

# The Orthotic Sitting Solution

Lance Robbins DC, CPT

The human body functions as a stress and strain distribution machine. When everything is functioning optimally our bodies are able to cope with most of the stress and strain imposed on them. However, undue amounts of stress from varying aspects of our lives can cause a breakdown in that highly functional machine, and then we feel pain!

To compensate for the additional stresses of life, we as humans have sought new technologies and ergonomic solutions that will aid our stress distribution system in performing at its' best. Most of these ergonomic solutions are designed around the primary positions that we function in: Standing, Sitting, and Lying. *(Note that other positions are possible, however these are the most common).*

Each position offers its' own biomechanical stress challenges that the body must deal with. Those of us with even the most perfect posture find that varying degrees of support in one position or another help manage the stress. Most people spend a great deal of time and money selecting proper shoes for support against the stresses of standing. Even more people pay close attention to mattress selection when in the lying position, to give them the most stress free relaxing slumber they can hope to achieve.

And yet, what kind of support do we look to for our sitting posture? And even more importantly, is there one product versus another that is most appropriate for our individual posture?

It is the aim of this article to give the reader an understanding of the importance of selecting the appropriate ergonomic chair for their individual posture so that they may experience a stress free sitting posture.

Each of us has a postural tendency that is uniquely our own. Most people hear the word posture and they think, "stand up straight" like their mother used to tell them. Although this usually great advice, we are going to look at posture in a different way. Posture comes in many forms; just take a moment to look around you. Some people stand up straight, some people seem bent over at the waist or rounded forward from the shoulders. Some people carry excess weight in different areas that can alter their posture accordingly.

Each one of these differences in posture imposes a new demand of stress for our body machine to compensate for. As was stated earlier in this article we are continually striving to find ergonomic aids to support our posture and reduce the stress on the body. Since the focus of this article is the sitting posture, then our main area of concern is the spine and the undue stresses imposed upon it when seated.

The spine is designed with the most effective system for stress and strain distribution, allowing us to perform all of our daily activities with minimal pain. The normal lordotic or anterior curve of the low back and neck and the kyphotic or posterior curve of the upper back designed this way so as to act similar to a spring, absorbing shock and dissipating stress in a highly effective manner. Any change to these normal curvatures can cause marked increases in the amount of stress delivered to the body.

When we undertake a sitting position, the low back automatically becomes more vulnerable to injury because we are decreasing the normal lordotic curve and thus decreasing the ability of our low back to compensate for stress. For most people, long periods of sitting almost always result in discomfort to the spine. And for some people this discomfort can be quite unbearable.

Many solutions have been put forth as an answer to this problem. The market place is flooded with ergonomic back supports and chairs to help people deal with the stress imposed on the spine while sitting. Some of these products work quite well for some people, but there appears to be no one shot cure for all. Why is this? For one, most of these solutions are built with the ideal spine in mind. Meaning they are designed to support you as if you normally stand with ideal posture. A quick glance around will tell you that very few people maintain ideal posture.

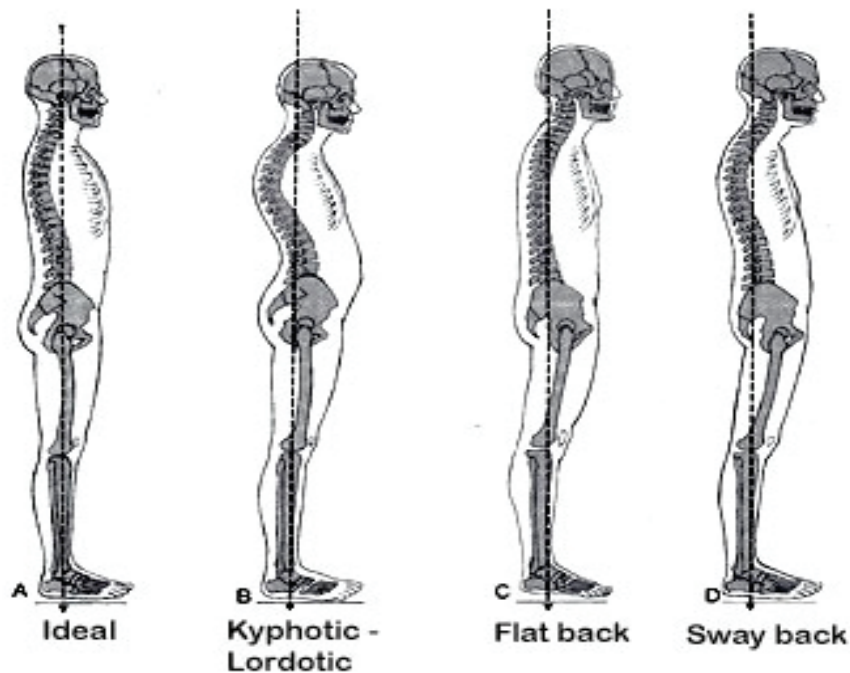
This brings us to the meat and potatoes of this article. A new concept must emerge, one that embraces the fact that people have different postures, and each of those postures needs a different kind of support when in the seated position. Some people are tall, some are short, and some have flat backs, while others have an accentuated curve. There is no 'one chair solution' because there are just too many variables. Hence the idea of the "Orthotic Sitting Solution."

At Back Quality Ergonomics, great effort has been made to establish the most optimal sitting solution for each individual person. Each line of chairs offers many unique features to support your individual posture giving you the most stress free sitting experience. The staff will discuss your needs and help custom fit you to the proper chair for your use and needs.

Whether you are a clinician who needs a chair like the Dynamic, offering freedom of movement and support in multiple position; or an office worker, where the Comfort Move will support you during those long hours spent in one position; Back Quality Ergonomics has just the chair for you.

All though each of you has a unique posture that is all your own, there are enough similarities between postures that we can build categories to help you find the right chair that will fit you best. Below is a guide to four basic posture types as proposed by Kendall, McCreary, and Provance in their book "Muscles Testing and Function."

### Four types of postural alignment



Using the pictures above, now try to figure out what your basic posture type is. There are many ways to do this. Here is one suggested method:

#### Required items

1. A wall with some vertical lines on it.
2. A friend with a camera, ideally on a tripod.
3. A swimsuit or other clothing that shows the shape of your body.

#### Your Standing Posture Type: Procedure

1. Stand bare-footed and side on to the wall.
2. Relax in the posture that feels natural to you.
3. Have your friend take a picture.
4. Date the picture for future reference. You can then take photos at some time in the future, so as to observe progress.

Now once you have an idea of your basic posture type, it's time to pick the Back Quality Ergonomic chair that fits you best, otherwise known as your Orthotic Sitting Solution. Keep in mind that there may be a couple of options available to you and the customer support staff is always available to help you make the right choice.

## The Orthotic Sitting Solution

The body's posture is maintained by the neuromusculoskeletal axis. Each posture type has varying degrees of stress and strain imposed on it and requires systematic differences in the neurologic, muscular, and skeletal systems. Ideally the body strives for the optimum posture because this is where it can reside with the least amount of effort. However once the body has deviated from ideal and resides in a different posture type then the neuromusculoskeletal system must respond by changing how it will support itself in this new postural environment. Because of the change in demands, many areas of the body that were not designed for high degrees of stress become prone to injury.

All the chairs that we at Back Quality Ergonomics produce for office and industrial use are specifically designed to permit the best possible seating position whilst at work. We have therefore designed our chairs with two specific goals in mind: prevention and cure. Careful scientific analyses and studies have guided our development and production.

In a sitting position, the ideal chair should work to support the overworked postural muscles reducing the likelihood of strain to overstressed areas. Each one of the chairs at BQE can be modified or custom tailored to your posture type, the primary difference is the setting in which they will be used. Below is a list of the chairs offered through Back Quality Ergonomics, their description, and a posture type that is best suited to that chair. Remember that posture type is only one consideration; don't forget that each chair is also specifically designed for a particular industry and personal style.



The **Dynamic**, The Dynamic is an ergonomic stool specially designed to combat and prevent back complaints. The Dynamic links the two sitting positions (active and passive) with a tilting mechanism. When in the active position, the seat has a positive inclination of 3 degrees. In this way it is easier for the vertebral column to move into the (least stressing) lordosis position (the pelvis tilts forwards). When the centre of gravity is moved slightly backwards, the seat tilts 6 degrees backwards. At the same time the lumbar support automatically moves forward, guaranteeing the lordosis position during passive sitting. In this way back stress is minimized in both positions.

The cleverly designed lumbar support of the Dynamic guarantees the natural S-form of the lumbar vertebral column to be determined more accurately per segment. The small size of the lumbar support ensures an optimal freedom of movement and activates the stretching of the vertebral column.



The **Correct-Sit** has been designed to prevent and combat back complaints. Important aspects of the design are: the form of the lumbar support, the design of the seat and the possibility of tilting the angle of the seat.

The small lumbar support ensures optimum freedom of movement due to its perfect fit in the hollow of the lower back (lordosis of the spinal column). The saddle-form seat ensures an open position of the hips. This makes it easier to stretch the back, requiring less strength and endurance from the muscles.



The **Ergosolex** is a work stool that, due to its particular shape of the seat/saddle, has been designed for use in both sitting and half-standing positions. The back part of the seat is made wider so that the sitting activities can be comfortably performed. The front is smaller so that the higher sitting position and even the standing position are possible.

Due to its shape and functionality, the Ergosolex is the most suitable stool to use in the work spots where the freedom of movement as well as the support of the spine is necessary. For

example – school and kindergarten teachers, hairdressers, nail stylists, and catering workers, etc.



The **ComfortMove** is a work stool with very comfortable seating properties. Due to the fact that the backrest as well as the seating surface are connected with rubbers, the seating and the back move automatically together with the movements of the user, without disturbing him/her. This chair is designed with the 'Front Desk or Office Worker' in mind. Due to the fact that the seating surface slopes when the user moves forward, it's easy for him/her to take the active and stable position. The big advantage of it is that the better posture of a user is stimulated

this way and there is no entrapment of the vessels in the legs, making all day sitting a more comfortable experience. The entire back and spine are well supported with this backrest. When the user leans backwards the seating surface automatically slopes back so that the backrest can provide a better support for the back.

### **What is the right chair for me?**

The answer to this question depends on your posture type and what you will be using the chair for. Above we have attempted to give you some idea of how each chair can be used in different settings due to their specific design and features. Below is a chart to help you pick the correct chair for your posture type.

*Chart for posture type and suggested chair preference.*

<b>Posture Type</b>	<b>Dynamic</b>	<b>Ergosolex</b>	<b>Correct Sit</b>	<b>Comfort Move</b>
Ideal Posture	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
Kyphosis/Lordosis	<b>X</b>	<b>X</b>		
Flat Back			<b>X</b>	<b>X</b>
Sway Back			<b>X</b>	<b>X</b>

The chart above is a suggestion only. Each chair can be modified for your specific needs. When you have decided to purchase a chair please indicate on your order form which chair you specifically prefer and what your posture type is. Also please indicate your height and weight so that we may fit the chair to your personal ergonomic needs.

Even though our chairs are considered 'The Orthotic Sitting Solution,' there is one more piece to this puzzle that must be addressed. When your posture deviates from normal and you assume a different posture (ie: swayback, kyphosis/lordosis), then muscles throughout your body are activated differently. Muscles that are supposed to support an ideal posture become weak, tight, or over stretched. In order to combat these muscle deficiencies certain rehabilitation exercises should be performed to enhance your body's ability to reduce the stress imposed upon it.

When you order your chair from Back Quality Ergonomics and give us your detailed postural type not only will we make sure you get the ideal chair for your needs, but we will go one-step further. We will send you a short rehabilitative exercise routine for your specific posture to enhance your sitting experience and strengthen your spine.

So don't wait! Get someone to help you identify your personal posture type and send us your order so we can get you sitting in your own unique "Orthotic Sitting Solution!"