

Chair Features

Lumbar Support

Fixed Support: Based on seating standards, a curvature is designed into the lower seat back to support the lumbar spine. Unfortunately, one size does not fit all.

Single-Axis Adjustable Support: The lower back seat curvature is adjustable in one direction. The curve may be raised or lowered.

Dual-Axis Adjustable Support: The lower back seat curvature is adjustable in two directions. This also includes depth adjustability of the lumbar curve.

Asymmetric Adjustable Support: This offers the highest available performance. Comfort is greatly enhanced by allowing users to adjust the height by 4 inches as well as independently adjust support on either side of the spine.

How to Fit Your Lumbar Support to You: The backrest should conform to the natural curvature of your spine, and provide adequate support.

Arm Rests

Armrest Height: The use of armrests are very effective at reducing the stress to muscles of the upper back, neck and shoulders and is a fundamental requirement for proper fit. There is considerable variation in the resting seated elbow height. The North American standards specify a minimum of approximately 4" of vertical armrest adjustment.

Front-to-Back Adjustability: To fit the variations in people size, task requirements, and desk layout, front-to-back armrest adjustability is essential. This can be accomplished through front-to-back movement or 360° rotation arm caps. Armrests that do not adjust often bump into the desk edge, resulting in greater reaches, and promote perching posture (sitting on the front edge of the seat pan). This is particularly common for individuals working in corner configurations.

Width and Pivot: To effectively accommodate the variation in the width of user size it is necessary to provide adjustment in armrest width and pivot. These adjustments ensure that individuals of wider girth can sit in the chair without clash from too narrow a setting, and allow smaller, narrow girth individuals to use the armrests. Adjustment in pivot can fine-tune the position for the task at hand. In some cases rotation of a full 360° is desirable, allowing the user to reposition the location of support provided.

How To Fit Your Armrest to You: If your chair has armrests they should be soft, allow your shoulders to relax and your elbows to stay close to your body. Armrests should be placed at a height that you can make a 90 degree angle at your elbow with your arms resting comfortably on the armrests so that shoulders are not shrugged while also supporting your arms



Seat Depth Adjustment

Chairs with a fixed seat pan length limit the population that can fit the chair comfortably. Typically a taller person will require more seat pan length and a shorter person will require less. A shorter person sitting on a long seat pan will experience pressure behind the knees, or, if they perch on the edge, will not benefit from the seat back support. A taller person sitting on a short seat pan length will have inadequate support resulting in higher contact pressure under the thighs.

Good ergonomic seating incorporates several inches of adjustable seat pan depth. A minimum of 2 inches of adjustability is recommended while 3 inches is preferred.

Fitting Your Seat to You: The seat should be comfortable and allow your feet to rest flat on the floor or footrest. Thighs and buttocks should be supported in addition to the front edge of the seat contacting the back of your knees.



Forward Tilt

In some cases individuals may tend to sit on the front edge of the chair. This is associated with certain task requirements or an individual's adopted sitting habit. Referred to as "perching", this is a posture that may increase ergonomic risks due to reduced support from the seat back and seat pan. However, the ergonomics of the posture can be enhanced through proper seat pan adjustment. A forward tilt of the seat pan can support this seating style while promoting a healthy spinal posture. By tilting the seat and back forward it provides an alternative sitting posture and relieves lower back pressure.

Seat Recline

Single-Point Pivot: The seat back reclines approximately 20° in relation to the seat pan. With this type of mechanism, the front edge of the seat pan often rises creating unwanted pressure under the thighs.

Synchronous Tilt: The motion of the seat back is linked with partial motion of the seat pan to maintain proper lower body and lumbar support throughout the recline motion. For every 2° of seat back recline the rear edge of the seat pan lowers 1°. This minimizes the front edge seat rise and also opens the chest cavity to allow for easier breathing.

3-Point Pivot: This synchronous style mechanism has all the benefits of a synchronous tilt plus it allows the user to adjust the control to find a more comfortable posture. It also allows a deeper recline of the seat back to further reduce back stress while maintaining effective lumbar and thigh support.

Further information can be found at:

- http://www.ccohs.ca/oshanswers/ergonomics/office/chair_adjusting.html
- https://www.osha.gov/SLTC/etools/computerworkstations/components_chair.html
- http://www.ergonomic_seating_guide_handbook-pdf-13337w.haworth.com/docs/default-source/documents-files-very-task/.pdf