

Free Yourself from Back Pain

*2nd Edition, revised
and enhanced*

nine weeks or fewer
to a comfortable back
you can trust



Illustrated Book for the Audio-Instructional Program

Hanna Somatics GoldTM

Lawrence Gold, Hanna somatic educator

The movements shown in this book are inherently natural and safe. However, if you have a medical condition or are concerned that you *may* have a medical condition, consult a physician and show him or her this program and get approval before beginning the program.

Done properly, these movements relax and coordinate the muscular system. Occasionally, soreness may result for a day or two after doing them. Such soreness is normal. However, if your soreness persists for more than 24-36 hours or your symptoms worsen, stop doing this program and consult your physician or physical therapist.

Since the author cannot be present to supervise you, you and he must rely upon your good judgment and intelligent application of the instructions found herein. In undertaking this program, you assume all risk of injury that may result from failure to follow the instructions correctly or from inappropriate use of this program.

Working Definition of Hanna Somatic Education®

Hanna Somatic Education (HSE) is a system of sensory-motor (mind-brain-muscle/neurological) training used to manage presenting complaints often referred to osteopathy, physical therapy, chiropractic, massage therapy, etc.

Hanna Somatic Educators teach clients how to gain voluntary control over otherwise involuntary muscular contractions and thereby to end muscular pain, prevent future injury, and enhance movement. The process produces lasting improvements in balance, flexibility, and coordination.

The primary technique used in HSE is called "pandiculation." Pandiculation is an action pattern found universally among animals with backbones, in which certain strong muscular actions (commonly misinterpreted as stretching) send a sensory signal to the brain (cerebral cortex) that is sufficiently strong to refresh the link between sensation and movement. In nature, it's a way of moving from rest into activity. Pandiculation is used by Hanna somatic educators to end the pain of muscular contractures and nerve impingements (pinched nerves), to restore or improve natural muscular control over movement, to dissolve "trigger points," and to end the tendency to cramp or go into spasm.

The specific advantage seen in Hanna Somatic Education by referring physicians is that, while being effective in the relief of muscular pain and spasticity, it has the specific virtue of teaching the client how to control the muscular complaint so that there is little chance of a future return of the problem. Such control makes possible normal, active participation in activities of daily living.

In addition to clinical protocols whereby the client is assisted in pandiculation of hypertonic (chronically tight) muscles, classes in sensory-motor training are presented by certified Hanna Somatic Educators to foster further improvement. Educational resources are also available -- instructional audio tapes, books and videotapes. These resources are designed to support the client in continued improvement at home, for themselves, by themselves.

Hanna Somatic Educators are certified by the Novato Institute for Somatic Research and Training. As of this writing, approximately ninety certified Hanna Somatic Educators practice throughout the world.

One of the goals of Hanna Somatic Educators is to foster self-sufficiency in their clients as quickly as possible, supported as needed by the resources named above. Long-term dependency on a practitioner of the Hanna Somatic Education modality is unnecessary, as self-awareness and self-mastery are the goals of the modality.

Audio-recorded somatic training resources are available on the world-wide-web at www.somatics.com/page7.htm.

Private sessions with a practitioner using clinical techniques are available for conditions that have persisted despite previous therapy. Contact Lawrence Gold at 505 699-8284 or visit www.hannasomatics.com/practitioners.

Look forward to the Whole Body yawn.

This is a book to help you work smarter
rather than harder,
to reclaim your body
from the tyranny of pain and stiffness.

The instruction comes from outside.
The learning comes from within.

PREFACE

How Is This Program Different than Other Programs?

The movements found in this book are designed to create sensations that enable you to improve your muscular control. They can free you from back trouble for a lifetime.

They involve a new approach to back trouble. Instead of strengthening and stretching muscles (a common approach) they change the brain-programming that controls your entire muscular system (a more effective approach).

Instead of merely strengthening your back muscles, these movements improve your ability to control your muscular tension. That means you can relax tight, painful muscles.

Instead of stretching your muscles, these movements restore your muscles to their natural pliancy and suppleness.

Instead of confining you to a “neutral spine position,” these movements free you for all kinds of movement.

This book teaches a progressive program of brain-muscle reconditioning, rather than a selection of movements from which to choose. That means you do all of the movements in sequence for at least the minimum amount of time specified.

The benefits are cumulative. You are likely to experience immediate relief each time you do a movement sequence, but as you are changing habits of muscular tension, you may sometimes find that your progress goes “two steps forward,

one step back.” Don’t be discouraged. Persist.

Each movement addresses a different aspect of the muscular system. All of these movements are of equal importance.

Instead of a symptomatic approach that involves working on painful areas, only, this book provides a whole-body approach. A whole-body approach is important because the muscular system works as a whole, through coordinated movement, to maintain balance in movement.

Above all, this movement program involves a learning process. You are building a sound foundation for a secure back. To learn what’s here, you will be doing some new things. Have patience; explore and practice. Go slowly and gently. To work this way is perhaps the biggest change you will have to make.

The sensations these movements create are as important as the time you spend doing them. Put attention into feeling. Feel the movements as you do them. You’ll feel the difference.

INTRODUCTION

Did your back pain start mysteriously one morning? Did it start suddenly, when you lifted something? After an accident?

A large percentage of people with back pain have nothing more than tight back muscles. Tight muscles are tired muscles, and tired muscles are often sore. Tight, tired muscles are also more prone to cramping than relaxed, refreshed muscles. Very tight back muscles may pull neighboring vertebrae together closely enough to pinch nerve roots that exit the spinal canal, causing pain and numbness in the extremities. When vertebrae are pulled closely together, discs between the vertebrae may get compressed and even break down (bulge or rupture) from long-term pressure.

Many symptoms of back trouble and their underlying causes can often be corrected, or their progress stopped, by the movements shown in this program.

Here's the simple premise of this approach: Muscular tension is controlled by the brain. Some muscular activities, such as ordinary movement, are controlled by the part of the brain dedicated to voluntary control; other muscular activities, such as reflexes, are controlled by the part of the brain and nervous system dedicated to involuntary bodily functions; still other muscular activities, such as coordination, result from deliberate learning and become automatic, even involuntary. After injury, long-term performance of a movement, holding of a position, or stress, tension habits form and some freedom of movement is often lost. Control has shifted from the voluntary to the involuntary centers of the brain. The movements found in this book retrain the voluntary part of the brain to take back control of those muscles from the involuntary parts of the brain.

Freedom of movement and comfort quickly improve.

I am a certified somatic educator who, by using the methods of somatic training, has had consistent success with clients who have back trouble. The results I get with the methods I use are highly reliable, even with difficult cases.

Because not everyone can get to see me or my colleagues (usually for geographical reasons), I have created this self-help book. Although not nearly as fast to produce results as clinical sessions at my office, the methods found in this book do bring relief to people with back trouble, results that are durable enough to stand up to all of the activities of daily living. All that is required is to do the movements I describe in the manner I describe, which is slowly, with awareness of the sensations of movement, and within your comfort zone.

Your days of guarding a bad back can be over.

Lawrence Gold
Certified Hanna Somatic Educator
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My Story

It was Christmas, 1979.

I was moving Christmas presents from their hiding place in the hall closet to their place under the Christmas tree. This was not a particularly heavy box, but as I leaned over to pick it up -- you know what happened. It was my first back spasm, sharp and surprising. It lasted a few days and then was gone.

In the years that followed, my neck would from time to time seize up in pain, preventing me from turning my head. A subsequent injury made things worse, with searing pain that went down behind my right shoulder blade and that lasted for months.

In 1988, I was a student at the California State University in Fresno, majoring in Physical Therapy. Friends and family lived in the Santa Clara Valley, a three hour drive from Fresno, and I made the trip as often as time would permit.

During that time, a mysterious sensation appeared in my right leg. It felt like a hot cable running from my buttock down the back of my thigh to my knee. I didn't know what it was, but I found that the only way I could get comfortable was to tuck my leg under me and use my left foot for the accelerator. That became my driving style.

By 1990, I was a student-in-training under Thomas Hanna, developer of the approach presented here.

Dr. Hanna was a character with a penchant for the dramatic, a man who at age sixty-one had the body of a forty-year-old. I have a picture of him grinning down from the branches of an apricot tree on the campus of the Dominican College in San Rafael, California, where he was conducting our training. He had climbed the tree without a ladder.

On the second day of training, he announced with characteristic flair that he was going to show us something that would seem to be miraculous. On the day before, he had started preparing us to learn something that had never been

taught, before, but when he made this announcement, my “hype” meter came on strongly. I sat up, and with arms crossed, thought to myself, “O.K. Let’s see it.”

He asked for a volunteer, and from those who raised their hands, he selected a tall man in his sixties with rounded shoulders and a sunken chest. He invited the man to lie down on a padded treatment table, on his back. After explaining what he was about to do, he proceeded to guide the man through a series of slow-motion, hands-on movement maneuvers that, in the space of about thirty seconds, shifted one shoulder from its held position, lifted off the table, to a new position, relaxed and flat on the table -- this, without massaging or stretching. One of the other students, a trainer in a method of bodywork called Hellerwork, had one word to say: “Astonishing!” Then, Dr. Hanna and his volunteer did the other shoulder.

I had just seen something I had never seen before. Dr. Hanna had told the truth.

In the weeks that followed, we students-in-training learned Dr. Hanna’s methods by ministering to each other. In the process, the hot cable behind my right thigh and my searing neck pain have disappeared and never returned.

This is not the end of the story, however.

In my mother’s side of the family, there is a tendency toward lower back pain. Some older members of the family have a forward-leaning posture characteristic of the elderly. I, myself, have had a similar tendency, with nagging, low-level pain at the waistline that came and went, but presented no limitation to my movement -- until one day.

I had just finished delivering a workshop on somatic techniques and was helping to stack chairs when a very unexpected thing happened. My low back seized up. The pain was deep in my pelvis and felt like lightening bolts that went down the fronts of my thighs. (The ministrations of my fellow students during our training period had failed to reach that deeply.)

I thought to clear the pain up by using the somatic techniques that I knew, but I couldn’t reach it. Something new was needed, and I didn’t have it.

After weeks, the pain subsided, but in the months that followed, recurred several times.

If I was to get relief and to be able to walk my talk, I felt I had no alternative but to explore the problem and arrive at a solution.

I took two years or so of delving into movement explorations, but I finally found a combination of coordinated movements that reached where nothing had reached, before. I was able, at last, to relax the deep contractions of my pain and achieve relief.

“Physician, heal thyself,” was a phrase Dr. Hanna used in one of his lectures to us. I was at last able to be true to Dr. Hanna’s challenge and to be a well-tested example of what I represented to others.

Further exploration of those coordination patterns have led to new techniques and to refinements of the movements, themselves, which I present to you in this book.

Stories of Others

In working with clients, I have come across some interesting situations. I’ll present some here.

“Tobe,” an avid rider and fox hunter, had a history of injuries from falling off her horse. She had what she described as “horrible sciatica and lower back pain” that was ruining her life. In her own words, “I hurt all the time. I tried chiropractic, massage, and pain killers. Nothing worked.” She was unable to sleep on her back or to maintain any lying position for more than a few minutes.

I will not pretend that this was a quick fix. Tobe had so many injuries that the pain of one injury would prevent us from doing the movements that would free her from the pain of another. Eventually, however, we were able to unravel the situation, and she now sleeps comfortably on her back and has no need of either treatment or pain medication.

“James,” a sculptor, suffered debilitating back and neck pain that interfered with his ability to work. A tall man, he had multiple postural problems. In addition to a tight low back, he had a tight chest that pulled his ribs down, restricting his breathing and forcing his head forward. A moment’s visualization and you can see how this would be the posture of someone who stoops forward to be close to his work, and perhaps to be less tall in a world of shorter people. In fact, because of the nature of his work, James tends to recreate the problem.

Under my guidance, using the methods shown in this book, he has been able to get relief and to maintain it by himself for long periods of time.

The significance of his story is that people’s occupations can cause them problems, but that by using the methods shown in this book, they can recover and maintain their physical comfort. As Dr. Hanna put it, “You can have your cake and eat it, too.”

Another person, Janette, was unable to see me in person, due to geographical distance. Having been diagnosed with a slipped disc and a disc bulge, and having failed to obtain relief from physiotherapy or from two years of osteopathic treatment, she sought help on the internet and found Somatics on the Web (somatics.com). After consulting with me by e-mail, she began a program of somatic instruction that brought her relief. Her letter appears on the website at www.somatics.com/JCourt.htm.

“Sally,” a health-educator in California and a small woman, suffered injury when she was hugged rather too enthusiastically by a large man. You can imagine. She also found me on the internet. Her diagnosis: ligament damage. Listening to her story, I was unconvinced of the diagnosis. It takes an awful lot to damage ligaments. Since the methods I offer are gentle and non-invasive, it was perfectly safe for Sally to try them. She has since recovered her physical comfort.

I have presented some rather challenging cases, including my own. I am confident that with the methods presented here, you, too, can obtain the relief you need.

Introducing the Method

Orientation to the Somatic Coordination Patterns

Whom is This Program For?

This program is for people who have had back injuries that have not healed as expected, for people with discomfort accompanying scoliosis or excessive kyphosis (types of curvature of the spine), for people who want to improve their posture, and for professional athletes who want to improve their performance and reduce the likelihood of injury.

It is appropriate for people with long-standing chronic, and recent acute injuries. If you have had a recent injury, however, get the advice of your physician before beginning any regimen of physical conditioning. Show this program to your physician and to your physical therapist, if you are under their care, to find out if they are ruled out by your condition. Ask if you might try the coordination patterns under their supervision (with them guiding you).

What to Expect

Generally, you can expect decreases of chronic pain and increases in freedom of movement. You can expect improvements in flexibility, strength, coordination, balance, posture and appearance. You'll feel better and look better. Your energy for movement is likely to increase. In fact, expect to discover that you have more strength and more energy for movement.

You may find that your comfort and flexibility improve immediately with each pass through a movement sequence. Sometimes, you may also notice that some of the pain returns. If it returns, that means you haven't yet sufficiently retrained your brain; your old conditioning is reasserting itself. Don't worry. Just persist in the program, and you'll find that your improvements accumulate.

The results you get will largely reflect how well you convert words into actions. Your first performances of these coordination patterns are likely to be approximations of the instructions; you may find, at times, that what you think you are doing and what you are actually doing are a bit different! With practice,

you will find you can do the movements more exactly as instructed and get quicker improvements.

These coordination patterns are safe to do, provided you do them gently and with consideration for your comfort. Regulate your effort to be within the range of sensations you are willing to experience.

About the Coordination Patterns

THE COORDINATION PATTERNS DON'T LOOK LIKE MUCH.

WHAT THEY FEEL LIKE IS SOMETHING ELSE.

In the sessions that follow, you will recover and improve voluntary control of the muscles that affect your back. Some of these muscles are in your back and others affect the muscles in your back by affecting your posture and balance. As you improve your control of these muscles, involuntary tensions let go. The muscles stay in a relaxed state unless you are using them.

The most common mistake people make doing the coordination patterning is to use too much effort, which sometimes leads to cramping. If you get a cramp, use less effort and lend more attention to what you are feeling. Soon, you will no longer tend to cramp.

You should also know that there is a possibility of some soreness appearing once you have started working with the coordination patterns. Don't worry. Soreness is a normal, but temporary, outcome for a certain percentage of people. It passes by itself in a day or so. If you do get sore, give yourself a rest for a day, then pick up where you left off in the program.

I present these coordination patterns in a specific sequence; each coordination pattern builds upon the gains produced by those that came before. If you find a coordination pattern too difficult or painful, don't worry. Instructions will guide you to a preparatory coordination pattern that will make things easier. Take your time progressing from one coordination pattern to the next; be thorough and patient. You need the results from the earlier coordination patterns to get the best results from the later ones.

Self-Assessment

There is a common pattern of muscular tension in people with back trouble. This pattern usually involves tension in the muscles at the backs of the shoulders, along the spine, in the buttocks, and sometimes the neck and hamstrings.

This section gives you a chance to get familiar with your pattern of muscular tension. It's useful to have a clear picture of where you're starting, so you can recognize and own your progress. After you complete each coordination pattern, you will have a chance to feel the changes.

Lie on your back. As you lie there, notice how much space there is between your low back and the surface on which you're lying. Slide a hand under your low back and feel the space. Do that now. (Stop reading.)

- ~ o 0 O 0 o ~ -

The space you felt is the result of the muscles of your low back contracting. As they do, their tension has the same effect on your back as the string of an archer's bow: The tension of your back muscles creates a curve in your back just as the tension of the bowstring creates the curve of the archer's bow.

Other muscles at the front of your hip joints may be contributing.

The coordination patterns that follow will retrain your muscles to relax. You will feel this curve decrease as you do them.

Lie on your back, again. Feel how your shoulders and buttocks contact the surface. Do this now. (Stop reading.)

- ~ o 0 O 0 o ~ -

After each coordination pattern, take some time to feel how your shoulders and buttocks meet the surface.

Preparatory Learning

STARTING POSITION:



- **lying on your back**
- **knees up, legs balanced (upright) leaning neither in nor out**
- **arms bent with hands at shoulder height**

1. Bring your attention to your breathing.

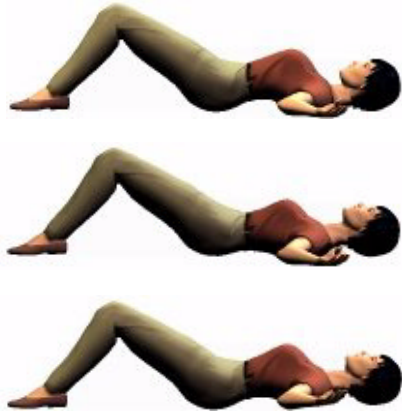


2. Bring your attention to your throat *behind* your nose.

3. Feel your throat (behind your nose) cool with inhalation, warm with exhalation.

You have located the place where your head rests upon your topmost neck vertebra, on the inside. In the following coordination patterns, this place is called, "the place behind your nose."

4. By moving your head slowly in a nodding (“yes”) movement, locate the head position at which the place behind your nose, in your throat, opens, and the place at the back of your head where your neck meets, begins to close.



That's known as "the neutral position."

MODULE 1A

Spine Waves

Special Technique: Muscle Equalization

Why Equalize Muscular Efforts?

The procedures that follow have a very interesting feature: they involve equalizing the tension and sensation of muscles in two or more areas at once.

Why equalize tensions? It unlocks habit patterns.

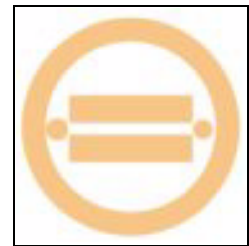
A very odd thing happens when muscle groups that ordinarily work together get conditioned to maintain unequal degrees of tension. They get stuck in unequal degrees of tension!

That means that as soon as one group goes below its usual degree of resting tension, its co-worker group, which may already be at too low a level of tension for postural stability, goes even lower. For the sake of stability, the brain brings the too-low group back up to a higher level of tension, which brings its co-worker group back to where it started.

It's a stuck situation.

The solution is to link the two groups together in a single action and to bring them to comparable levels of tension and sensation.

That's what the following coordination patterns do.



THE "EQUALIZE" ICON

By so doing, they produce some remarkable changes of muscular control, posture, and balance, for which there is no adequate substitute.

The effect on back spasms? Permission to relax!

All of the coordination patterns in this book consist of a contraction phase and a slow relaxation phase. As you do these coordination patterns:

- **Always regulate your effort to be within your comfort zone: *the amount of sensation you can experience without fear or cringing.***
- **Follow the instructions, but breathe when you need to!**

Hidden Connections

Among the body's parts, there are hidden connections, in which movements of one part elicit responsive movements of other parts. By moving both parts together and *feeling* the effort, we can reset muscular tensions that are otherwise habitual.



THE "FEEL" ICON

The following coordination pattern, *Spine Waves*, makes use of such hidden connections.

Go slowly enough to notice the *first* sensation of effort.
Always work within your zone of easy effort. Never cause yourself to cringe. If a movement hurts, use less effort.

Spine Waves




STARTING POSITION:

- lying on your back
- knees up, legs balanced, leaning neither in nor out
- arms outstretched, hands in line with shoulders

IF NECESSARY FOR COMFORT,

- place your hands on your belly
- place a pillow under your head.



Find the place behind your nose whenever you see  .

If your condition makes you want to cringe in this movement, use less effort. If you still tend to cringe involuntarily, go to Module 2A (page 101), then come back to this coordination pattern.



1. Turn chin up, press your head down, and hold.

*Go slowly enough to notice the **first** sensation of effort.
Always work within your zone of easy effort. Never cause yourself to cringe. If a movement hurts, use less effort.*



2. Inhale, lift your breastbone and hold.

Feel the back of your neck and the muscles of your mid-back tighten. Feel your breastbone lift.



3. Slowly exhale and relax all efforts. Breathe freely.

Feel the back of your neck relax, your chest sink and your low back flatten.



NO EFFORT

Repeat until you feel the muscles of your mid-back contract as you lift your breastbone (at least three (3) times at decreasing levels of effort) until you can feel the movement as described.

*Go slowly enough to notice the first sensation of effort.
Always work within your zone of easy effort. Never cause yourself to cringe. If a movement hurts, use less effort.*

The following movement improves your control over the muscles of your mid-to-upper back, resulting in relaxation, there.



1. Turn chin up, press your head down, and hold.



Feel the back of your neck tighten and shorten.



2. Inhale, lift your breastbone, and hold.



Feel the back of your neck and the muscles of your mid-to-upper back tighten. Feel your breastbone lift.



3. Equalize tensions at the back of your neck and mid-back.



Go slowly enough to notice the *first* sensation of effort.
Always work within your zone of easy effort. Never cause yourself to cringe. If a movement hurts, use less effort.



4. Slowly relax the back of your neck until tension moves in a wave to your mid-to-upper back.
(Breastbone stays lifted.)



As you relax your neck, stop at a position where you feel the tension or sensation in your back the most. Hold that position until you feel the sensation change.



*⇒ 2nd level ⇒ Shrug your shoulders **evenly** toward the tight place in your neck, without changing the position of the tension in your neck, and hold. Compare and equalize the effort in your two shoulders.*

*Go slowly enough to notice the **first** sensation of effort.
Always work within your zone of easy effort. Never cause yourself to cringe. If a movement hurts, use less effort.*



5. Slowly and together, lower your breastbone and relax your neck. Breathe freely.

You may notice that your back feels longer and flatter.

Repeat until you feel the muscles of your mid-back relax as you lower your breastbone (at least three (3) times at decreasing levels of effort) until you can feel the movement as described.

Appendix A

*Some Comments on Typical Terms
Applied to Back Pain*

Some Comments on Typical Terms Applied to Back Pain

Degenerative Disc Disease

Refers to breakdown of the intervertebral discs -- the fibrocartilage spacers between vertebrae.

The discs consist of two layers: a tough, fibrous outer ring (annulus fibrosus) and a gummy core (nucleus pulposus) -- something like a Tootsie Roll Pop.

Disc breakdown may range from mild disc bulge, to more severe disc bulge (herniation), to rupture of the disc with extrusion of disc material, to conversion of the disc into bone (fusion). This phenomenon may occur anywhere in the spine, including the neck.

While defined as a disease, Degenerative Disc Disease is no more a disease than a blowout of an overloaded tire is a disease of the tire. The breakdown comes from mechanical causes -- overcompression.

Tight muscles of the back (the spinal extensors) pull neighboring vertebrae closer together, compressing the discs in between. Over time, the combination of overcompression and movement cause discs to break down, leading to the range of breakdown described above.

The breakdown process can be stopped by restoring normal pliancy to the spinal muscles and normal space between the vertebrae. Then, the healing process can restore disc integrity.

Added note: chronic dehydration due to insufficient water intake affects the discs adversely. As discs lose water, they lose plumpness and lose their ability to maintain space between neighboring vertebrae. Nerve entrapment, such as sciatica or tingling and numbness in the hands (including carpal tunnel syndrome), may result.²

2. Hanna, Thomas L. Ph.D. *Somatics -- Reawakening the Mind's Control of Movement, Flexibility, and Health*. 1988: Perseus Books, pages 81-82.

Spinal Subluxations

The term, originating in Chiropractic, refers to misalignments of neighboring vertebrae. Such misalignments adversely affect posture, movement, and organ function by affecting nerve signal transmission.

Bones go where muscles pull them. Abnormal (habituated) tensions in the spinal muscles pull vertebrae out of alignment. As muscular functioning normalizes, spinal alignment often normalizes spontaneously.

Without normalization of muscular functioning, spinal misalignments tend to return; with normalization of muscular functioning, chiropractic adjustments, if needed, tend to be long-lasting and are needed less often, if ever.

Injury vs. Spasm

People commonly confuse spinal injuries with muscle spasms.

Spinal injuries involve changes in bone structure or soft-tissue consistency: fractured vertebrae, degenerating discs, nerve damage. Spinal injuries require substantial healing time -- or may never heal.

Muscle spasms -- painful muscular contractions -- though painful, do not constitute an injury. Though symptoms of nerve impingement (tingling, burning, numbness, loss of muscular control) may accompany muscle spasms, these symptoms often disappear nearly instantly, once muscle spasms relax. Muscle spasms can often be induced to relax through somatic methods relatively quickly.

Muscle spasms often follow traumatic accidents, such as falls or motor vehicle mishaps, shocks to the nervous system that prompt the muscular system to tighten up. For that reason, muscle spasms may be confused with spinal (not "spinal cord") injuries. In persons with chronic muscular tension, muscle spasms may also occur when lifting heavy loads or even when bending forward, leading persons to speculate that they have injured their back.

Referred Pain

This term, familiar to physical therapists, has to do with pinched nerves (nerve impingement). It refers to pain at a location other than at the location where the nerve pinch exists.

Sensory nerves end at brain connections corresponding to the body part they sense. A nerve that reports on the state of the foot ends in a brain connection that corresponds to the foot. That nerve “refers” to the foot.

If the nerve to the foot gets pinched, the brain interprets the nerve signal that results as a sensation of the foot.

Sciatica is an example of referred pain. The sciatic nerve branches down the back of the leg to the foot. A pinch or entrapment of the sciatic nerve at the waist or buttock (often caused by muscular tension) creates a signal that the brain interprets as trouble in the back of the leg or in the foot.

Facet Joint Syndrome

The facet joints are bony projections on vertebrae. Generally, these bony projections on neighboring vertebrae don’t touch each other, but muscular contractions along the spine pull neighboring vertebrae together and may cause those facet joints to meet with undue pressure and friction.

Another type of facet joint exists where ribs meet vertebrae. Excessive tension of the muscles that control rib movement may also cause a kind of facet joint syndrome.

The pain and inflammation that result are sometimes called “facet joint syndrome” and sometimes, “spinal arthritis.”

Radiculopathy

This is another term familiar to physical therapists. It refers to tingling and numbness in the extremities that result from nerve impingement (a pinched nerve). The term implies damage to a nerve root where it exits the spinal column.

Sometimes, no damage exists; a nerve impingement of muscular origin exists. The symptoms of radiculopathy often disappears as soon as tensions of the spinal musculature normalize.

A Functional Look at Back Pain and Treatment Methods

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Two primary sources of chronic back pain are muscular hypertonicity (resulting in joint compression and possible nerve impingement) and lactic acid buildup in hypertonic muscles (creating nociceptor irritation). Improper or insufficient movement and/or postural habits lead to (and result from) chronic muscular hypertonicity and soreness.

This essay presents a radical departure from the conventional viewpoint of clinical therapeutics. It states that to resolve back pain often requires neither strengthening nor stretching, neither mechanical skeletal adjustment nor application of electrical stimulation, heat or cold, neither muscle relaxants nor surgery. In many cases, to resolve back pain requires nothing more than improving the link between kinesthetic awareness and motor control, the benefits of which, in some cases, might be *augmented* by soft-tissue manipulation. Both traditional and newer treatment methods are discussed.

INTRODUCTION

The conventional understanding of muscular back pain is that it results from traumatic injury, poor posture, genetic (mis)endowment, old age, or from "insidious causes". Pain is often attributed to strain, sprain, or facet joint damage.

In cases of traumatic injury, such as whiplash or a lifting injury, a strain, sprain, or joint damage may in fact have occurred. In many cases, however, pain reflects chronic muscular hypertonicity following injury or subsequent to long-term stress.

Lactic acid buildup and tissue irritation follow- this apart from any tissue damage that may exist.

Two basic conditions contribute to lactic acid build-up in muscle and thus, to back pain:

- chronic muscular hypertonicity
- disorganization of the fascial network (connective tissue)

Chronic Muscular Hypertonicity

Chronic muscular hypertonicity may result from long-term performance of repetitive movement (e.g., at work); from long-term emotional distress (i.e., heightened tension), or from trauma (reflexive retraction from pain upon injury that persists through healing). In all cases, muscular tension begins as a momentary response and becomes chronic/automatic through habituation. It often persists even during sleep.

Whether muscular hypertonicity results from pain (i.e., from guarding against pain) or produces it, the results are the same: reduced movement, decreased circulation, and accumulation of lactic acid in the involved muscle tissue.

Habituated contraction can accumulate in "layers" (with multiple episodes of heightened tension), often to crisis proportions, as often happens with back pain.

Habitually tight muscles interfere with movement and interfere with their muscular antagonists; fatigue, stiffness, and soreness result.

Chronic co-contraction of extensors and flexors is one mechanism by which unresolved muscular tension persists. When the extensors and flexors of the trunk co-contrast, they shorten the spine and compress the intervertebral discs; this is a common origin of disc degeneration and radiculopathy.

Whether muscular hypertonicity arises from physical or emotional origin, the result is the same: lactic acid build-up and joint compression.

Disorganization of the Fascia

The fascia is the fibrous matrix that gives shape and tensile strength to tissue; in muscle, fascia is called, "myofascia". In soft tissue, fascia grows or shrinks

according to functional demand. This logic of growth-by-demand creates a pattern of organization visible as the physical person; it also imprints stress and trauma upon the fascial system, present as patterns of disorganization -- contraction and restricted movement. The fascia is thus an organ of memory, whether of healthy function or of dysfunction, as well as of tissue integrity.

The consequences of trauma -- heightened muscular tension, pain, and fatigue -- may thus persist due to disorganization of the fascia. Long-term consequences may include crises of spasm and long-term joint degeneration.

Summary of Introduction

Two basic conditions, muscular hypertonicity and fascial disorganization, can account for many or most cases of chronic back pain.

METHODS OF TREATMENT

We discuss four basic areas of praxis for the treatment of back pain:

- physical therapy modalities
- chiropractic manipulation
- somatic education
- myofascial release techniques

In physical therapy, therapeutic exercise, heat, electrical stimulation, and massage are the usual modalities used to treat back pain.

In chiropractic manipulation, adjustments of vertebral placement shift patterns of compression communicated through the skeletal system.

In somatic education, accelerated sensory-motor learning retrains the central nervous system (CNS) to alleviate muscular hypertonicity.

In myofascial release techniques, soft-tissue manipulation frees adhesions and restriction in the myofascial system.

Physical Therapy Modalities

Therapeutic Exercise, Heat, Ice, Electrical Stimulation, and Massage

Therapeutic exercises may, if properly taught, supervised, and practiced by the patient, improve sensory awareness and voluntary control over muscular tension. Although the rationale behind therapeutic exercises is usually to strengthen muscles, a more precise understanding is that it improves coordination and control of muscles, upon which strength depends. Such exercises, performed ballistically, produce little benefit and may increase pain and spasticity. To produce the most benefit, they must be performed slowly, smoothly, and with due respect for the patient's comfort level (to avoid guarding against pain by tightening further).

Moist heat, applied to the affected area, increases circulation and induces relaxation. Application of ice can numb pain and, through a rebound of circulation to restore warmth to an area, result in removal of lactic acid.

These three approaches are therefore effective ways to flush lactic acid from the soft tissues, and that is the primary benefit.

These modalities are therefore palliative; hypertonicity tends to return.

Electrical stimulation may produce temporary relaxation and mask pain; by inducing increased awareness of the hypertonic muscles, it may also indirectly improve voluntary control over muscular tension.

Muscular activity and massage move fluids from the soft tissues into the bloodstream and lymphatic system, through pumping action.

Chiropractic Manipulation

Bone movement and position reflect muscular pulls and the lines of stress communicated through the fascial system.

Sense receptors in joints communicate bone movement to the Central Nervous System (CNS), which in turn controls muscular tensions associated with posture.

Thus, movement and sensation form a feedback loop for the maintenance of postural alignment.

For bone displacement maintained by muscular tensions of recent (i.e., non-habituated) status, skeletal adjustments can be sufficient to interrupt postural reactions to injury and bring relief.

Muscular tensions of long duration (i.e., habituated status), may reassert themselves after skeletal adjustments. In such cases, relief is brief, as muscular hypertonicity returns, with attendant exacerbation of symptoms. The same limitation applies to traction techniques.

Somatic Education

Somatic education addresses the sensory-motor aspect of the CNS to reduce muscular hypertonicity. It is indicated where residual tension persists after injured tissue has healed or where hypertonicity returns after treatment by conventional methods.

Four forms of somatic education will be discussed, here:

- conventional postural training
- movement training
- assisted pandiculation

Conventional Postural Training

Conventional postural training teaches patients to establish a neutral spine position in movement and to maintain it in all activity. Patients thus limit their movement and tend to maintain protective holding patterns in the musculature ("guarding").

Guarding leads to conditioning into chronic patterns of tension, and patients tend to remain fearful about their injury. An alternative to this choice is to maintain "normal spinal curves". The fallacy of this approach is that there exist "normal spinal curves"; the spine is inherently a flexible structure whose curves

change according to load, position, and emotional tension. This fallacy extends to the use of "lumbar supports".

Movement Training

Movement education seeks to develop balanced agonist/antagonist muscular coordination throughout the body. Where agonist overpowers antagonist (where reciprocal inhibition is interfered with by chronic hypertonicity), postural aberrations result.

For example, in individuals who typically stand with knees locked and feet and legs splayed apart, abductors and the external rotators of the thighs have overpowered the adductors and internal rotators. The pelvis is thrust forward, as a result, the rib cage falls back, and the head, forward. Such a position accentuates the spinal curves and adds strain to the musculature of the neck and thoracic spine.

Movement training optimally uses balanced movements that "reprogram" control of agonist/antagonist muscle pairs. The patterns of movement thus cultivated permit release of more habituated tensions, including those of injury-guarding and emotional distress. As better-balanced movement patterns develop, compensatory muscular responses are less necessary; muscular tensions redistribute themselves and abate. Lactic acid concentration and pain decrease.

Examples of somatic education include Proprioceptive Neuromuscular Facilitation (PNF), The Alexander Technique, The Trager Approach, Feldenkrais Somatic Integration, Rolfing Movement, Hanna Somatic Education, and others. All of these methods use the client/patient's capacity for learning to develop new patterns of sensory-motor integration (coordination). Success depends upon restoring or improving voluntary control of previously involuntarily muscular contractions. Otherwise, states of involuntary contraction interfere with the possibility of establishing new coordination patterns.

Assisted Pandiculation

Pandiculation is an instinctual behavior found among all vertebrates that purges residual tension from the neuromuscular system. Assisted pandiculation systematically triggers the effects of pandiculation through a kind of "eccentric, active- resistive range of motion" maneuver; this maneuver produces sufficient sensory awareness of the involved areas to induce rapid sensory-motor learning. Assisted pandiculation produces a nearly instantaneous, stable reduction of habitual hypertonicity that can, if necessary, be maintained with a few minutes of patterned movement a day. It may be the fastest method known for bringing involuntary (habituated) muscular hypertonicity under voluntary control.

As of this writing, there is only one system of movement education known which uses assisted pandiculation: Hanna Somatic Education.

To be most effective, somatic education must include the whole body (since the neuro-musculo-skeletal system operates as a whole to maintain balance in the gravitational field). All of the methods named above cultivate relaxed or easy balance (grace) in movement and at rest, though some work more quickly than others.

Myofascial Release Techniques

Myofascial release techniques free restrictions of the fascial network that have developed through injury or through growth under chronic muscular tension.

Certain varieties concentrate on symptomatic relief and direct their processes accordingly. The technique developed by Ida P. Rolf, Ph.D. ("Structural Integration") addresses the body as a whole via a systematic, 10-session system that concentrates on improving overall physiological functioning, apart from consideration of symptoms. (Advanced work beyond the basic 10-session series is also done.)

Structural Integration works by guiding the fascia into a pattern of distribution that more nearly approximates their anatomical ideals, as indicated by bony landmarks, joint structure, and the requirements for balance-in-movement, as dictated by the demands of the gravity field.

This process balances the agonist/antagonist pairs, distributes tensional forces in the myofascia, and so allows the core of the body to relax and open. Structural Integration differs from myofascial release, per se, by its systematic approach to postural alignment and balance in movement, and in its recognition of the functional relationship of hard and soft tissues in relation to the gravitational field.

In cases of chronic "poor posture," problems can usually be found in the myofascial system, e.g., twists, thickening, displacement from normal position, etc. Fascia in this state may be very tight and restrictive of movement. Consequently, agonist/antagonist muscle pulls are imprecisely matched and impaired, leading to irregularities of movement, impaired coordination, muscle weakness, and poor postural support. As stated above, chronic fatigue, pain, and postural breakdown accompany myofascial distortions. Neuromuscular compensations, including decreased mobility and unbalanced alignment, ensue.

For example, the shoulder and hip joints are related. In walking, they move contralaterally; at rest, they counterbalance each other: As one hip moves forward, the shoulder above it tends to move backward as a postural reflex. The torso connects the two girdles, hip and shoulder. Compensatory shifts of these girdles twist or distort the spine and rib cage. The combination of a twist, shear forces, and muscle tension adds stress to the whole torso.

For that reason, when treating back problems, the establishment of a dynamically balanced and freely functional neutral spine position requires free movement and reciprocal coordination of the shoulder the hip girdles. The technique of Structural Integration involves (1), placing the displaced part near its position of optimal relationship with its neighboring parts, (2) manually restraining the local myofascia, where disordered, and simultaneously, (3) having the patient/client move the part in a way approximating normal movement. The combination of movement and tissue-restraint repositions the myofascia to a better approximation of the norm.

SUMMARY

Though varying in etiology and degree of severity, back pain has a common feature: build-up of lactic acid in muscle tissue and resulting irritation. Muscular hypertonicity and postural distortions create pain, facet joint irritation, and radiculopathy.

Disorganization of the fascial network restricts movement and triggers postural responses to overcome those restrictions. Hypertonicity may result from injury (trauma reflex), persistent emotional responses, repetitive movements, habitual poor posture, and/or prolonged immobilization.

Treatment modalities addressing those mechanisms -- through the disciplines of physical therapy, chiropractic, somatic education, and myofascial release -- have been discussed.

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