

Understanding user needs: [ergonomics](#)

With good, thought out design, objects can be made to help the body to do tasks effortlessly and without strain. For example, by having grip points where the hand naturally falls, a product can feel like an extension of the arm. The use of plastics materials means that an ergonomic object can be designed with smooth or textured surfaces for tactile response, light in weight and heat resistant for comfort, and easily moulded with soft, contoured angles for ease of use.

The [Stabilo rollerball pen](#) is made from [ABS \(acrylonitrile butadiene styrene\)](#) and is designed to promote the correct hand posture for a right-handed person. The design incorporates special grip zones to ensure a suitable finger position, and a curved body which rests on the side of the hand helping to make it a comfortable pen to use for long periods.



The [Evoluent vertical mouse](#) is also made from [ABS \(acrylonitrile butadiene styrene\)](#) and has also been designed for a right-handed person. It was invented by Jack Lo in 1994 in response to the wrist discomfort he had experienced when using a conventional mouse. The control buttons and scrolling wheel are on the right side rather than the top of the device, which keeps the hand in a vertical handshake position to avoid forearm twisting.



Both the pen and the mouse are ergonomically designed but hold the hand in one position, without any free movement. Alternative, freer uses of ergonomic designs can also allow the body to find its own comfortable, unrestricted position. As a sports drink bottle, the [Aquila Aquagym bottle](#) has a shaped and textured form to increase grip, but has a less prescriptive shape allowing the hand to move across the bottle. It is made from [PET \(polyethylene terephthalate\)](#).



The [Hokki stool](#) was designed by John Harding to be a flexible, physical learning aid to counter traditional views that educational seating should be rigid, without any form for free movement. With supporting research suggesting that stillness of the body for long periods can actually inhibit concentration, the TPE (thermoplastic elastomer) convex base encourages the body to move in all directions, leading to healthier sitting as well as reduced tension and mental fatigue. [Case study](#).

