

Impromptu home office: Three principles to help set up remote workstations

By Jack Dennerlein, April 16, 2020

Traditionally, approaches to setting up computer workstations were very prescriptive, often providing a one solution fits all. Recent research has shown that there are many different solutions which are linked to and vary with different body size proportions (ex. some of us may have long legs and short torsos for our given height). People will find comfort for their unique body in different ways. Over the course of the day, bodies also change naturally and a solution in the morning may be different than in the afternoon. Unfortunately, the adjustability of home furniture doesn't match the adjustability of the modern office, especially the recent trends of sit-stand workstations.

The approach described here provides three fundamental principles for home workstation set ups to help you create an at-home solution despite the limitations. It provides a framework that allows you to be resourceful in finding your own solutions for the impromptu home office. Try lots of things using the three principles described below – look around you for ways to create the best option using these principles to help guide your efforts. Through a trial and error process you should be able to find something that works.

The three principles are

1. Support: Find ways to evenly support your back and arms while you work.
2. Visual Access: Set up your work to promote balanced postures as your body and its posture follows your eyes.
3. Reach: Keep things close and let go of your devices.

Support: Find ways to evenly support your back and arms while you work.

Evenly supporting your back and arms is important because it allows your muscles to relax and not be continuously holding your body up. Back support can reduce back pain. Supporting the arms allows the shoulders to relax – shoulders are where most computer users have pain.¹

Your back will be supported through your chair. While we may have one or two office type task chairs, many of us have to share that set up with other members of the household forcing the use of another chair in the house. These are either straight back chairs found in kitchens and dining rooms or lounge chairs in the family room. For work, avoid the lounge chairs and sofas.² Straight back chairs probably need some simple modifications to fit to your body. Make sure you can scoot all the way back in the chair so your butt/rear end is touching the back of the chair. You don't want space between your butt and the back of the chair. For those with shorter legs this may not be possible without putting their legs straight out – which won't work. If so, use stiff hard pillows to move the back of the chair to you. Try to make the support go as high as possible so you don't have to lean too far. Some chairs have depressions in the center of the

¹ For a long time, we were taught that arms need to float as we type – the old typing school pedagogies promoted this method. However, we spend less than 33% of our time using the keyboard and mouse when interreacting with a computer. Our arms can rest then.

² Lounge chairs and sofas provide support during consumption activities (i.e. pure reading, watching TV, or streaming videos on your mobile device); however, they provide many challenges for interacting with your devices when your interaction requires the input functions (entering text, mouse usage, or touching the screen).

seat – think of the rush seat chairs (woven rope). Your butt wants to rest there – here you need to put a pad on the seat to raise this up so you can position get your lower back and top of your buttocks all the way to the back of the chair. What you're trying to avoid is creating a space between that back corner of the chair, that is where the seat pan and the chairback meet, and your lower back. Also, the edge of the seat pan may be sharp and cut into the back of the legs. Pillows and pads can help. If you have shorter legs consider some sort of make shift foot rest to help raise up your thighs to relieve that pressure. If you're working at a high surface such as a kitchen island and sitting on a stool, make sure it has a back and you can rest your feet on something higher than the floor³.

You can support your arms through either arm rests on the chair or the worksurface. For both you want to avoid sharp edges – a folded hand towel or thick tea towel can make for a nice palm support to be placed between the keyboard and the edge of the worksurface – this is really helpful for the thick notebook computers by raising your forearms up and allowing for a more neutral wrist posture. For a work surface, you can place the keyboard and mouse away from the edge of the surface and your arms can rest in the space between the edge and your keyboard. Again. use a towel to raise your palms to help keep your wrist straight.

Visual Access: Set up good views as your body and its posture follows your eyes

Where what you're looking at is and how it is orientated impacts the load on your neck and shoulders. The more you have to look down the greater the load on your neck, which when prolonged leads to neck and shoulder pain. The angle of what you're reading/viewing can help improve neck angle – adding a simple stand to a smart phone or tablet so it is not flat on a table can reduce flexion of the neck.⁴ The height is also important, the lower the display the more neck flexion. What you want is the head to be balanced above the neck and shoulders as much as possible. If you can use an external/stand alone display – great. Use books or blocks to vertically place the monitor so your head is not flexed too far forward. For notebooks/laptops, use an external keyboard so that you can raise the whole computer up to a higher location. Even using the power supply block under the back side of the notebook to raise the monitor an inch or two can help, without raising the keyboard too much.⁵

Lighting can impact posture and eyestrain – posture if we're trying to avoid glare. Indirect lighting is best – it creates a soft even light in your workspace. Shining direct lights onto ceilings and walls creates indirect lighting. Set up your work to avoid glare – light sources that are brighter than your display and are within your field of view. Turn up your monitor brightness to match the ambient light too.

³ Of course, when worksurfaces are high enough one can stand without a chair or stool. Changing frequently between sitting and standing is highly recommended – it changes things up. Adding variability to postures helps.

⁴ For most devices that can be held, we usually pick it up and view the device so that the display is at a right angle with our eyes maximizing the projected viewing area. We rarely read a book flat on a desk, we hold it up at an angle.

⁵ The issue with notebooks and tablets is that what you're looking at, the display is physically connected to what you need to touch. So the use of an external keyboard and a mouse free up the display with the input devices allowing the display to be set higher and the keyboard lower at the same time.

Reach: Keep things close and let go of your devices

Reducing reaching by keeping things close to where your arms are relaxed reduces loading on your neck and shoulders. When the mouse is too far away from the unsupported arm, the arm has to be lifted and reach out, all putting load on the shoulder. When the keyboard is too high, we have to raise our shoulders so our hands can reach the keyboard. If we are using forearm supports, perhaps the keyboard is a bit further away; however, if the arms are supported and the shoulders can relax then the distance is okay. At standing workstations, often we do not use forearm support; as such our keyboard and mouse may be closer to our body – that is where our shoulders are in more of a relaxed balanced posture. When using a notebook or tablet it is better to use external keyboards and mice as they provide more flexibility to find solutions for both the arms and the neck. Plus, the mouse outperforms the touch pads.

For any hand held device, phones and tablet, the visual access requires us often to hold the device away from us and in a certain orientation – this creates lots of strain on the hands, arms and shoulders. Accessories, stands, external keyboards, and other hands-free devices help us let go. For audio interactions with the phone, the use of hands-free head sets and even speaker phone functions – if we have the privacy—allows us to let go and reduce this strain.