

Ergonomics: Positioning Your Body for Integrative Health

What is ergonomics and how does it affect me?

Ergonomics is the way you position your body. This includes whether you're sitting at a desk, in front of a computer, walking, driving, or standing. Often people develop new aches and pains seemingly for no reason. In reality, they may have been carrying their bodies in less than ideal ways every day of their lives. Your body is very adaptable. It creates a balance even if your body is not positioned well. And your body tries to compensate by tightening muscles or using muscles differently to keep you moving. Yet when these actions continue to happen, it throws your balance off. You may then develop a new ache or pain.

What should my body be like?

This question becomes very difficult because it is unique to each person's body. Your body has adjusted to fit your life, so what works for your neighbor might worsen or cause pain for you.

To start with, your spine has some natural curves. This causes your center of gravity (where you focus your weight) to be in the middle of your body. Your body will make adjustments, so your center of gravity does not change too much.

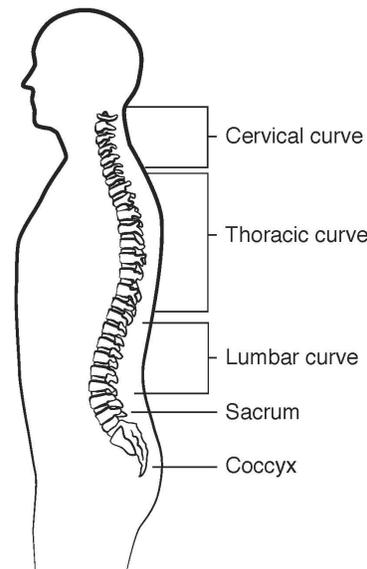


Figure 1. Your Spine's Curves.

People who do bodywork (like osteopathic doctors, chiropractors, physical therapists, massage therapists) may talk about ears, shoulders, hips, and ankle alignment. If your body has not

made changes to make up for an imbalance, then when you stand straight you should be able to draw a straight line from your ears to your shoulders to your hips to your ankles and the ground. If you are not in this alignment, your body has likely made an adjustment to fix an imbalance.

What gets me out of alignment?

To name a few causes of imbalance, you might have weak or tight muscles, have been in an accident, or not have ideal daily habits. Often it is bad posture and habits. For example, at work or home your computer might not be positioned well. As a result, your neck sticks forward to see the screen better. To adjust, your body tips the pelvis and/or moves the lumbar spine (the lower part). The next thing you know, you have low back or neck pain.

In real life, pain does not develop fast. Your body was made to tilt and adjust. When you do this every day for 6-8 hours, your muscles change, your bones move, and more. Then, one day you step off the curb funny or lift a box badly, and you think that's caused your back pain. Really the back pain has been in the works every day you spend at work.

If you are on your feet all day, your posture also changes. This is similar to people who sit at a desk all day. Even constantly looking at your iPad or phone changes your posture. That's because your head is always looking down. Many people feel that tension on the neck muscles and low back.

So what can I do then?

The first step is mindful awareness. Just pay attention to your posture and habits. Identify situations when your body goes out of alignment. Often you can correct minor habits yourself by just being aware that you are doing them.

This can be difficult though, especially if you have developed these habits for a decade or more. Because some of your muscles are weak, or others are tense, it may be quite overwhelming to start. Ask for help! Physical therapists are fantastic at noting muscle imbalances and working with you to improve this. If you are not moving the best nor have the greatest posture, then you might choose an occupational therapist. These therapists focus on day-to-day movements that you might do at home or at your job.

Another group who can help are body workers. They can help to physically put the body back in alignment. Just remember the imbalance in your body likely happened over years of poor habits, so you will need to stretch and tone the weak muscles in your body. Or else your body will return to the imbalance. This process takes time, so be patient with your body and your healthcare team.

You might consider yoga or Pilates (or many other types of movement therapies) to strengthen the muscles of your core and pelvic floor. (Your core muscles are those in the trunk of your body including your belly and chest. Your pelvic floor muscles are those in your lower belly.) These are usually underworked and weak in the average person. The added bonus of working the core muscles is that you might trim your waistline. Also, strong pelvic floor muscles can

improve sexual health and function. For more information, refer to the handout "[An Introduction to Yoga for Whole Health.](#)"

I sit at a desk all day, and I can't quit my job. What do I do?

This following information is compiled from multiple sources.¹⁻⁴ In the figure below, there are several points listed on the sides. Let's break them down. Keep in mind you do many other things at work too, like answering phones, filing, etc. You might consider going to the [Body Mapping Exercise at the Occupational Safety and Health Administration \(OSHA\) website](#) for more information.

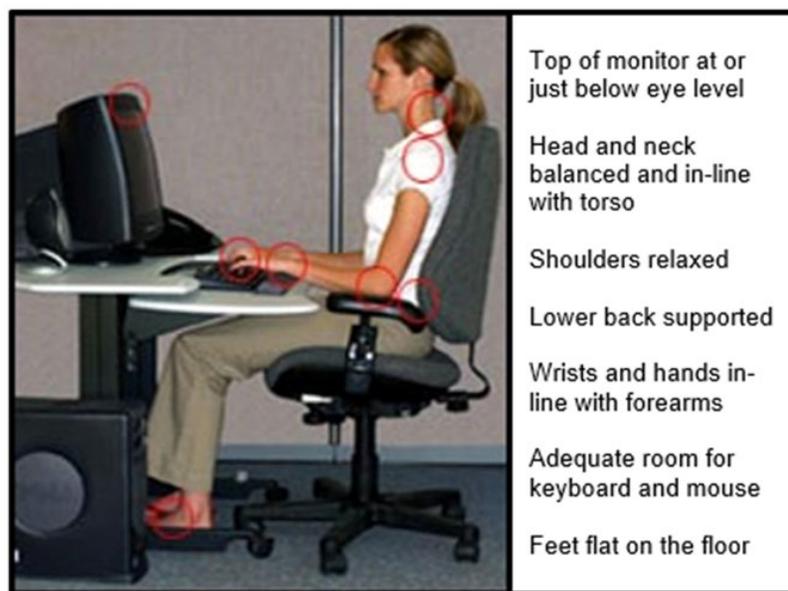


Figure 2. Computer Station e-Tool.²

Let's start with things that you might do to help yourself at your computer.

1. As mentioned above, make sure you are not leaning forward with your head to see the computer monitor. Aim for the top of the monitor to be just below eye level. Also, have your monitor less than arm's length away.
2. Keep the computer screen glare low. Consider a glare guard. Also, do not forget to wipe the screen clean.
3. If you wear glasses, you may need to change pairs depending on if you're near-sighted, far-sighted, or wearing bifocals.
4. Your keyboard should be placed at a level where your elbows are bent about 90 degrees and close to the body.
5. Your wrist should be in a neutral position when using a mouse or keyboard. This often means that your wrists and hands are in line with your forearms.

Next, let's talk about how you are seated in your chair.

1. As we discussed above, aim for your head to be over your shoulders, which should be over your hips when seated. Your knees should be over your ankles, and your feet flat on the floor.

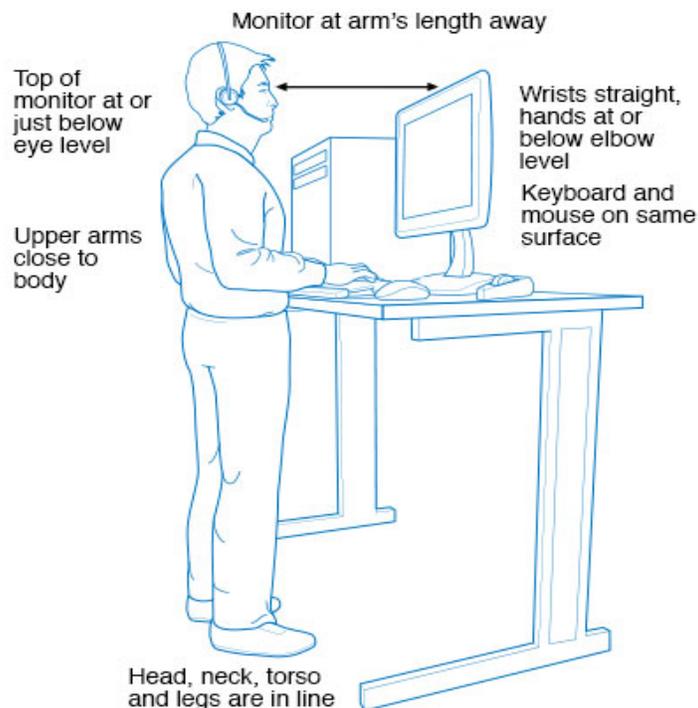
2. Try to find a chair that supports the natural curve of your spine.
3. Armrests should allow your shoulders to be relaxed while keeping the elbows close to the body and supported.
4. Adjustable chairs make all the above easier to achieve.

I have a standing desk at work, so I'm fine. Right?

Standing desks help people not to remain in the same position all day and to get more activity in the day. But unless you adjust your workstation to be more ergonomic, it might hurt your posture. Remember, when you stand in front of your computer, you still want to try to have your ears, shoulders, hips, and ankles in alignment. Often "soft knees" or knees slightly bent and not locked helps your back.

Another thing to consider is how you stand, both at work and while waiting in line at the grocery store. Think about where the pressure is on each foot. Are you more often on the balls of your feet (leaning forward), on your heels, or is the pressure mainly on one foot? Keeping both feet on the ground helps to spread out your center of gravity. Having the pressure on both heels and balls help too.

Otherwise, the things mentioned previously still apply as if you are sitting at a desk.



© MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH. ALL RIGHTS RESERVED.

Figure 3: Standing Workstation. Used with permission of Mayo Foundation for Medical Education and Research, all rights reserved.⁵

I've started stretching and correcting my posture, and my pain is worse. What's going on?

To start, it's a good idea to check with your health care team to make sure nothing more serious is happening. If you have pain to begin with, as mentioned earlier, your body has probably made a lot of changes to compensate over the years. This is why mindful awareness is the first step to correct things. For more information, reference the Whole Health handouts, "[An Introduction to Mindful Awareness](#)" and "[Mindful Awareness Practice in Daily Living](#)."

Things must be done slowly. When most of us think of fixing our posture, we force ourselves into positions that our bodies are not used to. In the long term these new positions may be ideal. But this forces us to use muscles that are not ready yet to do the job that they are needed for. This will often cause pain flares. This is also why some people have pain flares after a physical therapy or massage therapy session. It's because an imbalance has been found, and your body is not used to that imbalance being brought to light. It is important to find the balance, to strengthen and stretch muscles, and to allow yourself time to do so.

Ergonomics is something that you can work on both if you have already developed chronic pain and if you want to take preventative measures. This handout describes just a handful of things you can do. If you think that you would like to know more, then don't be afraid to ask your health care team, because there are many people trained to help you. Consider making an appointment with any of the following clinicians: osteopathic doctors, chiropractors, physical therapists, occupational therapists, and massage therapists. You may also want to look at the Whole Health handout "[An Introduction to Yoga for Whole Health](#)."

For you to consider:

- Do you have pain? If so, where? Do you want to see if ergonomics decreases your pain?
- Do you want to explore ergonomics to prevent future problems?
- What do you want to focus on? Mindful awareness to pay attention to your posture and habits? Strengthening your core and pelvic floor muscles? Ergonomics while working on a computer? Posture while standing? Something else?

The information in this handout is general. **Please work with your health care team to use the information in the best way possible to promote your health and happiness.**

For more information:

ORGANIZATION	RESOURCES	WEBSITE
University of Wisconsin Integrative Health Program	A variety of Integrative Whole Health handouts on your surroundings	https://www.fammed.wisc.edu/integrative/resources/modules/



ORGANIZATION	RESOURCES	WEBSITE
Occupational Safety and Health Administration (OSHA), U.S. Department of Labor.	Diagram to help you identify what parts of your body bother you and the level of discomfort or pain you feel.	https://www.osha.gov/dte/grant_materials/fy10/sh-20856-10/Ergonomics-Body_Map.pdf

This handout was adapted for the University of Wisconsin Integrative Health Program from the original written for the Veterans Health Administration (VHA) by Eugene Lee MD, Academic Integrative Health Fellow, Integrative Health Program, University of Wisconsin Department of Family Medicine and Community Health. It is based in part on a document for clinicians, "Ergonomics" written by J. Adam Rindfleisch MPhil, MD. The handout was reviewed and edited by Veterans and VHA subject matter experts.

References

1. Husney A, Marras WS. Ergonomic workstation. WebMD Website. <http://www.webmd.com/pain-management/carpal-tunnel/ergonomic-workstation>. Accessed June 24, 2016.
2. Computer workstations eTool. United States Department of Labor OSHA website. <https://www.osha.gov/SLTC/etools/computerworkstations/>. Accessed June 24, 2016.
3. Middlesworth M. 10 Office Ergonomics Tips to Help You Avoid Fatigue. Ergonomics Plus website. <http://ergo-plus.com/office-ergonomics-10-tips-to-help-you-avoid-fatigue/>. Accessed June 24, 2016.
4. Top 10 tips for wellness in the office workplace. Ergotron website. <http://www.computingcomfort.org/educate1.asp>. Accessed June 24, 2016.
5. Standing workstation: What you need to know. MayoClinic.org. MayoClinic.org. <http://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/standing-workstation/art-20088544>. Accessed December 4, 2016.