GUIDE TO ERGONOMIC SEATED POSTURE

Non-adjustable desk? These tools can help you get to the right height.

Keyboard Tray

With feet flat on the floor and knees at 90°, lower the keyboard tray to just below elbow height, shoulders relaxed.

Foot Stool

Raise chair until elbows are slightly above desk height, then put a foot stool beneath feet to keep knees at 90°.

GUIDE TO ERGONOMIC STANDING POSTURE

The more movement and change in postures you do, the better you will feel.

resting each foot on a foot stool to relieve tension in the spine and increase circulation.

Ergonomics

Working Remotely

UCR
Human Resources
Workplace Health and Wellness

Table of Contents

Ergonomics Working Remotely

For many of us, working remotely may present an unexpected challenge, or in fact, several unexpected challenges. Explore the information below to find useful tips and simple strategies to improve your ergonomics and your work-from-home (or from any remote location) experience.

Ergonomic Set-Up

The goal of an "ergonomic" workstation is the same at home as it is in the office – the exact same principles apply; though it may be far more difficult to reach that goal in some circumstances than others, since our residences and other remote locations are not necessarily designed for prolonged computer use.

First and most importantly: What we need to know is how to orient our body to optimal postures when we are working. That's the goal. If we are well familiar with what that actually is then we have a good chance of orienting our work environment, or ourselves, in such a way as to achieve that – or at least get close to it – and that makes all the difference!

Optimal Working Postures

What constitutes optimal posture? An optimal posture is one where we experience minimal fatigue to maintain or support our own body's weight in that posture. This is easy to define for working with a computer, and we have highlighted the critical elements below.

Familiarize yourself with what these ideal postures look like by reviewing the Guide to Ergonomic Seated Posture which shows both seated and standing work postures. Note that both work orientations (seated and standing) maintain all of these essential elements

Essential Postural Elements – **For Seated or Standing Work**:

- The back is straight – a straight line would pass through the ear, shoulders and hips. This line will be more or less vertical when standing, and should be slightly reclined when sitting
- The head is level and the ears are directly above the shoulders (not looking down or head forward)
- The upper arms are hanging relaxed at the sides of the torso.
- The elbows are bent to approximately 90 degrees and the wrists are in neutral posture (a straight line can be drawn through the center of the forearm through the middle finger).
- The feet are well supported on the floor or a footrest.

Essential Postural Elements – **For Seated Work- specifically**:

- The lumbar curve is well supported – this is critical when sitting: a lumbar support pillow or the seat's backrest contour should provide this support. (The lumbar curve of the spine presents naturally and without effort when standing.)
- Keep the torso fully rested against the back-rest when seated (If the shoulder blades are not in contact with backrest, then the backrest is not providing any support.)

GUIDE TO ERGONOMIC SEATED POSTURE

Non-adjustable desk? These tools can help you get to the right height.

Keyboard Tray

With feet flat on the floor and knees at 90°, lower the keyboard tray to just below elbow height, shoulders relaxed.

Foot Stool

Raise chair until elbows are slightly above desk height, then put a foot stool beneath feet to keep knees at 90°.

GUIDE TO ERGONOMIC STANDING POSTURE

The more movement and change in postures you do, the better you will feel.

Foot Stool

While standing, alternate resting each foot on a foot stool to relieve tension in the spine and increase circulation.

Ideas for Achieving Optimal Working Postures at Home

The following brief pictorial essay explores common scenarios encountered with home computing. Many people do not have dedicated office spaces designed to accommodate regular or prolonged work with a computer. Thus they may adopt all manner of awkward and unwanted postures and suffer the consequences. This information provides ideas for modifying home environments to improve ergonomics and achieve optimal working postures as much as possible.

All of the ideas depicted here can be achieved with materials already existing in your home and will therefore not cost anything. (One exception to this: if you are working with a laptop, and do not already have a remote keyboard and mouse, it is highly recommended that you acquire and use these devices.)

At the Dining Room Table

Always a challenge! Frame A shows a fixed-height dining table with a chair that is made of hardwood with no lumbar support. The worker assumes an intuitively relaxed (but undesired) posture trying to accommodate to a keyboard that is much too high and a monitor that is much too low. ***This is the inherent problem with all laptops***. Frames B and C show attempts to mitigate the various problems but without achieving a desirable outcome.

Frame A

A Natural Posture

- Slumped torso – slumping, or sitting with a rounded back, is a common, intuitive way for the body to move when we sit – but it is undesirable for prolonged periods. The lower-back suffers in this posture and so does the upper back and neck.
- There is no lumbar support/no back support.
- The chair is too low.
  - As the hip angle closes (less than 90^{o}) things get progressively worse for the low back. A slightly open angle at the hip is desired.
- The work surface is too high. The weight of the arms is supported by the wrists at the edge of the table.

Frame B

Sitting on Pillows

- The worker is sitting on pillows to raise the hips which has opened the hip angle. This will reduce stress and tension in the low-back as well as the hips.
- This has also improved the height of the work surface – the arms and hands are in improved positions, however…
- There is a continued slump and excessive forward-head posture – this will stress the upper back and neck significantly.
- No lumbar support/ no back support.
- The monitor is too low. Although the taller seat-height has improved some things, it has made the monitor position worse – this will promote the continued slump and forward head posture (looking down).

Frame C

An Ideal Posture? (Not for long…)

- The only difference between frame B and C is the worker's posture. He is now sitting in a more upright posture achieving the desired *straight line* through the ears, shoulders and hips. However there is still no back support. This will create excessive fatigue in the spinal muscles if maintained for prolonged periods.
- No lumbar support/no back support. The worker is exhibiting so called *good posture* – not to be confused with *optimal posture* – this is not an *ideal habit*. A backrest and a good lumbar support are essential when sitting for prolonged periods.
- Though the work surface is at a good height, the monitor is still much too low. It will be hard to maintain the head in this posture and the worker will repeatedly revert back to the posture depicted in frame B

Frame D

Provide a Back Support and Lumbar Support

- A blanket and a rectangular shaped pillow have been added to the chair back to provide a more comfortable backrest and some lumbar support, respectively.
- Sitting close to the work surface – sitting as close to the work surface as possible will provide several benefits:
  - Helps one maintain contact with the backrest.
  - Allows the forearms to rest on the broad, flat surface of the desk, as opposed to making contact at the edge of the desk.
  - Effectively raises the monitor. As the screen is moved farther from the worker, the viewing angle becomes less acute.
- The height of the table limits proximity for the worker. Although the worker is sitting about as close to the table as he can, the bottom edge of the table is contacting his upper thigh and it is not comfortable to maintain this position.

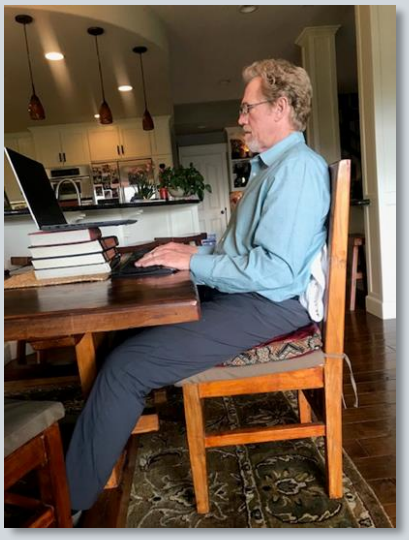
Frame E

Alternative Desktop Technique

In places where the table may be a little too high, and if there aren't any pillows available to sit on, or as in this case, if a taller seat creates its own problems (see frame D above), an alternative desktop technique can improve things considerably – do the following:

- Sit close – let the work surface be in contact with the abdomen.
- Forearms rest on work surface – let the arms come forward and rest their weight on the muscle belly of the forearms (you should not feel contact at the boney part of the elbow).
- Place the laptop keypad under your fingertips and angle the screen to optimize vision.
- Note that the seat pillows were removed which eliminated contact with the table at the upper thigh, ***and*** lowered the effective height of the monitor (less acute viewing angle – better head posture).
- Improved Lumbar Support – you will notice that the blanket and pillow have been replaced by a bath towel which can be more accurately customized to provide ideal lumbar support.

Frame F



Use Remote Keyboard, Mouse and Laptop Stand

- Laptops are not well designed for prolonged use.
- Use of a remote keyboard and mouse is highly recommended.
- Here the laptop has been placed on books to create a laptop stand. The remote keyboard (and mouse – not seen) are placed on the work surface.
- In this example the work surface is a tad too high but the majority of the weight of the arm is hanging relaxed at the torso and not born by the wrist. Adding a memory-foam wrist-rest would improve things further. This workstation has now been modified to something far better than what we started with in frame A.

Working with the Laptop on the Couch

The couch is often referred to as “The most dangerous seat in the house!” which gives you an idea about what the recommendation might be for working here - try not to if you can help it.

That being said, we tend to view the couch as a soft, cozy, inviting place which can entice us to work there even though it does not support appropriate postures for prolonged computer use.

If you must use the couch for short periods, or if it is really the only place available to you, here’s how to make it as good as it possibly can be: frames A, B and C show typical habits on the couch and exemplify why it is not a good place to work. Frame D shows how to make the couch as comfortable as possible for your body:

Frame A

Laptop on the Coffee Table

There are so many things wrong with this set-up – there might not be enough space to list them all!

We can observe that there is:

- Slumped, rounded back posture.
- No back support/no lumbar support
- Excessive forward head posture and forward lean of the torso
- The laptop keyboard and monitor are way too low which promotes all of the postural problems listed above.
- The seat height is much too low, there is a closed angle at the hips.

Don’t allow this to be your work-from-home posture!

Frame B

Laptop on the Lap

This set-up is almost as bad as the one above. The laptop keypad and monitor are not as low, and there is less forward lean of the torso, but key postural issues have not been improved.

We can observe that there is:

- Slumped, rounded back posture.
- No back support/no lumbar support.
- Excessive forward head posture.
- The seat height is much too low, there is a closed angle at the hips.

Don't allow this to be your work-from-home posture either!

Frame C

Reclining Posture

At first glance this looks like a big improvement, but actually it is only marginally better.

- Although the torso is now resting against the backrest, the spine remains in a slumped posture with no lumbar support.
- There is no head rest and in this position the neck will get fatigued from holding the head in this posture.
- Not seen in this photo - the thumbs of one or both hands support the weight of the laptop. This makes for awkward computer input and stresses the thumbs, hands or wrists.

Frame D

Achieving Optimal Posture on the Couch

Pillows are used to help the worker get as close as possible to the preferred, optimal seated posture while working with the laptop.

- A large pillow under the hips raises the seat height and creates an open angle at the hips.
- Two pillows placed behind the back provide lumbar support and improved backrest. The spine is less rounded and the head posture less forward.
- The upper arms hang relaxed by the sides of the torso, elbows at 90° and wrists neutral.
- A pillow placed on the lap elevates the laptop slightly – this improves wrist position (and slightly improves monitor height).

Although not ideal because the monitor is so low – this exemplifies the best possible posture one can achieve when working with a laptop on the couch.

By the way, this is also the best way to sit on the couch period! It is great if you are going to watch a movie or a ball game – only rarely, and for short periods, should you work with your laptop while on the couch.

Creating a Standing Workstation

Your best bet for prolonged computer use is to have a workstation that can be used in both a seated and a standing orientation. Ideally such a workstation should be able to provide optimal placement of all your workstation elements – the monitor, the keyboard, the mouse and other devices commonly used in your work- and be able to change from one orientation to the other with relative ease and efficiency.

Acquiring a device designed for this purpose is a good idea and is unquestionably the best approach. However, these devices can be expensive and may be too costly for some folks to justify. But it is not too hard to create a low cost (or no cost) standing workstation where we can work while standing periodically. This can provide a very simple and effective solution to help us avoid prolonged seated postures – below is such an example.

Frame A

Using a High Counter Top

The laptop is placed on a high counter. The height of this counter is not ideal for this worker for the reasons listed below, but it does provide the ability to stand while working. This counter may be perfect for a shorter person without additional modifications.

The main issues present in this example are:

- The work surface is too low which may stress the wrists with prolonged use of the keyboard.
- The monitor is much too low. This promotes forward head postures (looking down) and will fatigue the neck and upper back.

Frame B

Using Box, Books and Remote Keyboards

The standing workstation is modified to an ideal set-up for this worker by the use of some simple props and a remote keyboard and mouse.

- A large box and a few books raises the height of the laptop. The goal here is to get the laptop screen (monitor) to an ideal height which promotes preferred head posture.
- A remote keyboard is placed on a book to improve the height of the work-surface. (A remote mouse is also in use – not seen in the photo)
- The remote keyboard allows for the monitor and the input devices to each be positioned at optimal heights to allow and promote optimal body positions.