Comfort rating in chairs: an objective assessment draws nearer

There's a lot of talk these days about so-called **comfort index ratings**, in particular, for chairs. Comfort ratings are being used as a marketing tool to help sell chairs, regardless of whatever other attributes the chair may have, for example, whether it has been tested and certified to do a certain job.

As AFRDI sees it, most attempts to produce comfort index ratings based on the responses from experimental subject populations are highly subjective and lack real meaning. Here's why:

- Typically, these types of surveys are not conducted by scientists; and
- The variation between personal responses for any population surveyed about comfort is very large.

Thus subjects that represent similar anthropometric measures (exterior measurements of the human body), e.g. body mass and stature, will not necessarily respond in a similar manner to questions about comfort. This is due to age, gender, physical fitness, health, genetic predisposition etc, variation in actual position of sitting and to 'personal preference', e.g. a subject may simply prefer 'hardness' to 'softness' on impact, that's to say the initial impression gained when sitting down.

Many subjective comfort rating surveys are taken with small and not statistically significant subject samples, and therefore the results cannot be considered scientifically reliable. When subject samples are greater than a statistically acceptable small number sample, i.e., usually greater than 30 subjects, the variation in responses due to physical differences and personal preferences of the subjects usually confounds the statistical results and renders them somewhat unreliable.

This is not to say that a 'comfort rating' cannot be – in theory – derived reliably in a subjective manner.

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The parameters though, for such a test are not met with the studies we know in the scientific literature.

Such a subjective rating test would require an exceptionally large and varied experimental population of subjects to statistically cover the variations known to exist and caused mainly due to physical differences and 'personal preferences'. The study would need to be exceptionally supervised for quality assurance of the reliability of postures to be measured.

Within the scientific ergonomics and anthropometric literature, there currently exists only notions of what comfort really is.

The scientific literature is rich with objective studies that attempt to improve our knowledge by undertaking various physical measurements of the human body and its inter-action with a chair. These studies are beginning to form the scientific notion of what objective comfort might possibly be. The application of objective science in the quest to define comfort has moved to a technique of 3-D body scanning of individuals and pressure mapping (the distribution of pressure at the interface between a human and a surface).

These techniques are developing fast, but there is not yet sufficient data available to form a reliable position about the values derived.

What is clear is that these techniques may help to develop an understanding of the relationship between subjective ratings of perceived comfort and objective measurement of shape and deformations (how the body and the chair actually deform and interact).

The relationship between deformation and pressure distribution requires further exploration. Future development of these techniques should lead to analytical tools which may once and for all remove the need for subjectivity in assessing what really constitutes comfort.

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