



# WORKSTATIONS

By Craig Osborne, Chiropractor © 2010

Most jobs these days require a large amount of time at a desk, or behind the wheel of a car. Since the human body is not designed to sit, this places a high degree of stress and strain on the body, so it's not surprising then that 2/3rds of the population experience some type of back pain during their lifetime.

Avoiding extended sitting is seldom possible, so the solution to minimising the impact of sitting on a healthy spine is not just what seat or desk you work at, but how you use it. But we need to cover both angles, so here goes...

## THE CHAIR

A simple suggestion – spend as much money as you can afford. The “Rolls Royce” of office chairs is the Aeron chair. The original ground breaking model almost didn't make it because of its design but is now a classic. Recently it's been upgraded and now offers a back support that moves almost fluidly with your spine (but it does cost about \$2K).



Get a chair with as many adjustments as possible. At a minimum you need adjustments for height, back rest height and tilt. Seat tilt can be useful and variable position lumbar support is essential..

When sitting relaxed, your feet should sit comfortably on the ground, you should have a normal lumbar curve, and there should be no pressure on the back of your legs at the front of the seat. Note on the next diagram that your back should be angled at about 110 degrees, not vertical. For most work environments arm rests can be a problem as they stop your chair from fitting under the desk, plus if you lean on your elbows you can end up with a bursitis problem in your elbows.

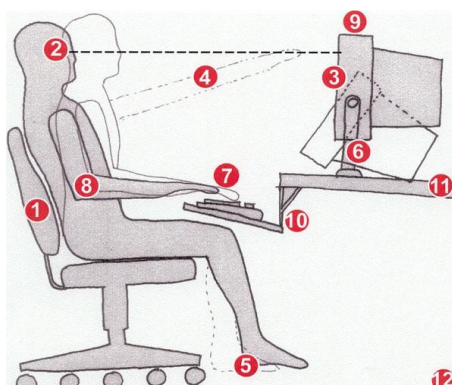
## YOUR DESK

The type of desk you need depends on what you use it for. Ideally if you use a PC, the desk height should allow for the keyboard to sit at a height so that when seated correctly, elbows should be bent at 90 degrees making typing comfortable. Average desk height of 720-740mm is usually too high to achieve this Hence your chair needs to be elevated, that gets your feet off the ground and then you need a foot rest (it gets complicated!!). Some companies offer desks with height adjust which solves lots of problems but for most is not a option.

Many older desks have a keyboard shelf that sits lower than the desk surface, except that these are typically too narrow to be able to fit the mouse on easily, so then you're left with an over-reaching problem every time you use the mouse. Alternatively try and place the mouse directly above the numeric part of your keyboard if you have a drop shelf..

## YOUR PC

The diagram following illustrates 'best' set up, but this again depends on how you use your computer. If you work from copy at the side onto the screen, the screen should be lower to reduce head lift & turn. If you can, have the copy on a stand directly under or beside the screen, this reduces excessive head turn/tilt and allows your resting head



position to be higher (unless you can't touch type like me). If you're a touch typist, then the top of the screen should be about eye level. If you do a bit of all three, then invest in a support arm so you can alter screen height depending on what you are doing. And remember many software programs automatically place your work to the left of the screen, so you're always slightly askew, so it may be appropriate to have the screen off-centre. But if the software lets you, ensure your work is centred on the screen.

Now to confuse matters even more, it seems that the drop-down keyboard holder (mentioned earlier) is no longer work-place recommended even if you have one to use. So you really do need to think about what you have and how to use it well.

Using a laptop is a completely different kettle of fish as it is impossible to achieve correct ergonomics with one. For short bursts of work (<1hour) there's no major issue, but any more and you should use a full size keyboard & external mouse. Or get a docking station with a full screen. Then apply the above guidelines when using it.

## THE KEYBOARD

There is some ergonomic benefit to having a split keyboard (the 'natural' keyboard) as they reduce the lateral deviation at the wrist. Far more important is ensuring that it's low enough for correct arm positioning, and that it should be in a **negative** tilt. That is it should be tilted **away** from you. So break those little legs off the back and never use them again. It constantly amazes me that a whole range of ergonomic products set you up in a position known to cause carpal tunnel syndrome. Many laptop stands fall into this category as well.

The essential postural concern is straight wrists, so if you use those little legs then your wrists are bent.

This is a significant factor in RSI cases. You should also position the keyboard relative to the type of task you are doing. The QWERTY part centred if you are doing word processing, the numeric part for data entry, and the mouse in front of your shoulder for web surfing. Don't simply centre the entire keyboard for all tasks as its asymmetrical design will increase your risk of RSI.

### THE SWISS BALL AS A CHAIR

So long as you can get away with it, using a ball for a chair is a great option. It's quite difficult to slouch, plus you get a core workout just by sitting well. I've heard arguments that you might fall off, which has to be a pretty lame reason not to use one. Remember though that your body is probably not used to sitting unsupported for long periods, so it can still be useful to alternate using a chair, just to give yourself a rest. If you work in an office, you could always look to share time on the ball with a colleague.

A better alternative is the balance disc—it works the same as a ball without the size..



### DESK NECK

This is a term I use to describe this common problem. It's essentially caused by too many hours sitting poorly at a desk with a build up of stress and tension across the shoulders and into the neck. Both treatment and prevention procedures are easy, they just take time.

Treatment is a combination of an adjustment schedule to correct underlying subluxation and curvature problems, linked to a course of remedial massage to loosen out tight muscles.

Prevention is applying the above information consistently, and also taking small steps to de-stress during the day, these are called:

### MICRO AND MACRO PAUSES

The sole aim of these pauses is to relax the neck and shoulders, how you achieve this is up to you.

Dangling the arms by your side, rolling the shoulders, and turning the head from side to side may be sufficient. Adding a few neck stretches will also help.

A **micropause** is a 10 second break taken every 3 minutes when at your desk, or doing a repetitive task.

A **macropause** is a 10 minute break taken every hour away from your task. This is preferably taken as a chunk of time, but realising that this is not always possible, at least try to make it cumulative. Find reasons to take a break from your desk— photocopy, grab some water, throw rubbish out in someone else's bin, or make phone calls standing up. It doesn't matter what it is, it's all about change.



If you are challenged with this behaviour, it's easy to respond that reducing the build up of tension during the work day will improve your comfort levels and keep you productive.

What we're trying to avoid is the debilitating condition called RSI (repetitive strain injury), also sometimes referred to as occupational overuse syndrome & Carpel Tunnel Syndrome. RSI is caused by the repetitive build up of strain in the tendons of the forearm. This leads to tendinitis, incredibly painful arms and hands, and can completely render the hands useless due to the pain and weakness. The simple steps above are the most recognised methods to minimise your risk of suffering from RSI.

New research is also recognising that recovery is reliant on correct retraining of the muscles—a process that is a neurological change not just a muscular one.

### POSTURE AND DISC PRESSURE

Because of the typical posture change in your low back when sitting, your body weight puts more pressure through the discs than the spinal joints. If you then attempt to lift objects while still sitting, the pressure is elevated even more.

The illustration shows how different this can be. Neutral standing is the reference point of 100. Then leaning forward with weight increases the pressure significantly, but sitting is almost worse, especially when picking something up. The last position occurs many times in a gym situation when a person sits for an exercise and then bends to pick the weight up off the floor. A sure recipe for disaster. Lying on your back gives the greatest reduction in disc pressure.

If you retain as much normal lumbar curve as possible when sitting, this reduces this disc pressure, and also makes it far easier to sit up straight and to keep your chin tucked in. Invest in a lumbar roll if necessary.

It's important to remember that a safe workplace is a legal obligation, not a privilege. You'll also be more productive if comfortable and less likely to suffer work induced injuries. It's a simple argument when you look at it like this!

If you need more help with this complex area, please don't hesitate to ask.

