STOLLERSTRATEGIES

Therapeutica Report

How to Avoid, Control, or Eliminate Back and Neck Pain Forever

Reversing the Vicious Circle of Immobility and Gravity

by Jacob Stoller

Therapeutica has commissioned this report to promote a better understanding of the root causes of spine-related ailments, and how patients can avoid or eliminate the most common symptoms without drugs. The material is based on discussions with practicing chiropractic doctors, and on clinical test data gathered during the development of Therapeutica's spine-support products.

A Painful and Persistent Problem

Poor posture is ingrained into our everyday lifestyle, and so are the consequences.

Preventable back problems will affect the majority of adults in their lifetime. Spine-related ailments make up the largest single cause of worker absenteeism, and sufferers in the US spend over $50 Billion per year trying to alleviate them. This is not limited to sore backs – directly caused problems also include headaches, numbness in the hands and feet, snoring, poor eyesight, incontinence, and a host of other symptoms.

As we will see in this report, back health doesn't require a lot of effort, but it does require focus. What many struggle with is making the essential connection between their everyday behavior and common back ailments. This report is intended to clarify this connection, and help people focus on the essential issues. We have therefore addressed the following fundamental questions:

- How do common back and neck ailments develop?
- How can back care be approached at the simplest level?
- What tools are available to help us improve the health of our backs?

Identifying the Fundamentals

There are many ways of looking at back care, and this can be confusing. Depending on whether you talk with a chiropractor, an osteopath, an orthopedic surgeon, an occupational therapist, a sports trainer, or a pharmacologist, you will get a different viewpoint. However, all disciplines agree that there are two culprits that work against us, and these are **immobility** and **gravity**.

Immobility

If nature provided an extended warranty for our backs, being immobile for 20 hours a day would almost certainly constitute a warranty violation.

Even the hardest workers among us are immobile most of the time. If you add the hours you spend sleeping, sitting at the office, travelling in the car, and sitting at mealtimes and in front of the television, you will get a figure of between 20 and 22 hours per day.

Immobility is not bad in itself - all animals need to physically rest. The problem is that our backs were designed to support the survival of an active individual. 20 hours of immobility was never in the plan - any animal that was immobile for that long would never have survived in the jungle.

By keeping active, our ancestors kept their back-supporting muscles, such as their gluteals and abdominals, well toned and able to support the spine. Our modern, immobile life style allows these muscles to atrophy and become weak. And when we are weak, we are a sitting duck to the persistent force of gravity.

Gravity

Gravity bears down on us 24 hours a day, whether we are mobile or immobile.

Gravity bears down on us 24 hours a day whether we are mobile or immobile. In an immobile state, our muscles need to apply static pressure in order to counteract gravity. Static pressure is work. Blood flows into a muscle, and it contracts. If the muscle is not moving, the blood remains stagnant, and the muscle and the veins and arteries remain under constant pressure. When this happens for a long period of time, problems can occur.

An artery supplying blood to a stagnant muscle is a little like a garden hose that is turned off at the nozzle. If the situation is left for a long time, the hose and it's fittings may become damaged, as they are not designed to handle constant pressure.

As a result of fighting gravity for extended periods of time, our muscles can become stiff and sore. If this condition persists for long enough, they can become either shortened or stretched, causing a muscular imbalance. This kind of condition literally builds bad posture into our body, making it very difficult to make corrections.

The continuous pressure against muscles, nerves, veins, and other tissue takes its toll over time. The individual may not feel pain until a problem has existed for a decade or more. When the pain occurs, it appears to come out of nowhere, and the sufferer typically fails to see the years of habit building up to the symptom.

Causes of Cumulative Stress: 7 Worst Practices

The real damage is caused by cumulative stress from incorrectly positioning our backs during the many hours we are immobile.

Back injuries appear to be caused by little things – lifting a jar out of the refrigerator, for example. But events like these are only catalysts. The real damage is caused by cumulative stress during the many hours we are immobile. Here is where some of the worst damage occurs.

1.**In bed**, sleeping with inadequate support for our head, neck, and upper back.. This creates pressure on muscles and nerves in neck and shoulders, creating a variety of symptoms including headaches, snoring, numbness in the arms and hands, stiff neck, and insomnia.

2. **In bed,** sleeping on a mattress that offers inadequate support. This puts areas of the spine under stress, causing lower back pain, stiffness, and leg pain.

3. **In the car**, seated without proper back support while traveling to and from work. This causes lower back pain, poor circulation and numbness in the legs, and stiffness in the neck.

4. **In the office**, sitting in either a slouched or hunched over position because of lack of support for the entire spine. This causes lower back pain, stiffness in the neck, fatigue, poor vision, numbness in the hands, arms, and legs, and a variety of other symptoms.

5. **At mealtimes**, either at home or in restaurants. Dining room chairs provide no back support, and an individual, especially when tired at the end of the day, will tend to slouch or slump as in the office, reinforcing bad habits even further.

6. **Standing** on hard floors in bars, lineups, kitchens, at cocktail parties, and other situations. Slouched posture causes lower back pain. Excessive pressure on parts of the foot causes blood pooling in the legs, which can eventually cause varicose veins and other symptoms.

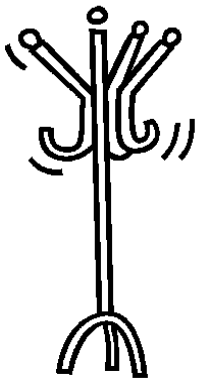
7. **Lounging** in front of the television. Tired from a long day, posture is at its worst, and although the person may feel at rest, the back may be under stress because it is not adequately supported.

Cumulative damage is the key in all these cases, and it occurs . during the 20 - 22 hours per day that we are immobile.

Mechanics and Posture

Alignment means all vertebrae and muscles are carrying their fair share of body weight.

We're pretty limited in how much we can change our immobile lifestyle, and we certainly can't stop the force of gravity. However, we can minimize the damage by distributing this force as widely as possible. This is what alignment of the spine is all about. When aligned, the back is positioned so all vertebrae and surrounding muscles are bearing their fair share of body weight, and no part of the spine is carrying an undue burden.



This can be illustrated by visualizing a standing coat rack. If we pile all of the coats onto one of the hooks, the unbalanced weight will cause the vertical post to bend. If this is just for a short time, the situation will correct itself after the coats have been removed or redistributed. But if this situation persists for long enough, the rack will develop a bend, and eventually weaken or break.

With backs, the mechanics are similar. By slouching, or standing in a swaybacked position, we are effectively hanging our body weight disproportionately on one side of the center of gravity, causing the back to bend. If this bending of the back persists long enough, it becomes "stuck" in a bent position.

Lying down presents a special case in terms of alignment. Because the spine is flexible, it tends to take the shape of the surface it is resting on. This is why mattress that provides inadequate support is so damaging to the back, and why having the correct pillow is so important.

Breaking the Cycle

Reversing self-damaging habits is necessary whether or not you've been injured.

Fixing a back that's bent over time requires the assistance of a back care practitioner. However, damaging habits need to be reversed whether or not you've been injured. Back care practitioners use hundreds of exercises and procedures to help the patient break the cycle of bad posture and spinal distortion. Most of these can be consolidated into the following best practices:

Practice # 1: Visualize good posture.

Having a picture in mind of the correctly aligned spine is one of the most powerful tools for back health. Visualization is commonly used to improve mechanics in a number of sports. In golf, for example, its common to visualize very simple concepts, such as arcs and pendulums, and concepts like "swinging through the ball."

Visualization can be equally effective for back care. One of the most successful visualization techniques for posture is to imagine that your body is suspended by a wire attached to the top of your head. By keeping this simple image in mind, you can help your spine align itself.

Understanding the natural curves of the spine, and their function, is another important visualization tool. As shown on the left, the back is built on three natural curves: the lumbar (lower back), the thoracic (mid back), and the cervical (upper back and neck). Visualizing these curves, and the relation between them, helps keep the spine in proper alignment.

Practice # 2: Keep moving.

When we're basically immobile, a little motion can go a long way when it comes to back care. When driving a car, for example, it is best to adjust positions frequently to allow variety. When sitting at a desk, it is important to get up and stretch frequently, allowing stagnant blood flow to be released, and "kinks" to be freed up. When standing, it is important to bend the knees slightly, and allow weight to shift back and forth between feet, and forward and backward. All these "motion breaks" help us interrupt the cycle of bad posture.

Practice # 3: Use feet to take weight when seated.

When seated, your spine is best supported when the weight is distributed between your buttocks and your feet. When sitting in a chair in the office or at home, putting feet on a footstool that is high enough to raise your knees above your hips will accomplish this. When seated at the theatre or at the dinner table, keeping your feet flat on the floor will provide the best support.

Practice #4: Don't reach.

Posture in the workplace can be greatly improved by ensuring ergonomically correct conditions. The operative principle is you shouldn't have to reach. If the desk is the right height, it allows the arms to be in a natural position that doesn't stress the neck. Similarly, driving in a car, the seat should be adjusted so you are not reaching for the steering wheel or the controls. This allows your arms to remain relaxed, and not put stress on the back and neck.

The challenge is taking the time and effort to make the necessary adjustments. It never seems like a big deal, but remember – the issue is cumulative damage.

Practice # 5: Sleep properly.

Correcting your sleeping position can make huge improvements in your back health. There are three key essentials – sleep on a proper, firm bed, make sure you sleep on your side or back and not your stomach, and make sure your head is properly supported at the right height.

Devices That Can Help

With our weak or distorted muscles, good posture might not even feel natural to us.

Changing habits is difficult under any circumstances, but it is especially hard when it comes to posture. With our weak or distorted muscles, good posture might not even feel natural or comfortable. When the spine has become mechanically distorted, this problem becomes even more difficult.

Therefore, we could all use a little help. Back care devices can be useful partners in a back care program, but only if they provide precisely the right kind of support. This section describes some common scenarios.

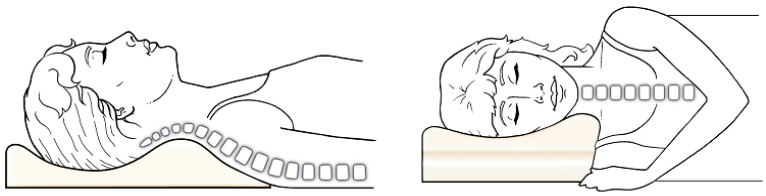
Help While Sleeping

If the head is too high or too low in relation to the rest of the body, the neck and upper back can be placed under stress.

Most people know that you have to sleep on a proper mattress to avoid back pain, but few are aware of the relationship between sleep and the alignment of the neck and upper back. Unlike the backache that you get from a sagging mattress, the symptoms of poor neck / upper back alignment are more indirect, and not normally associated with the spine. They include snoring, headaches, insomnia and numbness in the hands and arms.

If the head is too high or too low in relation to the rest of the body, the neck and upper back can be placed under stress. Similar problems can occur if the head is allowed to roll sideways when sleeping on your back, or if the upper back is not supported along with the neck.

Providing adequate protection here is tricky because most people sleep both on their sides and their backs, and these positions require different support. (Note: It is never acceptable to sleep on your stomach!) First of all, there's a height difference: the head needs to be supported approximately two inches higher in the side position than in the back position, as shown below. (People often subconsciously try to make this correction by putting their hand under the pillow when they roll over on their sides.)



In the back sleeping position, the head not only needs to be supported at the right height, but prevented from tilting forward (which can restrict the air passages), or from rolling from side to side (which can put stress on the neck). Upper back support is also required in this position to prevent the weight of the torso from pulling the neck out of alignment.

Summing up, the selection criteria for a pillow that provides adequate support should be:

- Supports the head at the proper height whether sleeping in the side or back position.
- Prevents the head from rolling sideways when sleeping on the back.
- Keeps the head tilted in the proper position while sleeping on the back.
- Provides support for the neck and upper back when sleeping on the back.

Help While Sitting in the Office

Posture at the office is tough to reinforce because our mind is on other things. Having proper back support is important not only because of the support it provides, but because proper support can act as a guide for your back, forcing you to sit with your spine properly aligned.

Traditional lumbar supports merely fill the space between the lumbar curve and the back of the chair – they don't actually support the natural curves of the spine.

This is frequently misunderstood – many people believe that lumbar support is all that is needed. Traditional lumbar supports, however, merely fill the space between the lumbar curve and the back of the chair – they don't actually support the natural curves of the spine.

To illustrate the concept of proper back support, try the following test: Sit in a slightly slumped-forward position. Then place your finger in the lumbar curve of the spine, (the area covered by traditional lumbar supports.) You will feel no reaction. Then move your finger gradually up your spine. Slightly higher up, you will find a pressure point that causes a reflex in your spine, and forces you to sit up straight.

A proper back support needs to provide support at this point to stimulate the correct upright posture. It also needs to provide a template for all three curves in the spine; the lumbar, thoracic, and cervical curves. This means that one size of back support cannot fit all; it is essential to have a support that is fitted for you.

Therefore, the selection criteria for a back support should be:

- Designed to support all three curves in the spine.
- Able to be fitted for all sizes of backs.
- Designed to apply force vectors at the right points in the spine to stimulate a reflex that forces you to sit upright.
- Able to provide lateral support to keep the back properly positioned against the device.
- Capable of being fastened at the proper height to provide the correct support.

While Driving

Driving subjects the spine to all of the stresses of sitting in an office, and then some.

Driving subjects the spine of all the stresses of sitting in an office, and then some! The driver doesn't have the freedom of the office worker to get up and stretch, so periods of immobility may be uninterrupted for hours. The stress on the spine is amplified by the vibrations of the car, causing the supporting muscles to fatigue more quickly. Finally, there's the ever present threat of injury due to whiplash. Although most cars have head rests to limit damage, these are often poorly adjusted, or inadequately designed to support the head and neck together under impact.

Traditional lumbar supports are also common in cars, but like their office counterparts, these merely fill the space between the lumbar and the seat, and don't provide real support. An effective back support for the car needs to be comprehensive in that it must support the back, neck, and head together in proper alignment. It also needs to stimulate an alert, upright driving posture.

The selection criteria for an automotive back support should be:

- Designed to support all three curves in the spine.
- Able to be fitted for all sizes of backs.
- Designed to apply force vectors at the right points in the spine to stimulate an upright driving posture.
- Able to provide lateral support to keep the back properly positioned against the device.
- Capable of being fastened at the proper height to provide the correct support.
- Designed to help prevent whiplash injury by providing unified support for the head, neck, and back.

While Standing

In addition to sore feet, prolonged standing can create distortion of the lower spine, blood-pooling in the legs, and in the long term, varicose veins and other symptoms.

One of the most painful activities for the back is standing for an extended period of time on a hard surface. In addition to sore feet, prolonged standing can create distortion of the lower spine, blood-pooling in the legs, and in the long term, varicose veins and other symptoms.

A number of clinical tests by Occupational Health authorities in the United States and Canada have shown that standing on a soft surface can greatly alleviate this problem. By providing room for the feet to move slightly, a soft surface allows the weight to be shifted around just enough to keep muscles moving, and blood circulating properly. Another benefit of a soft surface is that the pressure from the foot to the floor becomes distributed over a wider area, preventing high pressure points on the foot.

While anti-fatigue mats are commonplace in factories and other workplace situations where workers stand for long periods of time, they are rarely used in the home. Part of the problem is available products. Factory grade anti-fatigue mats are designed for factory situations. Their consistency is designed for workers wearing shoes or boots. There is also emphasis on durability, and resistance to acid spills and other industrial circumstances.

In home settings such as kitchens, people stand in socks or bare feet, and have no arch support. An anti-fatigue mat suitable for home use needs to accommodate this. A forward slope will shift the body weight slightly towards the balls of the feet, resulting in better weight distribution, and a more natural position. The forward pressure also causes the mat to fill in the area under the arch, giving arch support. A varied surface is also important in that it forces constant movement of the feet, reducing static pressure on the feet and legs and stimulating circulation.

The selection criteria for a home-use anti-fatigue mat are:

- Consistency optimized for bare feet, as opposed to boots.
- Forward slope for better weight distribution and arch support.
- Beveled edges to avoid tripping.
- Bubbles or dimples in the surface texture to improve movement and circulation.
- Suitable sizes and colors for home use.

Summary

The force of gravity acts on us 24 hours a day. For most of this period, we are inactive, leaving our muscles deconditioned, and unable to do their intended job of supporting our body weight. As a result, we place too much body weight on some parts of the spine. This causes static pressure on muscles and nerves, and improper bending of the back. The result is pain, and symptoms such as fatigue, numbness in the extremities, and headaches. The problem is greatly reinforced when, over time, the spine becomes distorted from the accumulated stress.

Posture is the practice of keeping the spine in alignment so that the force of gravity is dispersed. Changing our posture, however, is more easily said than done. The curves of the back are complex and difficult to visualize. A number of simple practices can help break the cycle of damage. Also, a number of support devices can help patients find the right alignment for their spine when the body is at rest.

About Therapeutica Inc.

Therapeutica Inc. manufactures and distributes products to help prevent and alleviate spinal ailments. In 1995, their first product, the Therapeutica Pillow, was released in the market. This device, developed by furniture designer and manufacturer Ed Keilhauer and chiropractor Dr. Peter MacKay, is the only one of its kind. Its unique tri-level design promotes spinal alignment by holding the head at the correct height in both the side and back sleeping positions. The product also uses a unique wedge that supports the connection between the neck and the upper back, eliminating cervical stress. The wedge is also designed to hold the head in the optimum position to prevent snoring. The pillow comes in 5 sizes to ensure a proper fit.

The Therapeutica Pillow was developed through extensive clinical research. Originally tested on whiplash patients who were unable to sleep with normal pillows, the product withstood the ultimate test – the ability to provide measurable improvement for people whose spines were considerably damaged.

Later, Therapeutica released the Therapeutica Back Support. Like the Therapeutica Pillow, this was clinically tested with hundreds of patients before being perfected and released. At the time of development, Keilhauer and MacKay realized that many back support devices were available, but all of them only provided support for the lumbar region. Therapeutica's testing revealed that

traditional lumbar supports actually provide little support, but simply fill the space between the spine and the chair back.

The Therapeutica Back Support provides vitally needed support for the entire spine. It also requires enough lateral support to keep the spine in the proper position along the Back Support. Finally, the Back Support has to fit! Therapeutica found that they had to make the product in three sizes to achieve the necessary result.

Therapeutica has also developed the only patented Anti Fatigue Mat optimized for home use. Once again, this device was designed to fulfill an unmet need in the marketplace. Dr. Allan Horowitz, a chiropractor who collaborated with Ed Keilhauer on the design of the product, found that many of his patients were getting sore backs by standing in their kitchens. To accommodate home use requirements, the design had to be optimized for bare feet. This was achieved through a unique sloping design, which shifts the body weight slightly forward to improve weight distribution. Therapeutica's testing also revealed that a bubbled surface stimulated more movement in the feet, relieving static pressure and improving circulation. Other features include a beveled edge to prevent tripping, and size, weight, and décor suitable for home use.

Therapeutica's latest product is a variation on the Therapeutica Back Support, optimized for car use. As in the office, many drivers rely on traditional lumbar supports, which merely fill the space between the lumbar and the seat back, and provide little support. The Therapeutica Automobile Back Support supports the entire back, and also provides unified support for the back, neck, and head to prevent whiplash injury.