My Aching Back!

Lower Back Pain
Part II: Prevention

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In the old days, lower back pain was called "lumbago" or "rheumatism". We laugh at these names now, but regardless of what it's called, back pain definitely puts a crimp in our lifestyle.

This is the second of three articles on low back pain. In Part I we discussed the structure of the lower back and common problems arising from the various lower back structures. In this article, we will discuss how to avoid back pain. The best approach is *always* to prevent problems rather than to treat them after they have occurred. Avoiding recurrence should be a goal for anyone who can recall the disabling pain suffered from a muscle spasm or sciatica.

GENERAL RECOMMENDATIONS FOR INJURY PREVENTION

1) Exercise

At the top of the list for back pain prevention is building and maintaining the muscle tone in your back, abdominal and side muscles (obliques and rotators). People who are active and well-conditioned are much less likely to suffer from low back pain due to muscle strain. Strong and flexible muscles are less likely to strain, tear or spasm.[1,2,3,17,18] We list books and DVDs in the Resources section for back strengthening. Keeping leg and gluteal muscles strong will also help you use correct body mechanics throughout everyday activities.[4] **Muscle strength and flexibility** is essential for maintaining the neutral spine position. Weak abdominal muscles result in an increase in the curve of the low back.[3] This is an unhealthy posture which can lead to back pain.[4] Interestingly, tight hamstrings increase the stress on the low back by limiting the motion in the pelvis and transferring it to the lumbar spine segments.[4] If your hamstrings are tight, lengthen and relax them to avoid back pain.

Low impact aerobics such as walking, bicycling, or swimming should be done for 30-40 minutes, three times a week. Strengthening exercises should be done the other days.[2,5,17] Overall fitness increases circulation and health of all body tissues.

To condition your core (e.g., back, abdominal and side muscles), you may want to consider yoga, pilates, tai chi and/or using a fitness ball. Attending a good **yoga** class is an excellent way to learn yoga, but if you have back problems, make sure your instructor feels competent to work with you....and your back feels good after your first workout.[6] Certain poses may need to be modified or avoided. For example, people with spinal stenosis should avoid extreme extension of the spine and backbends.[6] People with advanced cervical spine disease should avoid doing headstands and shoulder stands.[6]

Pilates is an excellent program for people with back problems or those who want to strengthen their core muscles to avoid back problems.[7] The most effective program requires the use of several spring-based apparatuses. New versions combine Pilates, yoga, and the exercise ball to give a wider range of conditioning through mat work.[7] Although Pilates DVDs and videos did not receive great reviews, The

Pilates Back Book: Heal Neck, Back and Shoulder Pain with Easy Pilates Stretches was given unanimous high praise. The book focuses on healing and strengthening the neck, back and shoulders.

Tai chi is a slow, flowing, deliberate movement of the body with no jarring motions to the spine. It's a healing form of Tai Chi Quan, a martial art.[8] Several studies have shown physical and mental benefits of Tai Chi, including improved posture throughout the day after performing the exercises in the morning.[8] You may find a class near you, or you can learn the basics from videos or DVDs. We have suggested a set of two videos in the References below that focus on the upper and lower body.

Exercising with a **fitness ball** is challenging and fun. Core training exercises with a fitness ball are demonstrated on a set of four wall posters for strengthening and stretching the entire body (see Resources). Regardless of your condition, there are excellent exercises available online through Orthoinfo.org.[9] Many of these are performed with a fitness ball though some are standard mat exercises. All are recommended.

2) *Neutral posture and good body mechanics.*
Proper posture corrects muscle imbalances that can lead to back pain by evenly distributing weight throughout the spine.[4] Learning to bend, lift, walk and sit correctly can significantly reduce your chances of ever experiencing low back pain and dramatically reduce healing time if pain does occur.[5,18]

To improve your posture and body mechanics, consider taking a class in the Alexander Technique or a class from the Balance Center (www.balancecenter.com). And last, but not least, don't wear high heeled shoes that throw your body out of alignment.[17] Use cushioned soles when walking.[17]

When leaning over a low surface, such as the bathroom sink to brush your teeth, bend from your hips (not at your waist). You could also open the cabinet door below the sink to rest your foot inside and brace yourself with one hand.[11] Switch feet every few minutes.

3) *General Health*
Lose Weight.[17,18] Being overweight puts a strain on your lower back muscles.[2,15,17] Obesity can significantly contribute to osteoporosis, osteoarthritis, rheumatoid arthritis and degenerative disc disease, spinal stenosis, and spondylolisthesis (see Part I of this article if you don't know what these are).[15] It is highly likely that if you are overweight, you will develop back pain.[15]

Stop Smoking.[17,18] There has been quite a lot of research linking smoking to lower back pain. Smaller people are most affected.[14] Both current and ex-smokers are at much higher risk of developing disc disease than nonsmokers.[14] Smoking causes malnutrition of the spinal discs, making them more vulnerable to mechanical stress.[3,14] Smoking increases the risk of osteoporosis which weakens the vertebrae. It also decreases your tolerance to pain.[3]

Drinking? One survey reported that people who drank wine healed more quickly after disc surgery in the lower back than those who abstained.[14] However, doctors never recommend alcohol consumption despite possible benefits in moderate quantities due to its association with cirrhosis of the liver, cancer, high blood pressure, and alcoholism.[14]

Manage stress and control depression. There is often a large psychological component of back pain. Stress and anxiety are closely related to back pain onset. Anxiety can be a form of depression. People who suffer this type of depression are more prone to developing back pain. Other psychological factors include the stress and fear of pain, which can cause more tension...and muscle spasms. Another from of depression is related to the loss of ability to do things. Often family members contribute to this.

Surprisingly, the families that are the most doting can do the most harm by taking over all the responsibilities of the person in pain so that they are left feeling useless.

Dealing with the physical manifestations of back pain is important, but equally important is the recognition that your mind has a powerful effect on your predisposition, healing, and coping with back pain and its disabling components.

PREVENTING INJURY IN YOUR OFFICE AND LAB

- Sitting for long periods of time can cause back pain, even if you sit in a neutral position (i.e., head aligned with hips, shoulders relaxed, elbows close to body).[10] In fact, people working in offices are just as likely to develop lower back pain as someone who performs heavy manual labor.[11]

- Make sure your chair or stool is adjusted properly and fits you.[11] If your chair is not comfortable, it could be because it is not adjusted correctly. Please review the chair adjustment instructions on our website at: *http://www.working-well.org/chair.html*
- Never slouch when sitting or standing.[2] Slouching can overstretch the spinal ligaments and strain the spinal discs.[10] Always sit back in the chair for full lumbar support. With low back support you will be less likely to hold your head forward, one of the major causes of low back pain.

- It's not enough to just shift your weight as you sit. You have to stand up and move.[10,11] Take breaks at least once an hour to stretch and move around.[11,12] If you can't remember to take breaks, get a small digital timer and set it...or use one of the software break timers we recommend on our website: *https://insider.sri.com/services/ehs/ergo/pbreaktmr.html.* Structure your work day so that you alternate between tasks that require sitting and standing or walking.[11] When making trips across the SRI campus, walk rather than taking a cart if the weather permits and you don't have something heavy to carry.

- Make sure the rest of your workstation is adjusted correctly that you don't have to work in awkward positions.[10,11] To learn of all that is involved in modifying your environment to prevent back pain, view the workstation guidelines at *https://insider.sri.com/services/ehs/ergo/wkstn_design.html*. If you need help with this, don't hesitate to call x4239 to request an office evaluation.

- If you must stand for long periods of time, try using a foot stool and an anti fatigue mat.[17] Alternate resting each foot on it.[17]

- For home use, you may want to consider using alternative seating. A height adjustable kneeling chair which tilts your hips forward can take pressure off the lower back if you sit in a neutral position.[12] It is not recommended for people with bad knees or weak abdominal muscles. A fitness ball is an inexpensive option that provides a firm, cushioned seat that allows rocking movements, helping to keep your back loose.[12]

PREVENTING INJURY IN YOUR CAR

- When getting into the car, back in, sit on the seat, and pivot your body so while swinging your legs inside.[11]

- Adjust your seat close enough to the steering wheel for you so sit up straight or slightly reclined with your upper arms hanging down against your sides, not stretched out in front of you.[11] If the backrest is too far back, your legs and arms will be overstretched, causing your head to be too far

forward.[11] Your knees should be level with your hips.[12] If your knees are higher than your hips or you have to lift your chin to see over the steering wheel, sit on a cushion or special car seat.

- Use a lumbar support if the car seat does not offer good back support or if the seat pan is too long for your thighs.[11,12,17] We recommend several on our website: *http://www.working-well.org/pchair.html#car*

- When driving for long periods of time, make sure you stop and walk around every hour.[17] Don't lift heavy objects right after a long drive.[17]

PREVENTING INJURY WHILE LIFTING

Heavy physical work, forceful movement, bending or twisting, and lifting in awkward positions,causes muscle strain.[13,17] Any of these movements can exacerbate a prior or existing back disorder.[2,3,13] Therefore, use proper lifting techniques: hold the object close to the body, and avoid bending forward, reaching, and twisting while lifting.[2,3, 14] And you can probably forget about the back-support belt. A 2-year study reported by the National Institute for Occupational Safety and Health (NIOSH), wearing a back belt made no significant difference in either the incidence of worker's compensation claims or the incidence of self-reported pain among workers.[18] Learning correct lifting techniques and increasing body awareness are more effective injury prevention measures than wearing a back belt. Our website discusses proper lifting techniques: *http://www.working-well.org/backrules.html*

PREVENTING INJURY WHILE SLEEPING

To avoid back pain or to alleviate it while sleeping, keep your back in a neutral position. Place a pillow under your knees when sleeping on your back.[11,16]

Try using a pillow between your knees when sleeping on your side.[16]

Get out of bed slowly instead of leaping out. While you are asleep, the discs in your spine fill up with water and cause some stiffness in surrounding muscles.[11] Sudden moves can cause microtears in the spinal disks.[11] To prevent this, roll onto your side and bend both knees. Drop your feet over the side of the bed as you push with both arms to sit up. Scoot to the edge of the bed and position your feet under your buttocks. Stand up, keeping your back in neutral position.[11,16]

When reading in bed make sure your lower back is supported and your knees are bent to take pressure off your lumbar region. See the Resources section below for some product options if you like to read in bed.

Various types of beds promise to eliminate back pain. Clearly, sleeping on the wrong mattress can cause back pain even in people who normally do not have problems. A mattress lacking in back support does not keep the spine in alignment and reinforces poor sleeping posture.[19] A good mattress supports the

natural curves and alignment of the spine.[19] If you are sleeping on an old mattress that visibly sags in the middle or you are no longer comfortable while sleeping, it's time to buy a new bed.[19] Though traditionally recommended by doctors for patients with back pain, sleeping on a mattress that is too firm can cause aches and pains on pressure points. A medium-firm mattress may be more comfortable because it allows the shoulder and hips to sink in slightly. People who want a firmer mattress for back support can get one with thicker padding for greater comfort.[19]

Choosing a mattress that provides both sleep comfort and back support can be difficult. It is best to try different options before buying.[19] Can money buy better sleep and back pain relief? The Duxiana Dux beds cost from $4,000-$8,500.[20] The McRoskey Airflex mattress runs $3,000 to $5,000.[20] Mid-cost beds such as the Tempurpedic memory foam beds (from $1,500 for a standard Queen) are an alternative to traditional beds. And the Select Comfort SleepNumber beds (from $1000 for a standard Queen) allows you to control the firmness of the mattress by automated inflation/deflation of the internal air chambers.[20]

Actually, very little independent research has been done to determine which mattresses work best, though many high-end beds are scientifically designed to provide an ideal night's sleep.[20] Only one study done recently in Spain reported that medium firm mattresses ease lower back pain more than firm ones do.[20,21] Ultimately, it is personal preference.[19,21] Generally, a high-quality mattress is worth the investment considering its impact on the quality of life.[19] Look for sales and promotions and beware of gimmicks and buzzwords like "orthopedic" or "medically-approved", which are often unfounded. Purchase from trustworthy stores and consider the level of customer service (e.g., delivery options, warranty, removal of the old mattress, and the return policy). Good stores will allow mattress returns if you aren't satisfied with the quality or comfort after sleeping on the bed for a few weeks.[19]

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Resources and references follow….next page.

RESOURCES

Strength and exercise resources:

1. *Yoga for Back Care (dvd).* Rodney Yee. Gaiam.com. $15.00 http://www.gaiam.com/retail/product.asp?catalog%5Fname=gai&category%5Fname=l3%5FSpecializedProgramsYoga&product%5Fid=91%2D0230
2. *Back Care Basics: A Doctor's Gentle Yoga Program for Back and Neck Pain Relief (book).* Mary Pullig Schatz. Amazon.com $14.93.
3. *The Pilates Back Book: Heal Neck, Back, and Shoulder Pain With Easy Pilates Stretches.* Tia Stanmore. Amazon.com. $12.21. http://www.amazon.com/exec/obidos/tg/detail/-/1931412898/qid=1101853577/sr=8-2/ref=sr_8_xs_ap_i2_xgl14/002-3791428-4406416?v=glance&s=books&n=507846
4. *Upper and Lower Body Chi (VHS video).* David-Dorian Ross. Gaiam.com. $1.99 each (upper and lower body sold separately). http://www.gaiam.com/retail/product.asp?catalog%5Fname=gai&category%5Fname=l2%5FChiTeachers&product%5Fid=91%2D0128MSTR
5. Exercise Ball Exercise Chart Pack. nefitco.com. $24.99. http://www.nefitco.com/exerciseballposters.html

Sleeping and bed aids:

Sleeping Bean Body Pillow. Gaiam.com, $49.00. http://www.gaiam.com/retail/product.asp?product%5Fid=03-0182%20MSTR

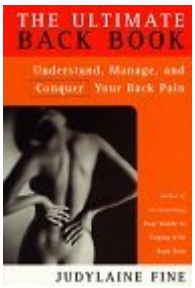
Core leg and knee spacer. ComfortChannel.com, $24.95. http://www.comfortchannel.com/prod.itml/icOid/49,

Jobri Spine Reliever Memory Foam Back and Leg Wedge. ComfortChannel.com, $151.00 for both. http://www.comfortchannel.com/level.itml/icOid/3645

Cequal Bed Lounge and (inflatable) Leg Lounger. ComfortChannel.com, $189.00 for both. http://www.comfortchannel.com/level.itml/icOid/3645

Book:

The Ultimate Back Book. by Judylaine Fine. ©1997 Judylaine Fine. Stoddart Publishing Co., ISBN: 0-7737-5863-1



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2. *The Spine.* June, 2001. American Academy of Orthopaedic Surgeons. http://orthoinfo.aaos.org/fact/thr_report.cfm?Thread_ID=91&topcategory=Spine
3. Low Back Pain Prevention. Gallagher, K., MSW, ©1995-2004 Healthwise, Inc., Boise ID. http://members.kaiserpermanente.org/kpweb/healthency.do?body=major/hw56429/hw56623.html&navtop=major/hw56429/navtop.jsp&topic=Low+Back+Pain
4. *Back muscles and low back pain.* ©1999-2004 Spine-health.com. http://www.spine-health.com/topics/anat/a05.html
5. *Back exercises and physical therapy for back pain.* ©1999-2004 Spine-health.com. http://www.spine-health.com/topics/conserv/overview/physical/physical01.html
6. *Yoga for back problems.* ©1999-2004 Spine-health.com. http://www.spine-health.com/topics/conserv/yoga/yoga01.html
7. *Pilates exercise system to promote back health.* ©1999-2004 Spine-health.com. http://www.spine-health.com/topics/conserv/pilates/pilates01.html
8. *Tai Chi for posture and back pain.* ©1999-2004 Spine-health.com. http://www.spine-health.com/topics/conserv/taichi/taichi01.html
9. *Low Back Pain Exercise Guide.* American Academy of Orthopaedic Surgeons. http://www.orthoinfo.org/booklet/view_report.cfm?Thread_ID=18&topcategory=Spine
10. Back pain and workplace ergonomics. ©1999-2004 Sify Ltd. http://sify.com/news/fullstory.php?id=13614854
11. *Lower Back Pain.* http://www.mothernature.com/Library/Bookshelf/Books/16/136.cfm
12. *Protecting your back while sitting.* Gallagher, K., MSW. ©1995-2004 Healthwise, Inc., Boise ID. http://members.kaiserpermanente.org/kpweb/healthency.do?body=frame/hw47730/hw47730-sec.html&topic=Low+Back+Pain
13. *Lower Back Pain: (LBP) What You Need to Know.* Fessler, R., M.D., Ph.D. http://www.spineuniverse.com/displayarticle.php/article1433.htm
14. Low Back Pain. ©2004 Healthnotes, Inc. http://www.vitacost.com/science/hn/Concern/Low_Back_Pain.htm
15. *Back Pain and Obesity*. Silveri, C.P., M.D. & Spinasanta, S. http://www.spineuniverse.com/displayarticle.php/article2317.htm
16. *Sleeping positions for people with low back pain.* ©1995-2004 Healthwise, Inc., Boise ID. http://members.kaiserpermanente.org/kpweb/healthency.do?body=multimedia/zm2808/zm2808-sec.html&topic=Low+Back+Pain
17. *Medical Encyclopedia: Back pain - low.* MedlinePlus, U.S. National Library of Medicine and the National Institutes of Health, ©2002, A.D.A.M. http://www.nlm.nih.gov/medlineplus/ency/article/003108.htm

18. *Low Back Pain Fact Sheet.* National Institute of Neurological Disorders and Stroke, National Institutes of Health. http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm
19. *Choosing the best mattress for low back pain.* ©1999-2004 Spine-health.com. http://www.spine-health.com/topics/conserv/mattresschose/mattresschose01.html
20. Rest Easy on Pricey Mattress? Not Always. Duenwald, M. ©The New York Times, Nov. 23, 2004. http://www.nytimes.com/2004/11/23/health/23cons.html
21. Study on the best types of mattress for back support. Staehler, R., M.D. ©1999-2004 Spine-Health.com. http://www.spine-health.com/topics/conserv/mattress/mattress01.html