

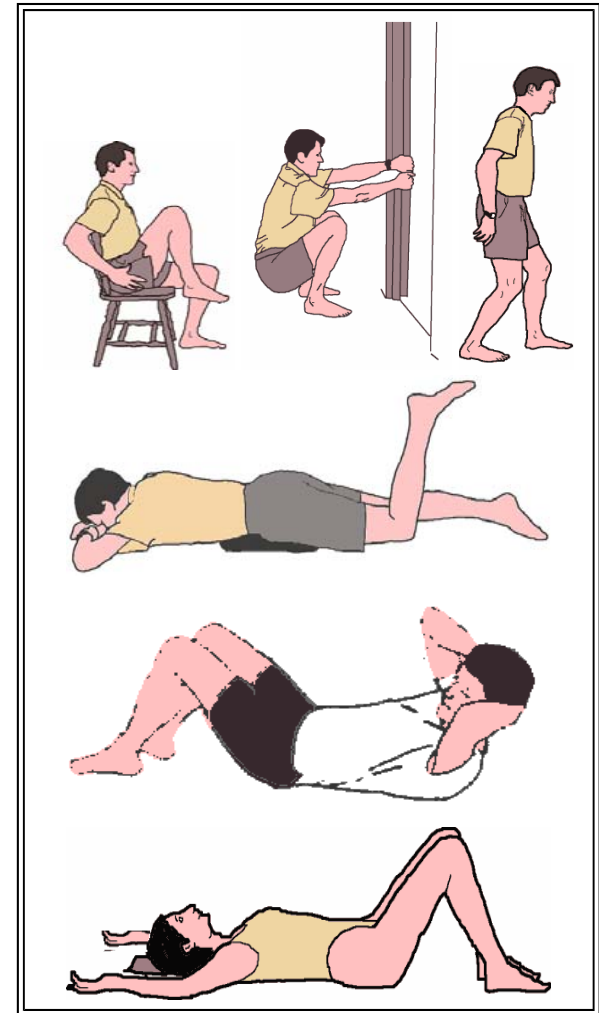
The Back Maintenance Manual (1): Pilates Exercises for Low Back Pain

(Sample 2 of 6 free Samples)

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Dear Back Pain Sufferer,

Severe and disabling back pain is largely avoidable...

Mild bouts of back pain are to be expected: Spinal degeneration is as normal and as inevitable as death itself. From the age of 10, your intervertebral discs are narrowing and hardening such that very little movement is left in them by the time you reach the age of 55. With the aid of good diet, simple exercises and posture-movement re-education, you can smooth and slow this degenerative process, but you should not be surprised if you experience a small degree of back pain from time to time. This I believe is both normal and inevitable for most people. However, (except for accident and genetic defect), severe and disabling back pain is largely avoidable. I state this with the confidence borne of careful research and personal experience:-

You do not have a back problem, you have a movement problem:

"Back Maintenance Manual (1) : Pilates Exercises For Your Back" is my first offering in a series of books for your back. It will give you exercises that are simple, safe, and above all, do-able: Why wait until you can get to the gym? You will not just be doing your strengthening and corrective exercises when you can fit them into your busy day. Each time you sit, stand, take a step, or lean forward you will be doing a safe back exercise!

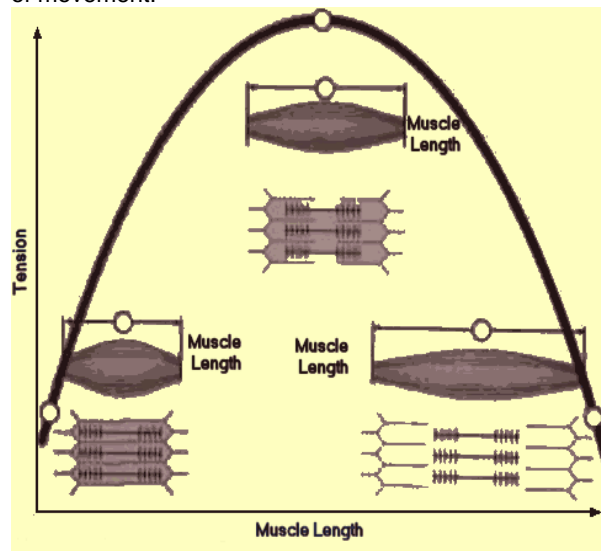
Two key Concepts...

The Exercises in "Back Maintenance Manual (1) : Pilates Exercises For Your Back" are based upon two key concepts:

1. The Safe Middle Range
2. Posture-Movement Re-education

Diagram: The Relationship between the Length of a Muscle and the amount of tension it can develop.

Note that a muscle is strongest and therefore most able to protect any associated joint(s) at the middle of its range of movement.



Concept (1) - The Safe Middle Range:-

Every joint has an optimal middle range of movement. Keep the joint within its optimal middle range, and the muscles around it will operate at or around their middle length. Middle length is the point where a muscle operates at its strongest (see diagram left), with the greatest degree of control, and with the least likelihood of fatigue and damage. When the muscles around a joint are operating at peak efficiency, the joint itself will be well protected from movement to the limits of its range, with less risk of sprain, disc rupture or cartilage damage.

Concept (2)- Posture Movement Re-education

Posture-movement and muscle tension habits can be corrected and/or improved through a process of "Posture-Movement Re-education". Perhaps if I show you what I mean by "Bad Posture and Movement", you will begin to understand what I mean by "Posture and Movement Re-education". (Continued...)

(Attention: Does not replace the advice of a medical specialist - Refer "Back Pain Red Flags", page 55).

So what is a bad "Posture and Movement?"

That's a huge subject - we move our bodies through a myriad of patterns every day. How can we possibly identify what is good movement? We can simplify the answer by giving just three examples of common movement patterns that we perform throughout the day. Get these right, and the rest will tend to fall into place automatically:-

1. When going from standing to sitting (and the reverse - from sitting to standing), the whole spine must remain stable and supported.
2. When walking or running, the Gluteus maximus should "engage at heel strike", and the knees should not collapse inward.
3. When forward bending, the hip and knee joints must move first before the spine starts to move. And likewise, When returning from forward bending, the hip and knee joints must still move first!
4. When sitting, the lowest part of your spine must avoid full flexion.

These four movement patterns will be discussed further.

(Attention: does not replace the advice of a medical specialist - Refer "Back Pain Red Flags", page 55).

Going from standing to sitting...

The bad back patient slumps into a chair with hip and knee muscles totally relaxed. As a result, the lumbar spine (and the neck too) arches backward outside of its safe range of movement. In contrast, the healthy person goes down as though about to "latrine squat", and lands the buttock on the front of the chair, then eases himself backward until the spine is comfortably supported by the chair back, being careful to apply sufficient muscle tension to stop the the lowest lumbar vertebra and top of the pelvis from slumping back hard against the chair back.

How not to Sit Down:

The back and neck are arched, and the person is falling backward into the seat.



Correct Stand to Sit Motion:

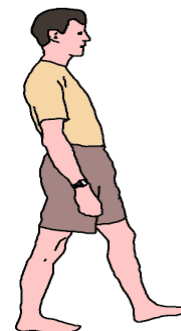
Back and neck are at the center of their range of motion. The body is supported by the legs.



Walking or Running...

The bad back patient does not engage the Gluteus maximus at heel strike, the knees collapse inward, and his foot arches collapse. The result is that the "shock absorbers" in the legs are not functional, and the back gets a rough ride. In addition to this, the back is not supported by the Gluteus maximus pulling the thoraco-lumbar fascia tight (see "Engage Gluteus maximus" reference 1). In contrast, the healthy person engages his Gluteus maximus and forms his foot arches, and his back experiences a ride as smooth as that of a passenger in a Citroen car!

Incorrect Walking, without engaging the Gluteus maximus



Correct Walking: Gluteus maximus engaging as the foot lands, and Knees not collapsing inwards.



Forward bending and Return from Forward Bending...

Young to middle aged men with bad backs tend to initiate forward bending with the spine. The elderly (over 45) with bad backs tend to initiate return from forward bending with the spine. In contrast, the healthy person (of any age group). will initiate with hip and knee movement.

Start of Forward Bend as Performed by most Middle-Aged Men:



Correct Start of Forward Bending:



Start of Return from Forward Bend as Practiced by many Elderly Folk:



Correct Return from Forward Bend



Disc Lesions & the chair sitting spine:-

When a tall man with long tibias sits (middle diagram), the pelvis and therefore sacrum tilt to look upwards by as much as 28 degrees or more. This flexes the two lowest spinal joints (L4-L5, and L5-S1) beyond their safe middle range. This is a major reason for the frequency of lower back pain in very tall office sitting men.

When a short person with a big abdomen sits (diagram right), the pelvis and therefore the sacrum tilt to look downwards. This extends the lumbar spine (puts it into lordosis). This is a major reason for low back pain in very short or overweight office sitting persons.

Solution for chair sitter's bad back:-
Minimize the rotation of the hips to which the sacrum is attached! The tall person should sit on a cushion, while the short person should use a foot rest and lean against the back of the chair. Both should avoid slumping.



This 70 year old quote still holds true today:-

"Good body mechanics imply that all the joints of the body are used in such a position in relation to their total range of motion that the possibility of further motion in either direction - the factor of safety motion - is always present"(26). Once you know the feel of the safe middle range, stick with it! - it gives you that "factor of safety!"

Summing up:

Back Pain Therapy Exercises must correct Faulty Posture-Movement Patterns!

The targets for the back pain sufferer who chooses to study further will be:-

1. To be able to lie on your back with both legs extended with no or minimal pain.
2. To be able to sit for half an hour with no or minimal pain.
3. To perform the start of forward and side bending and the return from bending by hip and knee movement only.
4. To land your butt on the front of a chair seat with your spine fully supported, and lengthening upward.
5. To be able to engage the Gluteus maximus when performing tasks three and four, and also to engage the Gluteus at foot fall when walking.

Next Section: Posture-Movement Diagnosis for your Low Back Pain....

Back Maintenance Manual1 : Pilates Exercises for Low Back Pain
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