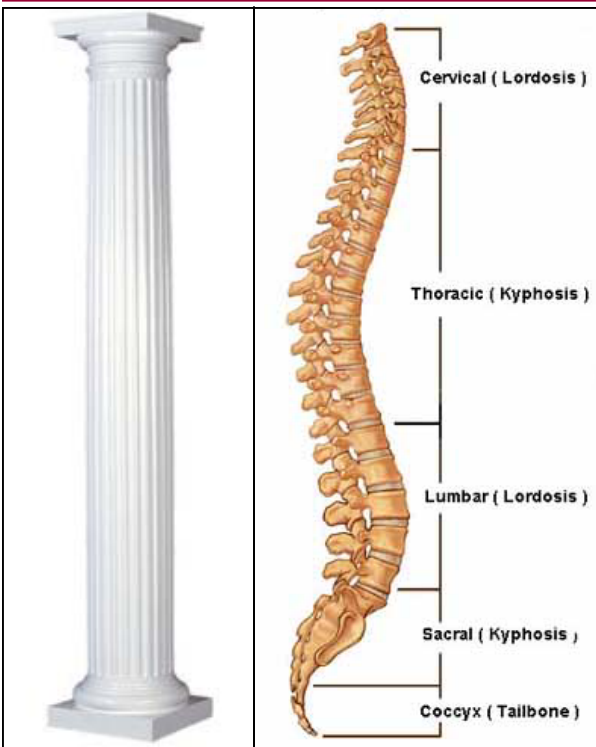


# Ergonomic Focus: The Back and Spine



## The Spine is an Unstable Structure

When thinking about our backs, we must first dispel any notion that our spine is a stable structure. Our spine is not straight, and therefore does not give the same support as a column. Additionally, each vertebrae is not even touching each other, but is essentially separated by a shock absorbing jelly. It is our musculature which holds it all together, but this also creates the illusion that our spine is stronger than it actually is.

Like any supporting structure, our spine has a load limit. Exceeding load limits can cause swelling within the vertebrae and pinch spinal nerves, causing extreme discomfort. To avoid exceeding load limits, remember that the greater the curvature, the lower the load limit.

## Examining Load Limits

For an average sized person, the vertebral load limits are between 1000 and 1500 lbs of force. This DOES NOT mean that you can lift 1000-1500 lbs safely, however. Below are several daily activities, and the amount of force lbs (lbf) it takes to perform these activities.

By adding lifted weight, you only increase the force lbs of strain you put on your spine. Additionally, a longer horizontal distance and a twisted spine both increase the amount of force lbs on your spine.



Laying Down: 300-400 lbf



Sitting: 600-1000 lbf



Standing: 600 lbf



Bending Over: 1000-2000 lbf

**NOTE:** Just because you can lift something doesn't mean that you should. If you ever have to ask yourself 'should I lift this, or is it too heavy?' chances are you should not be lifting the object.