

5 Easy Steps to Maintaining a Healthy Back!

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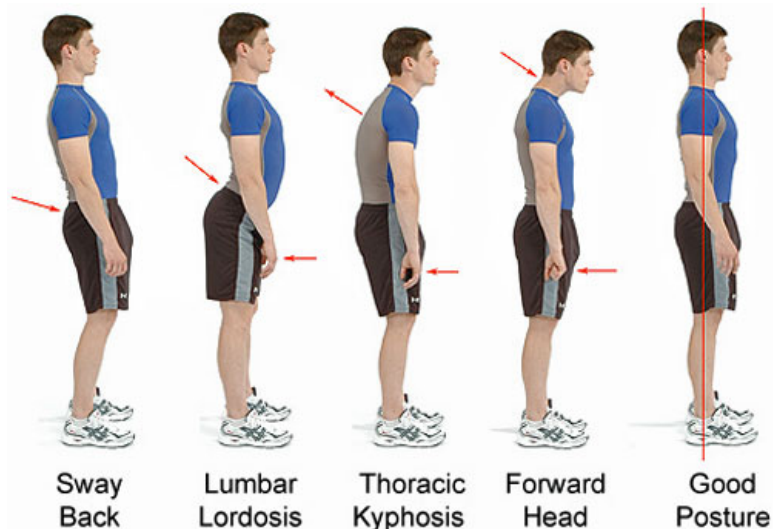
Back pain is often a very debilitating and emotionally draining event that will affect 85% of the working population. Back pain will affect millions of Canadians and is one of the most common causes of lost time at work. 50% of those who experience back pain will find that their back pain will not only affect their work life, but also limits their ability to perform activities of daily living, participate in recreational activities, and affects their quality of life. Health Canada estimates that musculoskeletal disorders cost \$16.4 billion in combined direct and indirect costs each year, and that 16 million workdays are lost due to injuries each year.

With stats like those, it is not hard to see why it is so important for Canadians to start taking care of their backs. Some people seek preventative care in order to maintain a healthy and strong back. Others wait until they are in significant pain before they seek help from a health care professional. No matter which category you fall into, taking steps daily in order to maintain a healthy back is imperative. The following five steps are not an exclusive list of preventative tasks to avoid back pain, however this is a good start for those who are considering taking their spinal health seriously.

Step One- Proper Posture

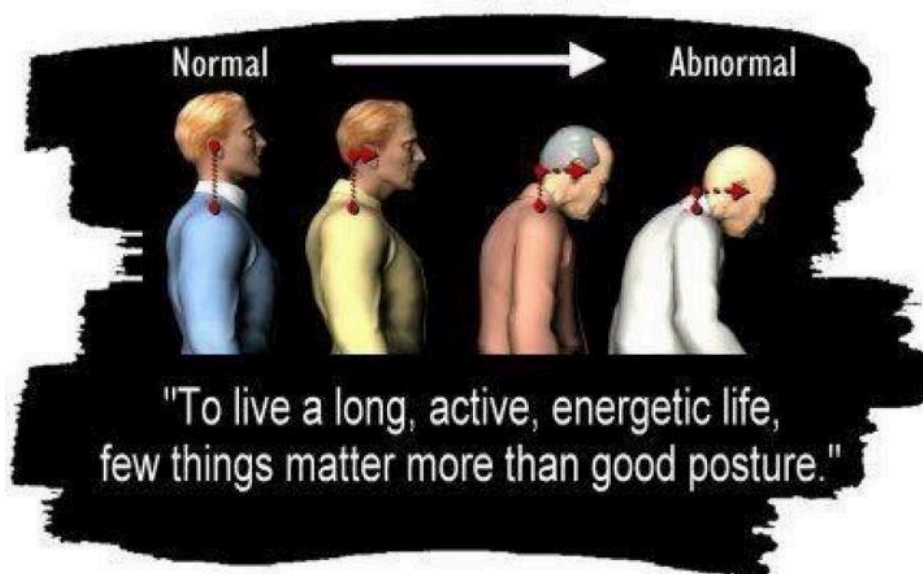
As a society many of our daily tasks revolve around sitting and performing activities in front of us. Examples include working on a computer, office work, driving, watching television, playing video games, eating etc. Throughout history, humans have been very active, and we were not made to be sedentary at work for such long periods of time. As a result poor posture, which in the past was not a problem, has become a prevalent issue. Poor posture can lead to muscle soreness, changes in spinal curvature and joint irritation, all of which can cause pain and dysfunction.

Normal posture can be seen in the picture below. A vertical line should pass through the ear, the tip of the shoulder, the hip and the ankle. There are several postural changes that can occur to cause a deviation from this line.

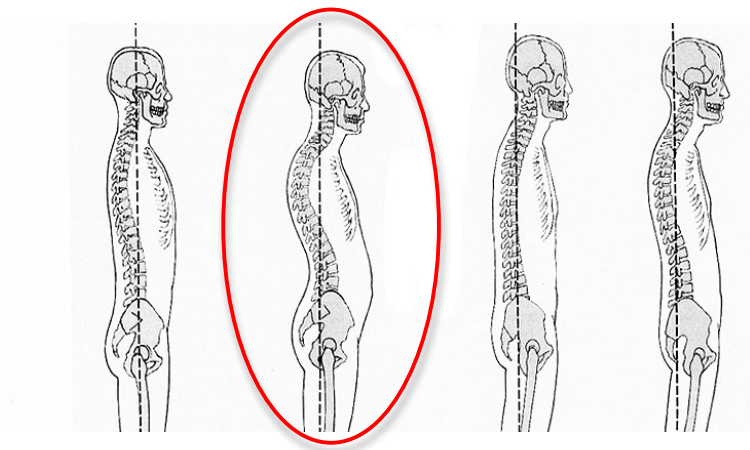


- 1) Forward Head- meaning the head is placed out front of the body with the chin jutted forward.
- 2) Increased Thoracic Kyphosis- Rounding of the upper back and of the shoulders to the front.
- 3) Increased Lumbar Lordosis- Increase in the curvature of the low back.
- 4) Sway Back- decreased in the curvature of the low back resulting in the hips being pushed forward.

When we are seated working in front of us, for example an office worker working 8 hours a day, no matter how hard you try it is almost inevitable that at some point during the day our posture will slip from optimal to poor. With office workers, we typically see increased thoracic kyphosis. As you sit with your shoulder rounded forward you end up shortening/tightening the muscles in the front of the shoulder (ie pectoralis major and minor). In order to sit in these postures for prolonged periods of time the muscles in the back of the shoulder and have to stretch and become long and weak. Once the muscle changes have occurred, this becomes your new 'normal.' If you try to sit in the 'good posture' position, it is now uncomfortable as the long and weak muscles try and roll your shoulders back and your pecs have to stretch in order to allow for that motion. As your posture continues to go uncorrected your posture will continue to worsen and there will be increased tension and muscle weakness resulting in pain and dysfunction.



As the changes in muscle tension and strength increase, they pull on the spine and cause changes to the spinal curvature. The result in our example above is an increase in the thoracic spinal curvature. This has several affects, first off causing the spine to be a less effective structure. One important role of the spine is shock absorption, reducing forces that are transmitted throughout the rest of the body. When the spinal curvature is accentuated, it decreases its ability to absorb force and as a result this force must be absorbed by other structures in the body (ie joints, ligaments, muscles etc), which can result in degeneration and injury of these structures. Also, as the spine is pulled forward, there is increased stress on the joints that are responsible for the majority of the movement in the spine. Under stress these joints begin to not move as well. As a result they become irritated and inflamed and that will cause back stiffness and pain.



To recap, a poor posture can result in pain in dysfunction in several ways:

- Sore muscles (some which are tight and some which are weak)
- Changes in Spinal curvature resulting in an inability to absorb forces causing increased strain on surrounding structures.
- Joint irritation

Advice→ Even people with the best intentions will resort to a poor posture while sitting and working in front of them for long periods of time. As a result, the best solution from preventing aches and pains is to limit the amount of time seated and working in front of you. Make sure that you are frequently changing positions while you are sitting, and that once every 15-20mins you get up, stretch and/or go for a walk. Also, once every 5-10 mins consciously reset your posture by sitting up straight, rolling your shoulders back and tucking in your chin. This will prevent you from spending long periods of time in a poor posture and decrease your risk of pain.

Step Two- Proper Lifting Techniques

It is estimated that two-thirds of back injuries in the workplace occur as a result of improper lifting. Incredibly, it is estimated that as many as 89% of workplace lifting injuries are preventable, with proper lifting technique instruction. A lifting injury will occur when an individual's muscles are not strong enough to support the weight being lifted and stabilize the spine. This can occur in two ways:

- 1) One lift is being done, and the weight is too heavy
- 2) Repetitive lifting is being done, and the muscles fatigue over time

The weight that you can lift and then number of lifts you can perform is increased when you are using a proper lifting technique. However, the amount of weight you can lift is still limited by the strength of your muscles, and no proper lifting technique will help you prevent injury if you are lifting something you are not strong enough to lift.

Advice→ Using a proper lifting technique will involve using the muscles of your legs and arms in order to lift the object, leaving your back muscles with the sole job of stabilizing the spine. When lifting improperly, and bending with your back you recruit your back muscles to lift part of the weight of the object AND stabilize the back. This often will be too much for you back muscles and will result in injury. Below are the proper steps to be taking when lifting an object.

Lift Light and Carry Right

- Stand close to the load to be lifted
- Place your feet shoulder-width apart
- Keep your back straight with your feet and body facing the same direction
- Squat down to the object's level and test the weight of the load
- Use the strength of our legs and arms to slowly lift
- Keep the load close to your body, and avoid twisting
- Pivot with your feet to turn and face the intended direction of travel
- Bend your knees and slowly lower the load to its intended place
- Do not lift heavy objects above your waist
- Get help with heavy objects



Step Three-Exercise and Stretching

Patients often present to the office not sure why they have started to have back pain. They indicate that they didn't do anything to their back, did not do any heavy lifting or physical activity. Their problem is not that they did something wrong, but that they actually DID NOT DO anything. It is an accepted concept that if you go to the gym and work out a muscle it will become bigger and stronger. However, if you stop working that muscle and do not use it, it will become weak and atrophied. A good example being that when people have their leg casted for 6 weeks, once the cast is removed they notice that their leg is smaller and weaker than the other due to atrophy of the muscles. The same concept can be applied to your back and core muscles. If you remain sedentary and are constantly sitting and/or lying down and are not standing up participating in activity, your back muscles are not being used. Therefore, they will become weaker and they will atrophy and you will injure them more easily. In fact, more and more office workers are injuring their backs because they are sitting for 80% of their day, and then they get up and try to lift a heavy box, or bend over to pick up a pencil. They have turned off their back muscles for majority of their day and then expect them to turn on immediately in order to complete their task. Your back muscles do not work like that, they need to be used, otherwise you will lose them.

Exercise also allows you to maintain an optimal body weight. When we carry around excess weight, especially in the abdominal region, we put excess burden on joints and ligaments with each step. Every step we take we place 1.1 times our body weight through each limb that has to be transmitted and absorbed up the limb into the pelvis and into the spine. Therefore our muscles and joints have to become stronger in order to compensate for having to absorb more force. The problem being that most people who are carrying excess weight are doing so because they are not active, and are therefore not 'using' their muscles and are likely 'losing' their muscle strength, when in reality they need it more. The more active you are, the more controlled your weight will be, and the stronger your muscles will be to prevent you from injuring yourself at higher weights.

Another benefit from being active and stretching is it allows you to maintain good range of motion. Much like the 'use it or lose it' principle we discussed with muscle strength, we have the same problem with joint motion. Many of us remember when we were younger and we were able to touch our toes, or sit cross-legged on the floor or do the splits. However, now as adults we are no longer able to do these activities and often blame 'getting old' for our loss of motion. The fact is, it is not us 'getting old', it is us no longer playing outside and being physically active and using our joints through their full range of motion that is causing us to become less flexible. As we become adults, we get jobs and have responsibilities and have less time to be physically active which results in us using a very minimal and restricted range of motion from our joints. As a result, if we don't ever try to touch our toes, or sit cross-legged on the ground, we lose the ability to do so. Not only does this result in stiffness and tightness that can lead to discomfort for most people

it also predisposes you to injury. For example, if you sit all day at work and are not active with any form of activity you will likely lose range of motion from your hip. Your ability to lift your knee to your chest, extend your leg back and rotate it in and out will become limited. However, if you begin a task/job/activity that requires that hip range of motion and you do not have it, your body will compensate by gaining that range of motion from somewhere else. Most often this will be from the low back. The problem being, that during most activities, your low back is supposed to be a stable structure not a mobile structure. As a result, if you continue this activity/task/job and continue using your back to gain motion, you will injure your back.

In summary, it is beneficial to be physically active in order to minimize risk of back pain because:

- prevents you from losing muscle strength of your back muscles
- it allows you to maintain an optimal weight
- maintains good range of motion of your joints

Advice→ if you are interested in starting a work-out or stretching routine but are not sure where to start, consult either your doctor, physiotherapist or chiropractor. They will be able to structure and individualized routine focusing on your primary goals.

Step Four- Core Strength

Many people have, or know someone who has a 'lifting belt', which they use in order to stabilize their back while doing heavy lifting. However, most people do not know that if our core abdominal musculature was used properly and trained properly it would be able to perform the same task, and be just as effective, if not more effective than any lifting belt. Our core musculature is made up of many muscles including, external oblique, internal oblique, transverse abdominus, rectus abdominus, multifidus, erector spinae, and quadratus lumborum and the glutes. When all these muscles are active together, they form a corset or belt, much like the picture seen below.



Every time we perform a movement, whether it be an arm movement, a leg movement, walking, lifting, twisting etc, we fire our core musculature to some extent in order to stabilize the spine throughout the movement. There is an exact firing pattern seen every time in a normal, pain free patient. EMG studies have shown that patients with low back pain will have either an abnormal firing pattern, or decreased firing strength of these muscles. This leaves the back vulnerable and not properly stabilized which leads to injury. There are many different exercises that can be performed in order to strengthen the core musculature, however the three exercises below are highly recommended by Dr. Stuart McGill who is one of the leading researchers of spine biomechanics in the world.

- 1) Curl-Ups- Many people think that the best way to strengthen their abdominal musculature is to perform as many sit-ups as they can. Sit ups actually put a lot of excessive force through the low back that is not necessary and can often cause low back pain. A safe alternative is the crunch.

Lying on back with one knee bent, the other flat. Put hands under the lumbar spine to help keep it in neutral and keep neck in a neutral position, not bent. Pivot about the sternum and lift the shoulder blades off the floor. Slowly lower back down to the starting position. Repeat 7-10reps, 2-3 sets.



- 2) Bird-dog- Start on the ground on your hands and knees. Make sure that your hands are directly under your shoulders and your knees are directly under your hips. At the same time extend back one of your legs and raise your opposite arm. Make sure you do not rotate your pelvis, or your shoulders in order to gain height of the limbs. Only move the limbs as far as you can without any motion of the spine. If this exercise is too difficult, begin with only extending back the leg

and leaving the arm down. Bring the leg back and then move the arm. Repeat on opposite side. Perform 7-10 reps, 2-3 sets.



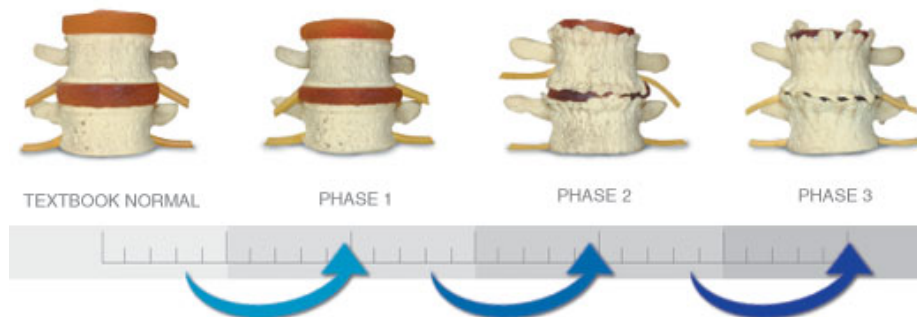
3) Side-Bridge- lying on your side with your hips bent at 90 deg, knees bent at 90 deg and your body weight resting on your left elbow and on your left buttock, as seen in the picture below. Moving your body weight from your left buttock to your knees, pivot your pelvis forward while lifting it off the ground. Hold this position for 5-7 seconds and then return to the starting position. Repeat 3-5 times and then do it on the opposite side.



Step Five- Chiropractic Care

The nature of our health care system is that we often wait for signs and symptoms to appear before we go and seek medical attention. The health care system rarely focuses on prevention of injuries and diseases, even though it is proven to be more cost and time effective. The Journal of the American Medical Association recently released an article stating, 'As neuromusculoskeletal experts, chiropractic physicians are particularly well suited to manage and help prevent low back pain.' ...'For those who are currently pain free, the exercise tips, posture recommendations and guidance on injury prevention routinely provided by chiropractic physicians can help maintain a healthy back throughout their lives'. Chiropractors have a vast understanding of the structures of the spine and the whole body, and how it works together as a unit. They are able to flag postural, structural, and functional issues relating to the spine and its surrounding joints in order to maintain and improve its mobility and stability. Having your spine checked on a regular basis allows your Chiropractor to identify issues and correct them before they become major problems.

A typical visit to a chiropractor often involves a screen of the spine and surrounding joints, addressing any problems that may be reported by the patient. The Chiropractor will also check for issues that may not yet be causing pain. Treatment consists of adjustments, soft tissue therapy and other modalities, which address issues such as joint restrictions and tight musculature. Often you will also be given postural education and/or exercises in order to correct and prevent further injury. However, even with the best intentions in between visits, issues do regularly pop up that need to be addressed by a chiropractor. Therefore, it is recommended to see a chiropractor on a regular basis.



Example- when there is a restriction of a joint in the spine, this often causes decreased motion at that level, as well as stress to be put on other surrounding structures. If this is not corrected, the lack of motion and stress on the structures will lead to degeneration of the area. Eventually it will result in irreversible bony changes that can cause further pain and stiffness. Below, you can see an example where on the left is two normal vertebrae. With improper posture, joint restriction and lack of core stabilization you can see degeneration in the vertebral disc (the jelly

like substance which sits in between the vertebrae) in the phase 1 picture. If it is continued to be untreated you can now see further bony changes in the phase 2 and phase 3 vertebrae. If in phase 1, or better yet before phase 1 you seek chiropractic care in order to correct issues with your spine you can prevent and/or slow down the progression to phase 2 and 3.

Advice- Seek the advice of a Chiropractor in your area to help maintain optimal back health, and prevent occurrence of back pain in your life. If you are not interested in prevention, at the very least, see a chiropractor as soon as you begin to feel pain. Do not wait until you are unable to sit, stand, walk and sleep before you have yourself assessed. Early intervention prevents prolonged disability.

In Summary

Your spine is an extremely important structure which you will use every day of your life. Taking care of it, and preventing an incidence of back pain is important to your current and future quality of life. Following the above five steps is not an all inclusive way of preventing back pain, however it is an excellent start to helping care for your back. If you have any further questions contact a chiropractor in your area, or feel free to contact me through the contact section of this website. I would be happy to assist you.

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