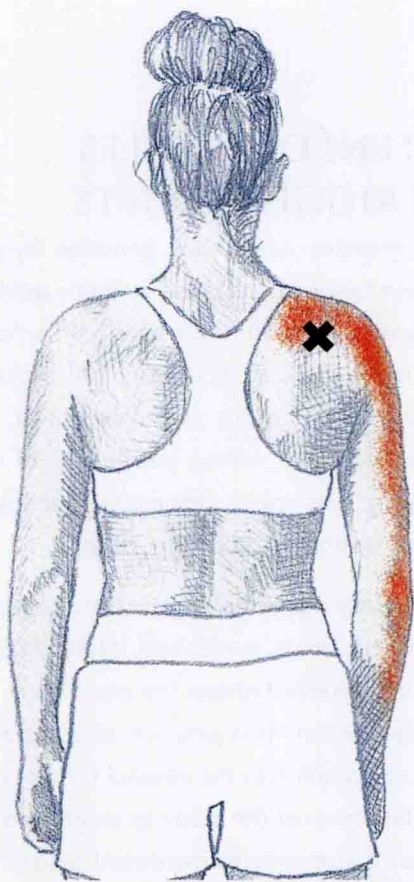
SHORTENED MUSCLES AND TRIGGER POINTS

When the muscles work, they produce by-products. One of these by-products is called lactic acid. Anyone who has carried something for a long time has felt the effects of lactic acid. At first, you feel a burn in the muscle. As you get more and more tired, the area actually starts to hurt. When you let go of what you were carrying, the pain dissipates because blood removes the lactic acid from the muscle.

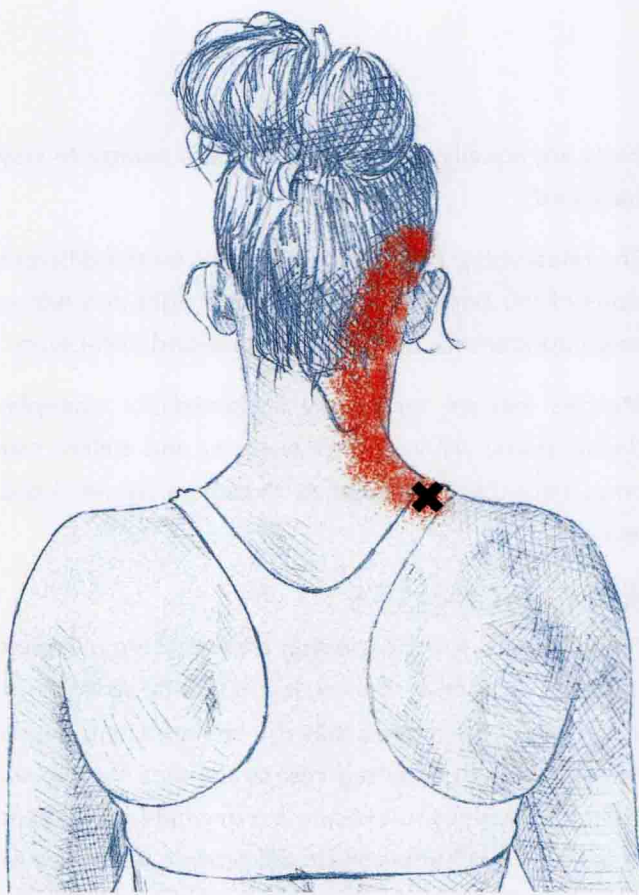
If you continually tighten your muscles, you create the problem of too much lactic acid. Nowadays, due to stress, we continually tighten the muscles in the neck and shoulder region. This practice also contributes to poor posture, which can be caused by weak muscles or by an adaptation of the body to shortened muscles. This bad habit also creates increased resistance when standing or sitting with correct posture. This resistance can shorten the muscles even further.

Trigger points can best be described as knots in the muscle that can vary in size from that of a rice kernel to that of a pea. Trigger points can cause pain, both locally and in other areas of the body. They can be either active or latent. For example, an active trigger point in the shoulder area, the trapezius muscle, can cause headaches either around the ears or near the forehead and eyes. A latent trigger point in the same area causes similar pain when pressed.

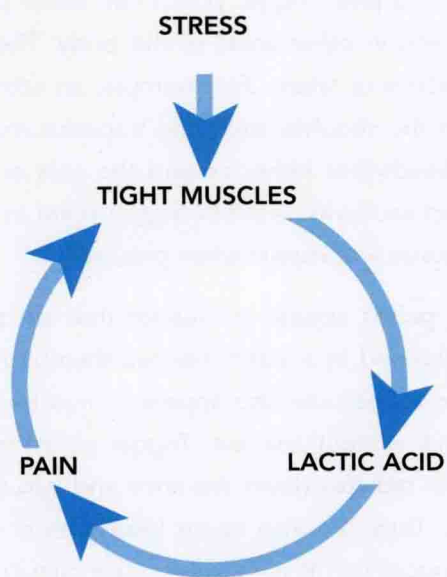
Trigger points appear in muscles that are shortened and tightened in a static manner, thereby producing lactic acid. They can also appear in muscles that work too much without any rest. Trigger points can create pain that radiates down the arms and into the hands or legs. They can also cause local pain in the back. Some trigger points will always cause pain in the same location for all people. These help us find the cause of the pain. Stretching is a good way to remove trigger points or to make active ones latent.



The X marks the placement of the trigger point, while the color indicates the area where pain might be felt. The entire area may not necessarily be affected.



The most common headache stems from a trigger point in the upper part of the trapezius muscle.



Following are the most common reasons for shortened muscles and trigger points:

- Stress
- Bad posture
- Static load
- Sitting (general inactivity)
- Sleeping for an extended time in an uncomfortable position
- Repeated movements (especially above the head)
- Training with poor technique
- Sitting with crossed legs
- Habitually carrying a bag on the same shoulder
- Feeling cold

THE SKELETAL SYSTEM

Everything in the body hangs on the skeleton, from the muscles and the lungs to the liver and intestines. If the skeleton proves to be too brittle, everything falls apart. Movement and loading stimulates the skeleton to strengthen and rebuild itself during the night to prepare for the needs of the following day. However, a sedentary life does not give the skeleton a reason to get stronger. Inactivity causes the skeleton to stop rebuilding, becoming thinner and less durable. Regrettably, your time to build a strong skeleton is limited. This process occurs until age 25, but after that, it is very difficult to substantially strengthen the skeleton. So, make sure your kids get out and move around instead of sitting in front of the computer or the television all day. The skeleton and the body are created for work, not for rest.

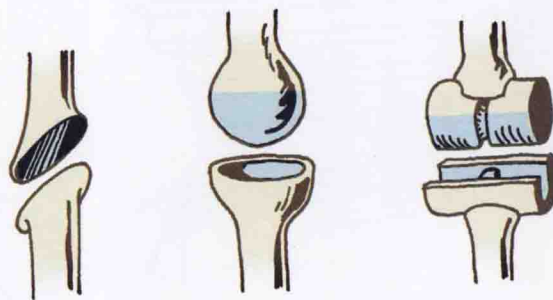
When you fracture a bone, the body heals it and then adds a layer of tissue on top to decrease the chance of another break.

JOINTS

Your joints, or the connection between two bones, might be the most sensitive part of the motor system. The ends of your bones are covered with cartilage that dampens vibrations and lessens friction. Like the rest of the skeleton, the cartilage needs to be loaded. It thickens during the first years of our lives. The more often cartilage is loaded, the thicker and more functional it becomes.

A door that is constantly opened and closed but is never greased will start to squeak. The same is true for our joints, which need maintenance and movement. Loading is the best way to care for your joints. Moving a joint through its entire range of motion stimulates it and makes it more cooperative the next time it is used.

Joints that are not used stiffen up. After only 12 hours in a cast, the mobility of the elbow joint decreases to 30 percent of its original function.



The plane joint, the ball-and-socket joint, and the hinge joint are three of the six kinds of joints in the body. The shape of the joint determines the movements that it can perform.

