

## **If the Chair Fits: All Shapes and Sizes (Excerpt)**

**The following is an excerpt from the Herman Miller Research Summary:  
If the Chair Fits: All Shapes and Sizes (2001).**

“Office chairs are commonly designed with the intent of fitting everyone between the 5th percentile of women and the 95th percentile of men—theoretically covering 95 percent of the entire population. Unfortunately, this range is overly optimistic for three reasons. First, most of the data collected for anthropometric studies come from military populations, which include fewer very large and very small people compared to the population as a whole. Second, it is not the same people who are excluded for each chair dimension. In other words, the five percent of women whose popliteal height is below the 5th percentile are not necessarily the same five percent of women who fall below the 5th percentile for buttock-to-popliteal length (a seat-depth measurement). This means that much more than five percent of the population may find that at least one chair dimension causes discomfort. Third, for some dimensions, office chairs simply don’t cover the 5th- to 95th-percentile range. For chair height, for example, a typical range of height adjustment found in office chairs is from 16 to 20 1/2 inches. Even when allowing an additional inch for shoe heels, anthropometric tables for popliteal height show that 35 percent of all women would need their chairs lower than 16 inches. One ergonomist who studied seat-height preferences among more than 200 Japanese women concluded that office chairs should, in fact, adjust down to a height of 14 1/2 inches.

To accomplish the feat of fitting all of these differently sized people, many manufacturers offer chairs with various adjustments. Seat height and seat depth are generally the two most important dimensions of good fit; while some chairs may come with an array of adjustments, however, many of them don’t adequately address these two critical issues. Whatever other adjustments they may have, the chairs may not adjust lower than 16 inches or allow users to change the depth of the seat—and therefore miss the fundamentals.

To assume that adjustable office chairs fit properly requires that people also have them adjusted correctly. Unfortunately, research has shown that many people either don’t know how to adjust their chairs or simply don’t bother to do so. A Herman Miller survey of 417 office workers who used adjustable office chairs found that while 69 percent raised or lowered the seat height, only one-third actually adjusted the back height and only 27 percent ever turned the tilt-tension knob. Further, the study discovered that more than half the users were completely unaware of how to tighten or loosen the tilt tension; 45 percent didn’t know how to adjust the back height; and 21 percent were unfamiliar with the seat-height adjustment feature.”

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And later in the summary:

“Providing good-fitting office chairs to different-sized workers will assume heightened importance in the coming years because of predicted changes in the work force and in the world economy. A greater proportion of Asian workers (who tend to be of smaller stature) in the U.S. work force could raise the demand for smaller chairs. And as free trade among different countries grows, so will the need for U.S. office furniture manufacturers to provide suitable-fitting chairs for Asian markets. Pulling at the other end of the anthropometric bell curve, secular trends indicate that generations from Europe and North America have been growing steadily taller over the last several decades.

**For the complete text of this research summary, please CONTACT Thomas Interior Systems.**