

The Sum™ Ergonomic Story



Smart Lumbar

Any ergonomic story must begin with the lumbar because that is the location of so many pains and injuries in the workplace. An important purpose of lumbar support in the backrest is to reinstate the proper lumbar curve so that intradiscal pressures are reduced and disc health is preserved.

There are several problems with conventional lumbar backrest supports:

- Some are not adjustable, so the lumbar support may not be positioned correctly
- Some are adjustable, but the range of adjustment may not be large enough to accommodate many users so, once again, the lumbar support may not be positioned correctly
- Some are simply designed incorrectly (depth, contour, sharp edges, location)
- Many that can be adjusted aren't adjusted correctly. That means improper lumbar support or even worse. The worst-case scenario is that the lumbar support in the backrest is positioned so incorrectly that it actually introduces new ergonomic risk factors

Obviously, the best solution is lumbar support in the backrest that automatically provides the right lumbar support in the right place and keeps the support positioned correctly even as the user shifts through the chair's entire range of motion. That's what Sum's AutoFit™ air-displacement technology provides, and it does so without requiring any user adjustments.

Open Body Posture

Movement is essential for spinal health. While forward and backward rocking is somewhat helpful, the most beneficial movement opens the body by pivoting at the hips. This promotes better exchange of nutrients in the discs and also encourages blood flow to the lower extremities, providing the most favorable healthy movement in the sitting position.

Most chairs do not provide the opportunity for opening the body posture during the seated workday. Among the few chairs that do, almost all require ongoing manual adjustments.

Sum, on the other hand, actually promotes body-opening movement by making it automatic. This means that as the user leans backward or forward, the chair automatically opens and closes with the user's movement, **all while keeping the backrest fully in contact with the user's back to provide critical support.** This revolutionary technology, called Avatar 2™, automatically utilizes the user's weight to activate shifts in sit-

ting from full recline to forward tasking. It does so while keeping the user fully in control of the workspace, or “reach zone.” Line of sight changes very little during these automatic adjustments.

Optimal Pressure Distribution in the Backrest

Next to low back complaints, the most common complaint of task workers is upper back, shoulder, and neck pain. While other factors such as monitor height play a part in these aches, a chair can either assist in reducing discomfort or can contribute to it.

Upper back support is important in reducing user discomfort, but so is pressure distribution. The better the chair is at distributing the pressure in the backrest, the fewer the pressure points that can contribute to discomfort. Imagine taking a block of wood and putting it behind a user’s back. This would create pressure points leading to significant discomfort in a short amount of time. Conversely, if a chair can distribute the user’s back pressure evenly over a large backrest, the less pressure there is on every part of the back, resulting in a radical reduction in pressure points.

Sum’s unique AutoFit air-displacement technology is superior to foam-padded or plastic backrests in distributing pressure. Sum’s automatically conforming backrest design distributes pressure across the large backrest, reducing pressure points and helping to diminish upper back discomfort. Further, AutoFit also provides an effective transfer and distribution of weight between the upper and lower back as the user shifts between the chair’s infinite postures, resulting in more comfort and less stress on the back.

Excellent Work Targeting

In most office chairs the seat moves back, down, and away from the worksurface as the chair reclines, which creates several problems:

- When the user is forced to look upward (because the chair moved back, down, and away from the worksurface), more light from the ceiling enters the user’s eyes, creating dry eyes and eye strain. Research suggests that the blink rate of users looking at a monitor is already much lower than when the user is looking elsewhere. The action of a conventional chair moving the user’s head downward in relation to the monitor compounds this already existing eye strain.
- As the chair moves downward in recline, users are forced to raise and extend their arms to type on the keyboard. This creates improper ergonomic alignment of the arms, resulting in arm, shoulder, and upper back stress.

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- When a user raises his/her arms, more body weight is shifted from the lower back to the upper back; conventional chairs cannot automatically adjust to provide the back support required in this position.

The recline mechanism in Sum is radically different from conventional chairs. Sum's balanced, weight-activated Avatar 2 control causes the seat to rise automatically as the user reclines, maintaining user height in relation to the worksurface. Therefore, the work targeting line of sight for a Sum user changes very little throughout the chair's full range of motion. This allows the user to keep his/her eyes on the target without having to adjust seat and head positions. It also keeps users within their "reach zones," minimizing eye strain and reducing neck muscle fatigue.

It's Automatic

The ergonomic benefits of Sum don't require several adjustment levers and knobs, nor do they require user attention or training. They are designed into the chair, automatic, and activated simply by the natural movements of the user!

Smart Ergonomics That Reduce Risk

Most companies want their employees to have seating that provides comfort and reduces stresses and strains.

Many of these companies have decided to purchase chairs that provide numerous adjustments so their employees will be comfortable and more productive. However, it is important to recognize that a highly adjustable chair (one with numerous adjustments) may or may not be adjusted properly.

The best case is that highly adjustable chairs are in fact adjusted properly and thereby provide ergonomically correct support.

The worst case is highly adjustable chairs that are not adjusted correctly. In this scenario, a highly adjustable chair creates a whole new set of issues that can actually introduce additional ergonomic risk factors.

Most companies recognize that more than half of their workers are sitting in chairs that are routinely adjusted incorrectly. Some chairs are not adjusted properly because users don't know how to adjust them. Others are adjusted improperly because users don't take the time to adjust them, especially since most chairs require ongoing adjustment as users change positions.

Whether a chair is non-adjustable, or adjustable but adjusted incorrectly, the result may be the same: the introduction of additional ergonomic risk factors.

Sum, on the other hand, adjusts automatically as users change positions.