



Back RX: A 15-Minute-a-Day Yoga- and Pilates-Based Program to End Low Back Pain

By Vijay Vad, Hilary Hinzmann

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As a physician specializing in treating athletes, Dr. Vijay Vad has spent years researching how to cure back pain using medical yoga and Pilates. Profiled in **The Wall Street Journal**, his program requires just fifteen minutes a day for eight weeks to restore flexibility and prevent future injuries.

Offering a proven alternative to invasive surgery, Dr. Vad's **Back Rx** provides the best of mind/body medicine by giving readers three step-by-step exercise series, demonstrated in 130 precise photographs, for implementing his popular program at home. Even readers with severely limited mobility will rejoice in Dr. Vad's gentle introductory workout. Progressing through his self-paced program, they will discover a new range of exercises, breathing techniques, and tips for self-massage. For those who want to go even further and use this program for more than the treatment of a single injury, an advanced workout is included that puts readers on the road to peak performance.

The perfect combination of modern medicine, Pilates innovations, and ancient yoga postures, **Back Rx** builds important new fundamentals for lifelong freedom from pain.

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- Sales Rank: #40454 in Books
- Brand: Brand: Gotham Books
- Published on: 2004-02-09
- Released on: 2004-01-22
- Original language: English
- Number of items: 1
- Dimensions: 9.00" h x .44" w x 7.00" l, .74 pounds
- Binding: Paperback
- 176 pages

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Editorial Review

Review

“After three months, the results have been striking: 80%... reported that their pain was reduced by at least half”—**The Wall Street Journal**

“[Dr. Vad’s] holistic approach can work for anyone willing to put in just a little time and positive thought.”
—**Ellen Barkin**

“[His] innovative research on the professional tennis and golf tours and the practicality of **Back Rx** make it suitable for professional athletes and weekend warriors, as well as couch potatoes.” —**Bill Norris, athletic trainer, Association of Tennis Professionals Circuit**

“**Back Rx** has been medically proven to have significant positive effect on low back pain caused by disc pathology.” —**Don Aspergen, Sports Medicine Division, the PGA Tour and Senior PGA Tour**

About the Author

Vijay Vad, M.D. is a sports medicine physician and researcher specializing in minimally invasive arthritis therapies at the prestigious Hospital for Special Surgery in Manhattan and a professor at Weill Medical College of Cornell University. He is also the physician for the PGA golf tour and the ATP tennis tour.

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Introduction:

The Back Rx Way to a Healthy, Pain-Free Back

If you’re reading this book, you’re probably all too familiar with the pain of a low back injury. A strained muscle in the low back can make you gasp with pain at the slightest movement. The herniation of a spinal disk, the most troublesome cause of severe low back pain, can virtually cripple you. Worst of all, in the aftermath of a low back injury, pain may take up permanent residence almost anywhere in the back or legs, including sites far removed from the point of injury.

If you’re hurting now, skip ahead to page xvii for some simple ways to ease the pain. Come back to read these pages when you’re feeling better. In order to make a full and lasting recovery from low back pain, you must first understand what causes it.

In North America, four out of five people will suffer a serious episode of low back pain at some point in their lives. Only the common cold causes more lost work days than low back pain for adults under forty-five years of age.

Low back injuries usually heal within weeks, a testament to the back’s inherent strength and resilience. But long-term healing is notoriously difficult to achieve. One episode of low back pain generally leads to another. Four out of five people will suffer a recurrence within one year, and then face a 70–80% risk of further recurrences. The right treatment can make all the difference between healing completely, building a more injury-resistant and resilient back in the process, and falling into a downward spiral of recurrent injury that defeats every measure of conventional and alternative care and leads to failed back syndrome, long-term dependency on pain medication, and even surgery. That downward spiral traps far too many low back pain

sufferers.

IÆve had to heal my own low back pain. So I write this book both as a physician and as a fellow sufferer. The Back Rx program enabled me to beat my low back pain for good. And it has helped thousands of patients I see in my sports medicine practice and research at the Hospital for Special Surgery, an affiliate of Cornell University Medical Center in New York, where I also serve on the faculty as a professor. Back Rx achieves these results by blending carefully selected elements of rehabilitation, yoga, and Pilates with a central focus on breath control. It is one of the few exercise programs for the low back to be shown effective in controlled clinical trials.

In an ongoing study, my research colleagues and I are monitoring the progress of two groups of low back patients who receive the same medical care and take the same pain medication, except that one group does the Back Rx program for fifteen minutes three times a week. At the end of the first year, the group doing Back Rx had a 70% success/cure rate (as measured by a more than 50% reduction in low back pain), whereas the other group had only a 33% success/cure rate. The group doing Back Rx also needed much less pain medication and had significantly less recurrence of back pain than the other group.

Building on the work of many other low back pain researchers and clinicians at the Hospital for Special Surgery and elsewhere, my research and clinical practice have demonstrated that an exercise program like Back Rx can be the key to healing low back pain without surgery or long-term dependence on medication.

My patients come from every walk of life, including professional sports, which allows me to see the full range of low back problems. Professional athletes are especially interesting patients in this regard. Understanding why even highly conditioned individuals are susceptible to low back pain provides great insight into the common denominators of this baffling medical condition and how best to address them. I see professional athletes as private patients and in my role as a consulting physician for the ATP tennis tour and the PGA golf tour. My involvement with both tours began with research studies whose results provide powerful evidence for the effectiveness of the Back Rx program. I initiated this research in 1999û2000, when I spent a year on the road with the ATP tennis tour.

During my year on tour with the ATP, I had two main jobs to do. One was to find qualified low back care physicians in the tourÆs many stops around the world, from Tashkent, Uzbekistan, to Moscow, Russia, to Rome, Italy, to Tokyo, Japan, to Shanghai, China. The other was to conduct a research study into why low back pain is so prevalent among professional tennis players.

The study I conducted found that the players most susceptible to low back pain had the least range of motion in the hips. In 2001 the PGA asked me to do a parallel study of professional golfers. This study produced the same results, showing a significant link between a restricted range of motion in the hips and the incidence of low back pain. This finding is important for the rest of us, whether we are fitter than average or committed couch potatoes, because of the sedentary nature of modern life and work. Sitting in chairs, which most of us do for long hours every day at work, school, and home, leads inexorably to a restricted range of motion in the hips.

The Back Rx program accordingly features exercises specifically designed to counteract this tendency and increase the range of motion in the hips.

The treatment room at a professional golf or tennis match is a microcosm of the low back pain world. On one table a top-10 player may be receiving treatment from an acupuncturist, while different competitors work with chiropractors, massage therapists, and osteopaths, as well as specialists in conventional physical therapy and rehabilitative medicine. I have observed that although no single one of these therapies works for

everyone, each of them works for large numbers of people. Back Rx incorporates insights and healing knowledge from all of them, and in the course of the book I will offer guidelines for choosing which treatments are best suited to your own individual needs.

One thing that everyone who studies and treats low back pain agrees on is that it is fundamentally a mind-body problem. As we'll see in more detail in Chapter 2, emotional factors and psychological stress play a major role in the onset and persistence of low back pain.

A number of books have emphasized the mind's role in low back pain in a conceptual way, without offering reliable, concrete methods for putting the concept to practical use. The way one recent book puts it is typical: to heal low back pain, it tells readers vaguely, "learn to work with your negative feelings." Negative feelings from stressful experiences can indeed hinder full recovery and heighten recurrences. But healing low back pain begins not with psychotherapy, but with mind-body physiotherapy. You have to engage the mind at the fundamental level of body awareness, posture, and balance first. These three fundamentals form the essential foundation for healing the whole person.

Back Rx meets this challenge and teaches you how to engage the mind in healing through its focus on breath control, a key feature of both yoga and Pilates.

In my sports medicine and back care practice, my research on low back pain, and my own efforts to lead a healthy lifestyle, I've gained an increasing appreciation for the benefits of yoga and Pilates. Yoga, which I first learned to do at my grandfather's side as a young child in India, engages the entire body in healthy breathing, while freeing the mind to focus without distraction or anxiety on anything it needs to do. This age-old practice has a mind-body potential that the latest neuroscience is only beginning to understand. For its part Pilates, whose founder, Joseph Pilates, was greatly influenced by his study of yoga, is the best strengthening practice yet developed for the core body muscles—of the torso, back, abdomen, pelvis, and thighs—that are crucial to good back health.

The paradox is that although yoga and Pilates are ultimately the best possible way to maximize back health, in the short run the vigorous twists, turns, and bends of advanced yoga and Pilates can actually cause back injuries. It's quite a catch-22: the very thing that can help you the most can very easily hurt you.

Back Rx solves this problem with a carefully sequenced introduction of yoga- and Pilates-based movements and poses that will strengthen the back without traumatizing it. From the first step on, this sequence of medical yoga and medical Pilates addresses the body and mind together by showing you how to find and follow your natural breathing rhythm. The slow, sustained, deep, gentle breathing of Back Rx helps you in two ways. It automatically clears and refocuses the mind, and thus begins to melt away emotional and mental stress without any direct mental effort or concentration. And it tunes the body, so that each deepening breath progressively relaxes and conditions injured or atrophied muscles.

There are three series of Back Rx exercises to heal and strengthen your back. Each series takes fifteen minutes to complete and should be done three times a week for eight weeks on average. Series A alone will get you moving pain-free again after an acute low back injury. Many patients maintain good long-term back health by continuing to do Series A regularly, without moving on to Series B or C.

For those who want to raise their back fitness for sports and recreational enjoyment or as a stress-, injury-, and age-fighter, however, Series B offers a vigorous back toning routine and Series C provides a strenuous core body workout.

The vast majority of low back pain sufferers, more than 80%, can heal with Back Rx alone. For the small

percentage who need to take other measures as well, Back Rx can be the spine that holds an effective treatment program together. There are exciting developments that can minimize the invasiveness and maximize the benefits of back treatments and surgeries. I look forward to telling you about them later in the book, including some minimally invasive, nonsurgical procedures that I have been fortunate enough to help innovate.

The Back Rx prescription offers a comprehensive mind-body solution for the mind-body problem of low back pain. Its combination of the most advanced modern medicine with the ancient wisdom of yoga and the core strengthening of Pilates will empower you to take your healing into your own hands and become your own best physician. The ancient yogists calculated that a human being takes 21,600 breaths a day, and the goal of yoga is to make every single breath a completely healthy one. If you can incorporate Back Rx into your life, you'll make a great start at reaching that goal and living pain-free.

Low Back Pain First Aid Chest

What to Do if You're in Pain Right Now

After a low back injury, follow these simple steps to ease your pain and begin your healing.

*Focus on and regulate your breathing. Proper breathing in a slow, controlled rhythm is the fastest pain reliever you can use. It shifts the mind's attention away from the pain and triggers the body's natural relaxation response. You can do this in any position, but if possible:

*Lie flat on the floor on your back with your knees up and your lower legs resting on a chair, an ottoman, or some pillows, or lie on your side in bed in a fetal position with a pillow between your knees. These positions should take the strain off your lower back, but if another position feels better, that's fine. Every injury is different. Let your body guide you into the least painful position possible.

*Slow your breathing down as much as possible. Exhale fully, then inhale deeply and hold the breath in your lungs for a count of three. Exhale fully, and continue breathing in this way for at least two to three minutes.

*Repeat this process throughout the day to calm yourself and to deliver extra oxygen to overstressed muscles and disks, allowing them to begin to relax, breathe, and take in nourishment.

*Use visual imagery to guide your breathing and enhance the relaxation response. For example, try imagining your breath as a wave of golden light flowing through your entire body. Another good technique is to picture yourself in a favorite spot, real or imagined, where you feel safe and at ease.

The more relaxed your breathing becomes, the less pain you will feel. As you become better able to focus on your breathing for a few minutes at a time, you will also prepare your mind and body to work together in the rest of your healing.

*Pain or Gain. Being overly stoic may actually slow your recovery. Take anti-inflammatory and pain-relief medication to speed healing.

*The most readily available over-the-counter pain relief medicines are aspirin, ibuprofen (Advil), and acetaminophen (Tylenol). Ibuprofen is generally the best choice for low back pain, because unlike acetaminophen, it combines pain relief and anti-inflammatory benefits.

*Liquid gel pills work best, because they are absorbed more readily in the bloodstream. As a general rule, unless a doctor prescribes otherwise, you should take two liquid gel ibuprofen two to three times a day.

*Everybody reacts to medicine slightly differently, and you may find that it helps to combine ibuprofen with acetaminophen, taking the first for pain and inflammation and the second for additional pain relief. In any case, do not take more than eight pills a day, total, unless your doctor prescribes otherwise.

*People with diabetes should be especially careful not to take high doses of these medicines for extended periods, because of the potential for kidney damage. Anti-inflammatory medication is also contraindicated for those with a history of gastric ulcers or compromised kidney function.

*If severe pain persists after seven to ten days of taking ibuprofen and/or acetaminophen, you should consult

a physician.

*If over-the-counter medicines don't lessen your pain and inflammation significantly, don't wait a whole week to go to the doctor. More powerful pain relievers, anti-inflammatories, and muscle relaxants are available by prescription, and they are safe if used as directed.

*Like over-the-counter remedies, these medicines should only be taken short term. If they have not brought you any significant lasting relief after a few days, you should re-consult your physician.

*A number of herbal and other remedies are available for treating low back pain. These include herbal medicines prescribed by practitioners of traditional Chinese medicine and packaged natural and synthetic compounds sold by health food stores. Herbal medicine has great potential health benefits. The problem with herbal remedies, however, is that their benefits and drawbacks, if any, have not yet been tested in controlled studies. Some of them contain substances that could cause serious harm. For example, many Chinese herbs contain atropine, a substance that affects heart function. Equally important, the quality of herbal remedies varies widely. You cannot always be confident that you are getting the advertised ingredients in the right form. It is far safer to stick with well-tested over-the-counter and prescription medicines.

*Take modified bed rest for two to three days. This means that you should:

*Spend most of the day resting quietly in the most comfortable position you can find. The two positions that work best for most people are on the side in a slightly fetal position with a pillow between the knees, or flat on the back with the legs raised. The second position really encourages the lower back muscles to relax because it takes all the strain of gravity off them. These are also generally the best positions for sleeping at night.

*During the day, get up every hour or couple of hours to walk around a little and arch your back backward, to prime the body for a gradual return to full activity. You can also try some light stretching, by pulling each knee up to your chest for a moment or two. Go just to the point where you feel the strain about to become intense, stop there, and take two or three slow, controlled breaths. This is also a good idea if you find you can't sleep through the whole night, which is often the case when a low back injury is fresh.

*Avoid chair-sitting.

*Avoid lifting anything heavy.

*Instead of walking and stretching in the initial recovery phase, seniors should substitute riding a stationary bicycle. Seniors may also find chair-sitting comfortable, because their low back pain usually comes from stenosis, or narrowing of the spine, rather than from a strained muscle or herniated disc. See Chapter 2 for more on these age-related differences.

*If you have access to a pool, aquatherapy can speed your recovery. Your buoyancy in the water will take all the pressure off the low back.

*In the first twenty-four to forty-eight hours after a low back injury, apply ice to tender areas two to three times a day for ten to fifteen minutes at a time, in order to lessen inflammation. Keeping the ice on for longer won't give you any added benefit; it reaches its maximum efficacy after about ten minutes.

*After twenty-four hours apply moist heat in the shower or with a heating pad for up to thirty minutes at a time as desired. Unlike cold, gentle warmth may continue to provide an increased benefit if it is applied for a longer period of time.

*After twenty-four to forty-eight hours, use heat and ice in sequence. As a general rule, apply heat in the morning and before physical therapy or other activity; apply ice after activity and in the evening at dinnertime or bedtime. But some people get more relief from heat, whereas others get more from ice, so modify the sequence to fit your own needs.

*Apply liniments and rubs like Tiger Balm, Sportscreme, and BENGAY to soothe injured areas. The active ingredients in such products are usually some form of rubbing alcohol, and they never penetrate below skin level. But the act of applying the rub, or having a partner or relative do so for you, can itself be calming and beneficial from an emotional and psycho-physiological point of view.

*As the pain of your injury decreases, gradually increase your activity following the guidelines in Chapter 6 and begin Back Rx Series A.

Part one

Chapter one

How Your Back Works

The Healthy Back is a Back in Balance

The human back is a marvelously evolved structure, the supportive center of every imaginable movement. We can see that in the way young children roll and tumble as they play, and in the way champion athletes and master practitioners of yoga, Pilates, tai chi, dance, and other movement disciplines have trained their bodies to perform.

The free and easy movement of childhood is everyone's birthright, but most of us have lost it by the time we are adults. That doesn't have to happen. And if we do lose the joy of movement, we can almost always regain it.

One of the most important things to know about the low back is that a high level of pain does not necessarily indicate severe damage. The pain of a low back injury can be worse than a root canal without an anesthetic, but even the most painful injuries seldom pose any serious threat to the spine or brain. The vital parts of the body are simply too well protected for that, except in the most extreme cases. So don't lose hope or fear the worst because the pain is bad. If you follow the pain-relief guidelines on pages xviii-xx and do the exercises in this book for fifteen minutes, three times a week, the odds of a full and lasting recovery are overwhelmingly in your favor.

The human back is so robust because of the way its intricately interwoven parts reinforce each other. The back's function is to support balanced movement and posture and to protect the nerve bundles within the spinal cord. These nerves, the body's information superhighway, carry electrical impulses to and from the brain, where the impulses are translated into sensations, images, emotions, and thoughts.

The back does its job with a hardy structure of bones, muscles, tendons, and ligaments. Layers of muscle—thirty-one muscles tie into the pelvis alone—wrap protectively around the spine, which makes a gentle S-curve from the neck to the tailbone, or coccyx. The spine has twenty-four vertebrae separated and cushioned by the intervertebral discs, which are shock absorbing, doughnut-shaped pads made up of a soft inner portion, the nucleus pulposus, and a hard outer portion, the annulus.

There are seven cervical, or neck, vertebrae (commonly referred to as C1-C7, counting from top to bottom); twelve thoracic, or chest vertebrae (T1-T12); and five lumbar, or lower back, vertebrae (L1-L5). If a physician or other caregiver diagnoses a low back problem located at disc levels L4-L5, for example, this means that the focal point of the injury is in the area of the fourth and fifth lumbar vertebrae and the disc sandwiched between them.

All of the vertebrae have small projections called facet joints that stabilize the spine and allow it to move in different planes.

Below the fifth lumbar vertebra is the sacrum, a triangular-shaped bone with five segments (S1-S5) that attach to the pelvis (or ilium) to form the sacroiliac joints. Together with the body's core muscles, the back's S-curve can gently dissipate the energy of harsh impacts or sudden, wrenching movements like a giant spring, and the fluid that fills the soft inner portion of the discs can absorb shocks better than any other known substance. That is, as long as we maintain them in good shape.

At birth the discs are 80% water. As we age, they gradually lose water, stiffen, and turn brittle. Nothing can

entirely stop this natural aging process. But as I'll explain in Chapter 4, proper back exercises can be a great age-fighter, dramatically retarding the discs' loss of water and keeping us flexible and resilient.

To stay out of pain, the back has to stay in balance. All of its interlocking parts have to work in harmony. For example, the neuromuscular system works through paired muscles and muscle groups, like the biceps and triceps. The biceps lets you bend your arm, the triceps lets you extend it. Similarly, in the low back, the abdominals let you bend forward, whereas the paraspinal muscles let you extend straight and arch backward. If one muscle or muscle group is disproportionately stronger or weaker than its opposite number, the whole system will suffer.

As I mentioned in the introduction, one muscle imbalance that tends to be especially significant for low back pain is the poor flexion and reduced range of motion in the hips, which results from too much sitting in chairs. In Chapter 2, we'll look more closely at how chair-sitting upsets the body's natural balances and how we can restore them.

The back's need for balance includes a balance of the body and the mind. In terms of the neuromuscular system, a relaxed, balanced posture depends on a host of tiny cells, called proprioceptors, that feed data on position and movement from the muscles, tendons, joints, and inner ear to the brain. To test how proprioception works, try this experiment: Stand on one leg with your arms extended straight out to the sides at shoulder height. You'll probably notice a little wobble, but nothing you can't control. Now increase the difficulty by closing your eyes. The wobble gets worse and before long you'll have to open your eyes and put your foot down to regain your balance. Proprioception is what enables you to hold the position even briefly, and the better your proprioception the longer you'll be able to hold it.

Proprioception underlies all of our body awareness. With good proprioception, we sense intuitively when our bodies are in proper alignment and we instinctively walk and move with good posture and balance. This helps the back by enabling the discs to breathe. Like the rest of the body, the discs depend on the circulatory system to bring them essential, nourishing oxygen. Blood vessels at their periphery are the final stage of this delivery system, so far as the discs are concerned.

Walking in balanced alignment with good posture pumps a steady, ample flow of oxygen to the discs with the rhythmic muscular contraction and expansion of every step. By contrast, our modern chair-bound lifestyles cramp the discs into a stressed position and starve them of oxygen for hours at a stretch. This not only weakens abdominal and back muscles and reduces hip flexion and range of motion, it also inevitably degrades our proprioception and body awareness. With this degraded proprioception—a condition that being overweight, out of shape, or a smoker can worsen—we walk and sit hunched over, straining our discs and back muscles with every movement without realizing it. As proprioception weakens, our brains lose the all-important ability to "see" ourselves accurately in space.

The mind's role in low back pain naturally extends to other levels of awareness. Stressful life experiences that agitate our minds and burden us with excessive anxiety, guilt, and other difficult feelings have long been known to be linked with low back pain. And a low back injury can easily trigger a pain-depression cycle that blocks recovery. Over time, an unbalanced state of mind can contribute to low back pain as much as, or more than, any other factor. The bottom line is that if we go too far off-kilter in any area where we need balance—physically, mentally, and/or emotionally—we face an increased risk of low back pain.

All things considered, there is no doubt that balance is the hallmark of a healthy back. When your back is truly in balance, all sorts of tasks become easier to do and life becomes physically, mentally, and emotionally less stressful. Our stress doesn't disappear by any means, but we become energetic and resilient enough to handle it and thrive. With that in mind, let's look at the mechanisms of low back pain and the specific ways

in which the Back Rx program counteracts them, especially the healing power of doing the Back Rx exercises with proper breath control.

Chapter two Why Your Back Hurts

A Mind-Body Problem

Our backs buckle under a puzzling array of stresses and strains, both major and minor. We can hurt ourselves as easily bending down to tie our shoes as we can digging ditches. A muscle can tighten in extreme pain or a disc can pop as we mow the lawn or bend down to a toddler, as we stoop to pick up a heavy bag or a dropped object, as we exercise and play sports, or as we stand up from sitting in the same position too long. Something as trivial as a sneeze or cough can contort us with low back pain. (In fact, sneezes and coughs subject the torso to very high levels of torque, so here's a tip to reduce the strain: Lean back slightly when you sneeze or cough, instead of bending forward.)

Being in good shape does not guarantee a pain-free back. Elite athletes are as vulnerable to low back injuries as the rest of the population. And just like the rest of us, the world's best athletes can hurt themselves as easily taking out the trash as they can in competition. The sports pages regularly report on athletes who are sidelined by ruptured discs from a variety of causes.

A disc herniates when its soft inner portion, the nucleus pulposus, pushes out through a hole or tear in its tough outer portion, the annulus. Then leaking disc fluid can inflame surrounding tissues, a condition known as chemical radiculitis. If the herniated disc hits a nerve, it can send electric shocks of pain through the back, buttocks, and legs. Thereafter, because of the body's complex, interconnected structure, the pain can spread to seemingly unrelated areas, such as the neck, shoulders, middle and upper back, abdomen, hips, thighs, and even heels.

Because we felt fine right up until the moment when we turned in an awkward way, lifted a heavy box, sneezed, or bent down to pick up a pencil, we tend to think of that single event as being the one that caused our pain. But far more often than not, the lift or the sneeze is not the ultimate cause of the pain, but only the incident that triggers a painful reaction to accumulated physical, mental, and/or emotional stress and overuse. If you focus solely on the trigger incident, you risk putting your recovery on a shaky footing. If you look back further, you'll usually recognize that prolonged stress has been making you feel increasingly vulnerable for some time. You'll see, too, that your body has been trying to signal you all along—possibly with subtle symptoms like tightening muscles, increasing tiredness, and minor aches—that you need to slow down and relax a little. But you've been too wound up and distracted by daily obligations and worries to pay attention. Instead of listening to our bodies when injuries are small and can heal quickly, we tend to ignore them until they reach the breaking point.

No doctor can take away your stress. But if you learn how to listen to your body better, you can treat small injuries before they become big ones. You can even avoid injury entirely. In short, the most important treatment you receive for low back pain is not what others give you, but what you give yourself in the form of heightened self-awareness and better self-care.

Good habits of self-care build physical, mental, emotional, and spiritual resilience. In putting self-care front and center, however, I don't mean to suggest that you must heal your back pain all by yourself. Everyone can benefit from others' help in healing. When I hurt my own back, I looked for care and help from others at home and in the doctor's office. In Chapter 3 and Chapter 11 I'll explain how physicians and other caregivers can help you heal your back. But I can't overemphasize that proper self-care—like the Back Rx program—is the foundation for all healing from low back pain.

A Lifestyle Problem

One of the things that all of us in the modern world need to pay better attention to is how we punish our backs with chair-sitting. Our backs evolved in a world without furniture to suit a lifestyle of intermittent movement and rest. The best way for our early human ancestors to sit, and surely the most common, was to sit cross-legged flat on the ground. Much has changed for the better since then, but the healthiest way to sit remains the same. Sitting cross-legged flat on the ground or floor with a straight back engages the whole core body structure—head, neck, shoulders, abdomen, back, and hips—in active harmony. Maintaining a relaxed, balanced posture while sitting cross-legged requires continual micro-adjustments that align the spine, tone muscles and tendons, and perhaps most important, maximize flexion and range of motion in the hips.

Try it for a while, and you'll see. The sooner you feel a telltale strain in your hips, the more vulnerable your back is to injury.

By contrast, sitting in chairs disengages some of these core body elements and puts enormous strain on others. As I mentioned in the introduction, my research indicates that chair-sitting contributes to measurable deficits in hip flexion and range of motion, even in highly conditioned professional athletes. Worst of all, chair-sitting maximizes pressure on the discs and decreases their oxygen supply.

Remember, the discs breathe by taking in oxygen from blood vessels at their periphery. But we suffocate our discs by sitting in chairs too often and for too long. We sit in chairs, in a disc-freezing posture, even when we're relaxing, while watching television, surfing the Internet, reading, or playing a video game.

It would be a saving grace if we at least walked from one daily activity to another. Instead we sit down in chairs to travel in trains, planes, and automobiles. Most car manufacturers now describe their car seats as ergonomic. Luxury car makers, in particular, like to boast about their body-friendly seats. Unfortunately, even an ergonomic car seat will not significantly reduce disc pressure. The basic chair-sitting posture defeats every ergonomic tweak that the car companies devise.

Back health is much better in the Third World, where many people still grow up sitting cross-legged on the ground or floor and walking from one activity to another, and where relatively few people spend their workdays in a desk chair. In the Third World, backs breathe better.

The final piece of the low back pain puzzle is age-related. In Chapter 1, I mentioned that the discs are 80% water at birth and gradually dry out as we grow older. During midlife, at least in the developed world, prolonged chair-sitting constitutes a form of overuse that predisposes us to disc bulges and herniations. From about age fifty on, the spinal canal begins to narrow, a condition known as spinal stenosis. Not all stenosis produces problems. But stenosis can cause back pain by putting undue pressure on the nerves that lead out from the sides of the spine. In addition, the increased pressure it puts on the bones of the spine, especially the facet and SI joints, can lead to arthritis. As I'll explain in the next chapter, disc problems and stenosis affect the back differently and require different treatments.

These three Magnetic Resonance Imaging (MRI) scans (Figures 3-5) show the discs at three stages of the life cycle. The first shows a young person's healthy, well-hydrated discs. The second shows a middle-aged person's discs with dehydration under way and a herniation of the disc at L4-L5. In the last, age-related stenosis is beginning to become problematic.

Fortunately, proper exercise that increases the back's flexibility, strength, and endurance, and thus makes good balance and posture possible, can dramatically retard these natural aging processes and moderate their effects.

The bottom line is that low back pain needs a recovery program that will give first aid to injured muscles and

discs; tune up poorly developed muscles and tendons in our hips; and help us learn to listen to our bodies to enhance proprioception and body awareness throughout the life cycle. Back Rx treats both sides of this complicated mind-body puzzle. Its combination of physical therapy exercises with medical adaptations of yoga and Pilates can reset the balance between core muscle groups. At the same time, its calming breath control can reset the balance between the body and the mind.

Now let's look closely at how Back Rx can help you progress successfully through every stage of low back pain care and recovery.

Chapter three

The Four Stages of Low Back Pain Care and Recovery

Treatments for low back pain fall into four main categories or stages. The vast majority of patients can achieve full recovery with Stage I care. You become a candidate for Stage II care and beyond only if you are among the roughly 20% of low back pain sufferers who do not heal during Stage I. Each additional stage of care is in turn appropriate for a smaller and smaller patient pool.

Stage I Care

Stage I care is for just about everyone with low back pain. It involves a sequenced combination of rest, medications (anti-inflammatories, muscle relaxants, and pain relievers as needed), heat and ice, and gentle rehabilitative exercise. Back Rx is a comprehensive program of Stage I care.

This first stage of care can resolve 80% or more of all low back problems. It should not be bypassed or curtailed, unless surgery is indicated as described on page 17. When other treatments are tried, Back Rx or a similar program of Stage I care should almost always be continued, or resumed as soon as possible afterward, in order to realize their full benefits.

Stage I care may be complemented by traditional physical therapy, osteopathy, medical massage, chiropractic, acupuncture, or some combination of these. For more information on these treatments and how to decide if they're right for you, see the rest of this chapter and Chapter 11.

Stage II Care

For severe, ongoing low back pain that does not respond to Stage I care, Stage II offers three minimally-invasive, nonsurgical procedures:

- *In cases of low back pain without leg pain, paravertebral, or trigger point, injections of a saline solution to inflamed, tender areas.

- *Selective nerve root epidurals under fluoroscopy, also known as guided epidurals. These injections deliver a carefully calibrated dose of lidocaine and corticosteroid directly to the inflamed nerve that is the source of the pain, as determined with the aid of fluoroscopy. (Fluoroscopy is a form of X-ray guidance.) These injections are used for low back pain with leg pain (sciatica) and have a high, long-lasting success rate when combined with icing and an exercise regimen like Back Rx.

- *Facet and sacroiliac (SI) joint injections are also done under fluoroscopy for pain that is deemed to originate from these deep structures. The drawback of these injections is that their effect may be temporary, even if combined with icing and proper exercise.

Stage III Care

For low back pain that does not respond to Stage II care, Stage III care offers three nonsurgical, and two surgical, procedures:

- *Radio Frequency Denervation, which halts pain in the facet and SI joints by heating the nerves, which

innervates these joints, making the nerves inactive for a couple of years. The procedure can then be repeated.

*Intradiscal Electrothermal Therapy (IDET), which heats the annulus, the hard outer portion of an injured disc.

*Nucleoplasty, which heats the nucleus pulposus, the softer inner portion of an injured disc.

*Micro-discectomy and laminectomy, two very similar surgical procedures in which the herniated portion of a disc is removed.

Stage IV Care

Stage IV care options remain limited, for the present, to spinal fusions, which can be effective in cases of combined back and leg pain. But within the next two to three years artificial disc replacement, which is now being studied in U.S. Food and Drug Administration (FDA) trials, should become widely available.

For more information on Stage II to Stage IV care options, and which ones may be appropriate for you, see Chapter 12. For now, keep in mind that well over 95% of all low back pain cases can be healed without surgery. Surgery is indicated only

*To stop the progressive loss of neurological function

*To restore bowel and bladder function

*To end intractable pain.

If you've hurt your back and find that you're losing an increasing amount of feeling and sensation in the leg or elsewhere in the body, that you can't go to the bathroom (this is no joke, but a potentially life-threatening problem), or that severe pain persists no matter what you do, you should put down this book and seek an evaluation from a qualified physician as soon as possible.

The potential for such complications is frightening, and in the immediate aftermath of back injury or reinjury, when the pain is overwhelming, it can be hard not to fear the worst. But once again, please remember that almost all low back pain sufferers can achieve a full and lasting recovery with a sound program of Stage I care like Back Rx, especially if they have the right caregivers in their corner.

A Physician's Help

You can do Back Rx or a similar program entirely on your own. But a physician's expert guidance can help keep your recovery on track and progressing optimally. Primary care physicians are well equipped to manage low back pain, coordinate the efforts of specialist physicians, physical therapists, and other caregivers, and coach you through your recovery. During Stage I care, they can provide the insight and support you need to stick with Back Rx or a similar program long enough for full healing to occur.

The specialist physicians most often involved in low back care are physiatrists, neurologists, anesthesiologists, orthopedic surgeons, and neurosurgeons. Except for physiatrists, specialist M.D.s do not participate much in Stage I care. In later stages of care, a neurologist can be helpful if a person is suffering from foot drop or other signs of neurological weakness. If it becomes necessary to explore surgical interventions such as a discectomy, orthopedic surgeons and neurosurgeons with fellowship training in spinal surgery have state-of-the-art spinal surgical skills. They also have the expertise to offer informed second opinions on prospective surgery. In cases of ongoing severe pain, especially pain that persists after surgery, anesthesiologists with pain management fellowship training should be consulted.

The first consultations with specialist physicians should occur within six months of injury, if possible. After six months, healing becomes a lot harder and the prognosis for full recovery from a low back problem becomes less favorable.

As primary care physicians for the musculoskeletal system and specialists in physical medicine and

rehabilitation, physiatrists can play a healing role at every stage of low back care. All physiatrists receive extensive training in conservative nonsurgical care for the low back. Additional subspecialty training in physiatry, such as a fellowship in spine and sports medicine, can be particularly useful in later treatment stages, because it provides expertise in minimally invasive, nonsurgical spinal treatments combined with proper rehabilitation.

All things considered, in the event of a low back problem you should probably turn first to your present primary care physician and his or her referral network. Someone who knows you and your medical history, and whom you trust and feel comfortable with, has a better chance of getting your recovery in high gear quickly and managing it smoothly than a doctor who is meeting you for the first time.

If you do need to find a doctor from scratch, whether a general practitioner or a specialist, the best way to find any good caregiver is through word-of-mouth recommendations from people you trust. You can also learn about different medical specialties and find referrals on the websites of physicians' groups. At the end of the book you'll find an appendix with a list of organizations and websites that can help you with your search.

Other Caregivers

In addition to general practice and specialist M.D.s, a number of other caregivers treat low back pain, including physical therapists, osteopaths, massage therapists, chiropractors, and acupuncturists. Whereas M.D.s and physical therapists are said to practice conventional medicine, the other caregivers are often said to practice integrated medicine. I find these labels a little awkward. Every good healer wants to take an integrated, holistic approach to patient care. "Leave no stone unturned to help the patient" should be every caregiver's motto.

Granted that, and granted that equally good healers can have very different credentials, you want to make sure that the caregivers you go to have the appropriate credentials for their different fields. Keep in mind that whereas conventional medicine regularly tests its practices in controlled studies, most of integrated medicine has not yet been documented with the same rigor. Of the common alternatives to conventional medical care for the low back, only massage therapy and osteopathy have so far been proven effective in clinical trials. There is other, if less rigorous, medical evidence for the value of acupuncture and chiropractic, however, and I have seen many patients helped by each of them.

To find a good practitioner of one of these treatments, ask around. Personal recommendations from people you know and trust are the best way to find a good healer. After that you have to follow your instincts. Everyone is different, and every case of low back pain is different. As long as you are making an informed choice, you should feel free to pick and choose the therapies that seem best suited to your individual needs, perspective, and lifestyle. The proof is then in the pudding. A therapy may be very appealing for one reason or another, and it may help other people. But if it doesn't help you over the course of a few weeks or months, you should abandon it and move on to something else. As with conventional medical care, you should try to find the right integrated medical care for your case within six months of your injury. After that point, healing becomes much harder, no matter what the treatment is.

I'll have more to say about these varied treatment options in Chapter 11. Here I would only caution that where chiropractic is concerned, you should not have any high-velocity manipulations of the head and neck. They can cause spinal cord injuries and strokes. It's not a high risk, but why take the chance that you'll be the one person in many thousands who is crippled or killed?

Self-Care Makes All the Difference

I've already emphasized the importance of self-care in treating low back pain. Good habits of self-care

build physical, mental, emotional, and spiritual resilience. When it comes to receiving low back treatments from others, the enhanced body awareness that develops from effective self-care will help you to choose the treatments that are best suited to your own case and to get the most out of those treatments.

The array of potential treatments for low back pain is enormous. Conventional medicine, osteopathy, physical therapy, massage, acupuncture, and chiropractic can all benefit people with low back injuries, but in my experience, some are more effective at one stage of recovery than another. And at every stage of recovery, some of these things work better for some people than they do for others. Moreover, none of them can guarantee a cure. Good self-care can make all the difference, enabling you to leverage the power of the treatments you receive from others. Professional athletes can often heal astonishingly quickly, simply because of how well they have learned to listen to their bodies and how they are able to use their body knowledge to guide those who care for them.

At the core of what Back Rx teaches are habits of self-care and self-attunement that can ultimately transform your relationship with your body. Most of all, Back Rx trains you to tune clearly and surely into the stream of signals that the body is always processing. When you make a habit of listening to these signals on a regular basis, they tell you which muscles need stretching and strengthening and what the limit of the effort should be. They guide you to apply the gradually increasing, moderate stresses that aid healing, and to avoid the extreme stresses that retard it. The body's proprioceptive faculties also tell you more and more accurately when you are in proper alignment and balance for any activity and when you're not, helping you to maintain the good posture and flowing movement that ultimately keep back injuries from occurring.

As you build a habit of listening to your body while you do the Back Rx exercises, you develop the ability to listen more and more at a subliminal level throughout the day, without the need for conscious attention. Eventually you'll reach the point where you notice right away when stress and overuse are beginning to affect your back, and you'll then be able to take proactive steps to moderate and even prevent episodes of low back pain before they occur. Ultimately you'll become able to direct this sharpened mental focus and enhanced energy to boost your performance in every area of your life.

One of the best ways to help further this process, after the initial inflammation and severe pain of an acute injury have subsided, is through self-massage and partner massage. All healing needs the human touch, and none more so than low back pain. The first thing to realize about self-massage is that you can't hurt yourself. At most, if you really got carried away, you might give yourself a superficial bruise, but you can't exert enough pressure with your own unaided hands to damage anything below the skin level.

But if you can't apply enough pressure to hurt yourself more than a little bit, you can easily apply enough pressure to help yourself a lot. You can massage and manipulate your own body to a remarkable degree, if you do so with a sense of play and a willingness to experiment.

The way to start is to put your fingers or hands on the injured areas and rest them there for a moment. You're about to get reacquainted with your body—you've probably been injured so badly in the first place because you've literally lost proprioceptive touch with your body—and there's no need to rush.

Now focus on your breathing. Slow it down. Exhale fully. Empty your lungs. Inhale slowly and deeply. Hold the breath for a count of three. Exhale slowly and continue the cycle for ten breaths.

As you rest your hands or fingers on the injured areas of your body and breathe in this slow, controlled, sustained way, your body will begin to tell you how it wants to be touched, rubbed, kneaded, pressed, and prodded into alignment. The knots in the muscle tissue that are keeping your body from relaxing into its natural alignment are bunched up around, and are themselves largely composed of, small sacs of water. As Rick Sharpel, a leading medical massage therapist in New York, puts it, "Massage works by moving those

tiny sacs of water so that they spread out smoothly along the entire length of the muscle, rather than being bunched up in the belly of the muscle.

Medical massage generally treats the belly of tight muscles by rubbing crossways called cross-fiber massage more than lengthwise. You can use any part of the fingers, knuckles, hands, wrists, or forearms to do this. A massage therapist or a gentle, trusted partner might also use the elbows to apply sufficient steady pressure to reach and unkink severe muscle strains.

You can even use objects to do massage. There are many household objects you can use, from a solid doorjamb to a bag full of tennis or golf balls. Put a towel over the bag of golf balls or other object some people even like to use a rock with a definite edge or point and then carefully lie down on the floor on your back. Rest your lower back on the object and begin to apply the pressure where and how your body says it helps. If you are doing some rehabilitation work at a gym or under the supervision of a therapist, you might also use an extra-large-diameter sports ball to lie back and roll around on.

The amount of pressure that you apply or a massage therapist applies is obviously a critical factor. As a general rule, the more relaxed you are, the more that steadily increasing pressure will be pleasurable rather than painful. But when massage therapy reaches the point of maximum tenderness some massage therapists call it the point of exquisite pain you have to be willing to endure some increased short-term discomfort in the interest of better healing. This healthy stress is produced by slow, sustained, controlled movements and gradual increases in pressure to a point just below your pain threshold, not by sharp, stabbing actions or sharp, stabbing pain at or above that threshold."

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From reader reviews:

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Amy Gutierrez:

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