

Body Conscious Design and **Sitting**

A way to design from real and actual physical experience

The things we sit on, like chairs, arm-chairs, lounge-chairs, sofas or chaises longues, have no relationship whatsoever with real human anatomy and physiology. In theory they may be designed to give comfort to our bodies and therewith to our minds, but in fact they ask for a continuous physical and mental strain to adapt to the seat.

It is comparable to the production of shoes. There, the mould to shape the shoe has little to do with the actual shape, anatomy and physiology of the foot. As a result people are forced to squeeze their feet in their shoes, fold their toes and "freeze" most of the foot's sophisticated movement potential by impeding e.g. the use of most of all thirty-three articulations.

Traditional ergonomics is only partially helpful. It is not "body conscious" and not based on experiential anatomy. Instead it is a "cognitive" approach, which deals with the body in a theoretical and mechanical way, without acknowledging the sophisticated relations among the different parts of the body.

Traditional ergonomics is not yet implementing the fact that the body is a "tensegrity-structure", which says that the position of any part in the body affects the position of all other parts. When dealing with the human body, it is of course a lot easier to take only the skeleton into account and to leave out e.g. the nervous system. But this system redistributes tone and tension throughout all the muscles and tendons in the body, when even the smallest change in the skeletal organization occurs. It is therefore crucial for the functioning of the human body.

Traditional ergonomics in many ways still works in what we might call a pre-copernican way: from the outside in. Most of its solutions are based on theory, mechanics and – even more than we think - on unquestioned tradition. It is basically a mental approach to design.

Body conscious design instead seeks a way to design "from the inside out". It starts from the principle that real and actual physical experiences design our environment. These experiences ask for a body conscious physical support that allows body and mind to function or relax as originally designed by nature.

The difference between a body conscious versus a cognitive approach to design can be illustrated with the examples of seat angle and lumbar support.

People involved in body conscious practices experience a strain in the lumbar area as soon as the angle between legs and pelvis is closed further than 120 degrees. Science has discovered this only recently, by measuring the uneven pressure inside the lower lumbar disks. Traditional ergonomics still recommends the 90-degree seat-angle standards.

The body conscious approach also differs completely from the cognitive one on the subject of lumbar support. First of all, by demonstrating that as soon as the leg-pelvis angle is opened up the spine recovers its lumbar curve and people no longer experience the need for back-support when in an active position. The spine retrieves its natural ability to support itself with ease, which was destroyed by the 90-degree angle of the ergonomic seat.

Second, by demonstrating that a concave or even a straight horizontal back support as proposed by traditional ergonomics, pushes the ribs forward, thereby forcing the vertebrae backwards, which is exactly opposite to what the support was trying to achieve. A narrow vertical back-support along the spine, pushes instead, the vertebrae forwards which allows the ribs to open up and rotate backwards, which is essential for moving the lumbar vertebrae forwards towards their natural position.

How we sit, determines our physical organization, which in its turn determines our state of mind. A bad seat can destroy the effect of the best corporeal practice and create a progressive physical deterioration.

Depression, for example, is characterised by a "C"-shaped closure of the spine, with the point of the sternum buried in the stomach, and the point of the coccyx between the buttocks. Much like a dog with its tail between its legs. At present it is not possible to establish beyond all reasonable doubt, whether the depression induces the physical posture or vice versa. Nevertheless the fact that the two processes – the physical and the emotional closure – are inseparable, deserves attention.

So if the car seat, the beautiful but uncomfortable sofa, or the great designer's chair pushes the pelvis forward – thus curving the back – it does not seem illegitimate to expect some effect upon our mood as well. Every piece of furniture which compels its user to adopt a certain posture in fact also influences his psychological condition. In some cases changing the sofa or the chair, or the way of using them, can help someone out of a depression, even though the trick is insufficient in itself.

In our experience, seats that take the somatic principles into account, can encourage changes in one's approach to life in unexpected ways, even more than we think.

This workshop allows students to "feel" their physical and neurological responses to different sitting options and to understand the anatomical issues at work in sitting: it basically demonstrates the somatic principles a designer needs to know to design a good seat of any kind. It explains the principles scientifically, theoretically, and above all, experientially. It enhances the designers' physical sensitivity to feel and physically understand issues like chair height, seat angle, seat shape, back support height and back support shape in an embodied and not just mental way.

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