

FOOT-CONTROLLED MOVEMENT WHILE SEATED

A HÅG White Paper

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*The Scooter
Paradox*

That the human body is meant to move rather than remain static is now generally accepted among manufacturers of workplace chairs. But there is much less of a consensus as to how that principle should be incorporated into chair design.

Some manufacturers stress so-called “correct sitting posture”. Others focus only upon upper body movement, with the legs assumed to remain stationary. Both represent static approaches to chair design.

Virtually all body movement begins with the legs. The most obvious example, of course, is walking. Learning to walk can be a difficult process for a child, but once learned, walking is natural, easy and automatic. Most healthy individuals can walk comfortably for long periods of time.

The Scooter Paradox

Consider, on the other hand, an activity many of us enjoyed as children: riding a scooter. When we rode our scooters, one leg and foot remained stationary on the runner, while the other leg and foot pushed the toy forward. But soon fatigue would set in and it became necessary to switch legs. Why? Because the stationary leg -- not the pushing one -- had grown tired.

Remaining motionless is something the human body does not endure well. Soldiers standing at attention during ceremonies must make frequent (albeit furtive) movements of their legs and torsos to avoid acute discomfort.

Most of us have at one time or another observed the attention-getting ploy of a real person posing as a “mannequin” in a department store window. It is fascinating to watch precisely because a completely motionless human body is so unnatural.

*Movement
Awake and
Asleep*

Movement Awake and Asleep

Body movement is important even while we sleep. We may be largely unaware of it, but the average person moves and changes position about forty times in a typical night. If for some reason we are unable to move, sleep becomes difficult if not impossible.

The key to body movement, whether while standing, sitting, or lying down, are our legs and feet. They project us forward when we walk or run, but they serve an additional and equally important, if less obvious role, which highlights the physiological necessity of movement.

An Auxiliary Heart

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Energy, which comes from the food we consume, along with the continuous supply of oxygen that every cell in our body requires, are provided by the blood flow. After passing through the lungs, oxygenated blood is pumped by the heart throughout the body via the arterial system. Deoxygenated blood then returns to the heart through our veins to renew the cycle.

But since most of the body's mass is below the heart, gravity works against the return process. Fortunately, our leg muscles are large and powerful and they surround the major veins. Movement and contraction of the foot and leg muscles act on these veins to facilitate the circulation of the blood back to the heart. The legs function, in effect, as an "auxiliary heart."

The discomfort that may be experienced when we remain motionless for an extended period is the result of poor circulation and insufficient nourishment (i.e., arterial blood) to our muscle cells.

Our feet and legs serve their circulation-enhancing role even when we are seated. Movement that begins with the feet puts pressure on the veins within the legs, and that, in turn, stimulates blood circulation.

It's obvious, then, that a workplace chair designed around the premise that the seated person's legs should remain static with his or her feet fixed and motionless on the floor is, at best, highly problematical. The end result will likely be fatigue, discomfort, and swelling of the legs.

Steering With the Feet

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Happily, better designs are available. Well-designed workplace chairs encourage movement of the seated body that is natural and effortless. That movement begins with and is controlled by the feet. They "steer" the body's movement and the chair responds instantaneously and appropriately. Blood circulation is enhanced through this foot-controlled movement, and the user is able to work comfortably and efficiently throughout the day.