Ergonomic hazards - some myths & realities

Computer work stations: *conventional versus current wisdom*

There are a lot of myths out there about how to set up computer work stations. The conventional and current wisdom about this topic is explained on a website that has other information about office ergonomics (http://www.office-ergo.com). The text in this document comes from that site, except where there are notes in brackets. It's re-formatted to be more user-friendly.

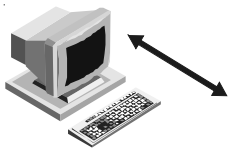
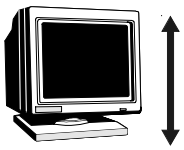
Most of us have some misinformation about office setup and posture. Much of the misinformation is quite old, but it persists because:

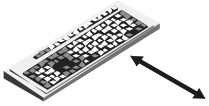
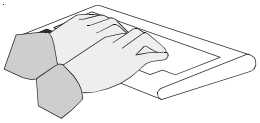
- We've heard it all our lives,
- Everybody we know seems to think the same thing,
- It sort of makes mechanical sense (but not biological sense!),
- We actually heard or saw it RECENTLY, perhaps in a sales presentation for some kind of ergo gizmo.

Unfortunately, not all writers, trainers, product designers, or even physicians can keep up with all the scientific developments.

Here are examples of conventional ergonomic wisdom that are being disproved. Happily, most involve a RELAXING of old strict rules.

Current ergonomics encourages variety and movement rather than an exact posture. The ultimate standard is individual comfort (especially over time), tempered by individual preference, control, and choices.

Topic	Conventional wisdom	Current wisdom
Monitor distance 	It should be 18-24 inches away.	The best distance is "as far away as possible while still being able to read it clearly." Longer distances relax the eyes. The "conventional" 18-24 inch recommendation is unnecessarily close.
Monitor height 	The top of the screen should be about eye height. Put the monitor on top of the CPU.	This is fine for some people, wrong for many. The current recommendation is that eye height is the highest a monitor should be, not the best height. Many people find a low monitor is more comfortable for the eyes and neck. Put the monitor on the work surface, because of the height issue.

Topic	Conventional wisdom	Current wisdom
Wrist angle	Keep them straight.	As far as we know, this is correct.
Wrist rests	They can do no wrong and should always be used. You only need them for the keyboard but not the mouse.	This is wrong. They may cause harm if they're too thick, too thin, too hard, or have sharp edges (even sharp foam edges). They also can cause harm, we think, if they're constantly used - they probably should be used just during pauses. The carpal tunnel is under the wrist/palm and should not be subjected to much extra pressure. Mouse wrist rests are a good idea in many cases, but the same warnings apply.
Keyboard design	"Ergonomic" keyboards are good for everybody.	Actually, some are good and some are probably bad. Some are right for some people and not for others. The only kind of ergonomic keyboard that many ergonomists can recommend in good conscience is one that can be configured to look exactly like a normal keyboard. These boards are hinged and can be changed to a new shape gradually. (Note: This means that ones like Microsoft's "ergonomic" wavy keyboard are not; the Goldtouch keyboard -- at left - is one true ergonomic on the market, according to studies by NIOSH.)
Keyboard distance 	It should be approximately at the front of the work surface.	This conventional wisdom is limiting. There's nothing wrong with pushing the keyboard back farther if the forearms are supported, provided the wrist is kept straight and the elbows aren't resting on anything hard or sharp. Usually, to make a pushed-back keyboard work, the work surface should be higher than elbow height. (see keyboard height, below)
Keyboard height	It should be at elbow height.	This is wrong, or at least too narrow. Variation from elbow height is fine, especially in the lower-than-elbow direction.
Keyboard angle 	It should be flat, or up on its little support legs.	This is wrong. The keyboard angle depends entirely on the forearm angle. It should be in the same plane as the forearm. Therefore, a low keyboard should be slanted back. Some people expect they won't be able to see the keys if the keyboard is sloped back, but this is usually not a problem.

Topic	Conventional wisdom	Current wisdom
Mouse placement	Push it away	Closer is usually better - next to the keyboard is the goal. (NOTE: this is why keyboards without number pads are best. The space the pads occupy is really where the mouse should be. Consider a fixed mouse too.)
Chair height	The height should allow the feet to reach the floor when the legs are in the "conventional wisdom" position of 90 degrees (at the knee).	The 90-degree knee posture is not "correct" ergonomics although it is not harmful. The legs should move very often, not stay fixed in the 90- degree position. The chair should, if possible, be low - low enough for the feet to rest on the floor, even when extended. However, if the chair is at a good height but the keyboard height can't be adjusted to elbow height or lower, then it's necessary to adjust the chair upwards. In this case, a footrest is an option.
Footrests	These are always a fine alternative and chairs and work surfaces don't need to be lowered if one is available.	The truth is that footrests are a distinctly second-class choice because the feet only have one place to be, and leg postures are limited. However, if the chair is already low enough, footrests offer a chance to change leg postures and are recommended.
General posture	There is a "correct" one.	Posture change seems to be as important as posture correctness, especially for the spine's intervertebral discs. The discs lose fluid during the day because of the weight they carry. It appears that posture change is essential to help pump fluid back into the discs. People who stand all day tend to have back problems - but so do people who sit still all day.
Sitting posture	Wisdom prescribes an upright posture, with the hips at 90 degrees.	Research supports having a much wider hip angle - with 130 degrees or so as an "optimum" angle. The reason? When the hips are straightened, the vertebrae of the lower spine are aligned with each other in a way that reduces and evens out pressure on the intervertebral discs. In fact, sitting upright is less desirable than reclining. When reclining, the lower back muscles work less and the spine supports less weight, since body weight is held up by the chair's backrest.

Topic	Conventional wisdom	Current wisdom
Rest breaks	Recommendations are usually for ones about 15 minutes long, every two hours or so.	This is insufficient for single-task work such as typing. Research supports the idea of very short breaks taken very frequently. For example, 30-second breaks every 10 minutes or so. These should be in addition to the normal 15-minute coffee breaks.