

The MedX Medical Lumbar Extension and Cervical Extension Machines.

The MedX Lumbar extension and MedX Cervical extension machines work on the very simple, long accepted principle that when the muscles around a joint are strengthened, they provide additional support to the joint. The results are often so successful that some of the leading back surgeons, who use the MedX Medical Machines in their practice, have dramatically reduced their number of surgeries. (check one surgical group's website at www.pnbconline.com)

The MedX Lumbar and Cervical Machines are drug-free, non-surgical options with an 80% to 85% success rate, a much higher success rate than surgery. The program has been a source of relief for many back pain sufferers, including me!

They told me I have a herniated disc!!!

With fear in their voice, many a member has shared this diagnosis with me, often followed with, "and they say I need surgery!" They are relieved to hear that herniated discs are very common, and according to many of the most respected spine surgeons in the field, surgery should be a last resort and avoided whenever possible.

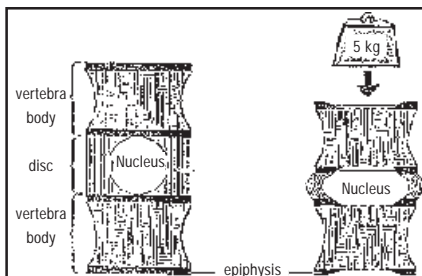


Figure #3: When weight is applied the discs compress and expand.

The discs are located between each vertebra. Strong, flexible bands of cartilage make up the outer edge of each disc. The interior is filled with a jelly-like material, which makes the disc very malleable and compressible. This allows them to act as hinges and shock absorbers for the spinal column. Each disc bulges around the edge and compresses in the middle to absorb shock on the spinal column, when we are jumping, jogging or walking (Fig. #3)

Because of their ability to compress, the discs also allow each vertebra to tilt forward, back, or side to side in relation to the vertebrae below them.

Multiple vertebrae will move (tilt) simultaneously to create any bending of the spine.

As a result of wear and tear, trauma or age, the gelatinous material inside the disc can begin to leak through a rupture in the tough ligament belt that surrounds each disc. This is a herniated disc. Herniated discs are most common in the low back (lumbar spine) where the discs are exposed to the heaviest loads, but they can occur anywhere on the spine including the neck. If the herniation or bulge presses on a nerve exiting the spine, the result is usually pain somewhere down the nerve in an area that the nerve controls. In the case where the sciatic nerve in the lumbar area is affected (sciatica), the pain will often be felt in the hip, groin, buttocks, hamstring or calf. As previously stated, herniated discs are common as we age. If the herniation doesn't hit a nerve, we will never know we have it.

When a disc has been herniated, its structure is permanently weakened. "Back surgery typically removes something that destabilizes the spine. All muscle groups must be functioning well to help protect the back," says James M. Morris, M.D., Associate Professor of Orthopedic Surgery at the University of California. Unless the back is strengthened, the muscles will also be permanently weaker. Even if the pain eventually disappears, the strength of the joint has been decreased and this increases the chance of re-injury.

When a herniated disc is spotted with an MRI scan, it is often assumed that this is the source of the pain and that a surgical removal of the herniation will eliminate the problem. Unfortunately, what is easily visible often isn't the source of the pain. Herniated discs are very common. One medical study found that when a group of people with NO history of back pain were examined with MRI scans, 85% of those over the age of 45 had herniated discs!

The back is an extremely complex system that is many thousands of times more complicated than the most advanced computer. Much of this system is well beyond present scientific knowledge. The source of back pain is often impossible to identify because this complexity. **"We don't know the cause of most back pain**

so we don't always know what we are treating"

says Paul B. Nutter, M.D., an instructor at the University of Washington Medical School in Seattle.

Surgery is frequently unsuccessful because the surgery site was not the source of the problem or because the surgery disturbed more tissue than it helped.

In some cases, surgery may be the only option but as Dr. O'Leary told me, there are no guarantees and strengthening exercises should be tried first whenever possible. Exercise should be started carefully with your doctor's approval.

Our MedX Healthy Back and Neck Program utilizes the MedX Medical Lumbar and Cervical machines. First the machines evaluate the back and/or neck muscles and compare them to normal levels to check for deficiencies. Then a program is prescribed from the computerized results and begun under the direct supervision of one of our Healthy Back technicians.

The MedX program has an 80% to 85% success rate at reducing or eliminating back or neck pain that may be caused by herniated discs, degenerative discs, spinal stenosis, sciatica, arthritis, and many other neck and spine conditions. The results are often dramatic! In one medical study of 38 people who were scheduled for back surgery, 35 were able to avoid surgery after completing the MedX program.

Stretching?

When suffering with back pain, great care should be used with any stretching program. If the source of pain happens to be a herniated disc, stretching can make the situation worse!

Ideally everyone should begin an exercise program to strengthen the back before serious back problems occur! If you want to avoid the problem, particularly if you have had occasional back discomfort or tightness, it's much easier to strengthen it now before back problems occur, rather than later!

For more information see the MedX Healthy Back and Neck Program brochure or speak to one of our Healthy Back and Neck team members at 452-5050.

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Oh! My Aching BACK

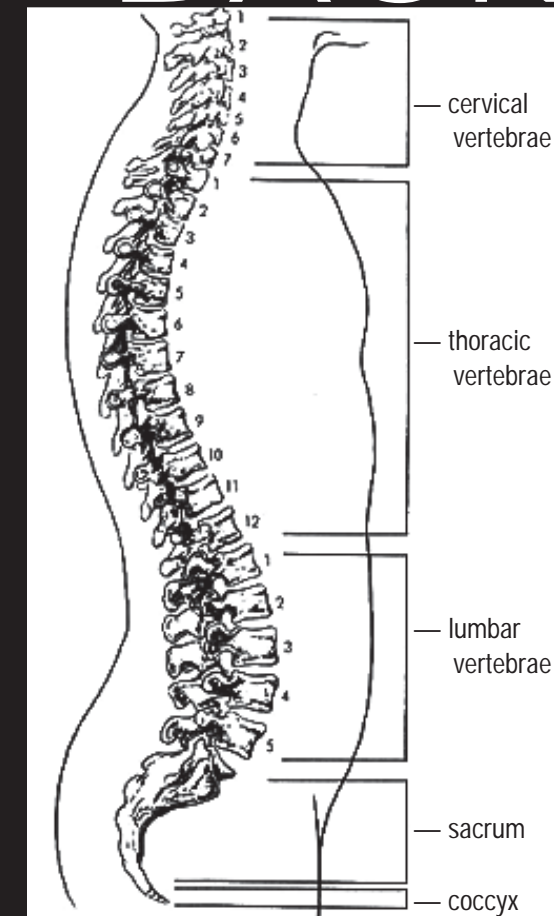


Figure #1 The bones (vertebrae) of the back

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Four out of five Americans will suffer from some back pain during their lifetime. Next to headaches, back pain is the most common complaint in this country.

The spine is made up of a system of bones (the vertebra) (Fig. #1) separated by the discs and supported by an extremely complex series of multi-layered ligaments and muscles, which attach to each vertebra and hold the spine together. They also create movement, provide proper alignment and control the spine's range of motion, preventing overextension or over-flexion.

The spine is similar to a tall thin radio tower that has very limited ability to withstand lateral forces, yet it is required to resist high levels of force from the wind. Resistance against these forces from the wind is provided by cables attached to the tower and anchored to the ground. Such cables provide no resistance against compression forces but do prevent the tower from excessive bending or collapsing. The muscles and the tendons and the ligaments support the spine in a similar way. Like the tower, the spine would literally fall apart without them!

The vertebrae (the bones of the spine) are stacked on top of one another with the spinal cord passing through a tunnel formed by an opening in each vertebra. In this way the vertebrae create a protective enclosure for the spinal cord. Nerve branches that control all the organs of the human body exit the spinal column between each vertebra.

In reality the spine is a series of joints with each joint having a very short range of motion. When multiple vertebral joints act together as they are designed to do, their combined movement gives the back amazing flexibility.

When the spinal muscles weaken, discs are damaged or the ligaments stretch from age or injury. The result is an increasing laxity in the spine's support structure. This allows undesirable looseness in the joints and often results in a back injury with its accompanying pain.

Strong joints.

Ideally the muscles, cartilage and ligaments should work in unison to keep each joint fitting tightly together. Unfortunately, when the cartilage or the liga-

ments are damaged or stretched, they can never be restored to their original strength or tightness.

The muscles are the only part of the spine's support system that can be substantially strengthened. Increasing the muscle strength will re-tighten the joints and compensate for weakness or laxity in the other structures.

As in the knee or any joint in the body, the stronger the back muscles are, the stronger the vertebral joints in the back will be! The stronger the muscles, the greater the amount of force that a joint can withstand without injury. As the muscles strengthen, the vertebrae will also gain bone density, preventing or reversing osteoporosis.

It is critically important that a back rehabilitation program raise the muscle strength to a level HIGHER than before the injury to compensate for the weaknesses and laxity in the other connective tissue and to prevent reoccurrence.

"We have known for decades that a patient with a bad knee should not go to bed, but should go to the gym to do strengthening and flexibility exercises. We transferred this prescription from peripheral joints to the spine and found that it works very well," says Arthur H. White, M.D., Medical Director of San Francisco Spine Institute at Seton Medical Center.

There are occasionally situations when bed rest may be necessary, but in most cases it should be avoided because it causes rapid deterioration of the cardiovascular, pulmonary and muscular systems. "Evidence suggests it takes 3 days of activity to reverse or neutralize the physical deterioration caused by 1 day of bed rest," says C. David Tollison, M.D., Director of Pain Therapy Centers in Greenville, South Carolina. The reduced strength that bed rest causes in the muscles increases the chances of future back problems.

New findings in back research.

Research has shown that the spinal erector muscles strengthen abnormally fast when exposed to direct full range strengthening exercise. It's not uncommon to increase the back muscles' strength by 50% in a matter of 10 weeks. This dramatically increases the stability of the spine and will provide better support than any externally worn brace. In addition to holding the vertebrae

in proper alignment, strengthening also promotes increased circulation to the area to speed the healing process. However, the research has clearly shown that designing a strengthening exercise for the spinal erectors is much more challenging than previously believed.

My herniated discs.

Unfortunately, I experienced this first hand! Twenty years ago, I developed a serious back problem with excruciating back spasms that had me on my bedroom floor unable to get up. I went to a back surgeon who said I would need surgery. From there I set an appointment in New York City with a world-renowned back surgeon, Dr. Patrick O'Leary. He showed me the MRI pictures of my obviously herniated lumbar discs and told me to get back to exercising. He said with exercise I would probably never need surgery. He also said he generally never operates on anyone without having them try strengthening exercise first and that most of the time, he never sees them again! Starting with very light weights, I began the circuit again and slowly increased the weights as I was able to. Within months, I was back to most of my activities with only occasional minor back pain.

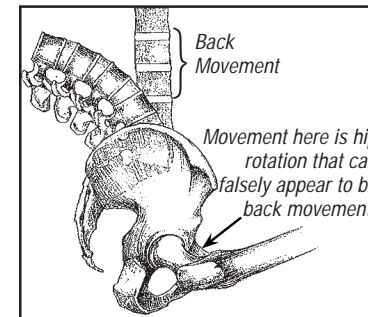


Figure 2: Most "back exercises" predominantly create movement and work the muscles at site "A", the hip joint, rather than at site "B" the back!

A couple of years later, I visited the University of Florida Medical School to learn about the revolutionary new back pain research they were conducting. They had discovered that all conventional back exercises and back machines involve a combination of the hamstring, gluteus and back muscles and create more movement at the hip joint than the low back. (See fig. 2) They also discovered that that the body will unconsciously avoid using the back muscles as much as possible, particularly after a back injury. Initially this provides some protection for the low back. Unfortunately, the body

tends to continue compensating indefinitely using primarily the glutes and the hamstrings, while the all important spinal erector muscles often do very little. The result is a continued weakening of the spinal erector muscles. The hamstring and gluteus muscles gain strength from conventional "back exercises" making it appear that the back muscles are getting stronger, while concealing the fact that they (spinal erectors) are actually getting weaker!

I was skeptical because I had exercised most of my life and believed my back to be very strong. After all, I was able to use a significant amount of weight on the Nautilus back machine and thus assumed that my back muscles were strong. It was particularly perplexing, because despite my "strength", intermittent back problems continued.

The University staff put me in the MedX Medical Lumbar machine, which uses a patented system of support to isolate the muscles of the spine and test them in total isolation. To my shock, my spinal erector muscles were weaker than those of the average guy on the street! Despite 30 years of exercise which included the Nautilus Low Back Machine and numerous other "back strengthening" exercises, my back muscles were amazingly weak and had seriously deteriorated just as their research indicated!

From there I joined a group of doctors and physical therapists from all over the country for a presentation on the University of Florida back pain research. We were shown the details of the research and the remarkable increases in strength (and pain reduction) that are often produced when the back muscles are isolated on the MedX Lumbar extension machine.

At this point, I resolved to one day bring the MedX Healthy Back program to the Mid-Hudson area for my therapy and for the thousands of other local back pain sufferers. In 1998, we started the program, and I was the first participant. Within a year, I progressed from being careful not to "throw my back out", to being able to resume playing racquetball, skiing bumps, and doing work around my home without the nagging fear of "throwing my back out" and being incapacitated with pain.