

Press release

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Office chair ON: farewell to back pain – a study on the new dimension in seating

The prominent “Zentrum für Gesundheit” (Centre for Health) at the German Sport University Cologne has conducted a scientific study. The study looks at office furniture manufacturer Wilkhahn’s new office chair called ON. Advanced measurement methods were used to examine ON’s levels of comfort and options for motion. Trimension® is the name given to the innovative, three-dimensional kinematics Wilkhahn applied. In addition to quantitative tests, qualitative appraisals were also carried out with 19 test persons to see if and how the new options for motion are used. The test draws some clear conclusions. Due to its three-dimensional design, ON offers a new and natural range of motion that people sitting on the chair find very comfortable and appealing. This subjective feeling of comfort ties in with the positive impact on health which is entirely objective. Due to the torso’s rotational motion that ON encourages, the muscle loops motivate the whole body to move, particularly the muscles deep in the back which are so vital for stabilising the spine. ON has proved it can foster a natural range of motion and support the body reliably at the same time. As a result, compared with conventional office chairs, people using ON can probably expect greater comfort and to feel more on the ball. Thanks to ON, back pain that is so typical of passive seating postures is passé because the chair offers a number of healthy stimuli to encourage natural sitting postures.

Cologne/Bad Münders. The “Zentrum für Gesundheit” at the world famous German Sport University Cologne is science's most prominent proponent of a new concept of health and ergonomics. This new approach advocates motivation, personal responsibility and a focus on physical skills that are natural to our bodies. Numerous studies have verified that a lack of activity and passive avoidance strategies are the primary causes for the rise in back problems. The muscles are the body’s largest metabolic organ and therefore considered essential for our health and sense of well-being. The Head of the “Zentrum für Gesundheit”, Prof. Ingo Froböse, is the most well known and renowned scientist to favour proactive prevention and rehabilitation. In addition to lecturing, he is also a Bundestag expert and a scientific advisor to a number of German health insurance companies.

In spring 2009, Froböse’s team looked at the new office chair ON. A process was specially developed for the study that uses cutting-edge measurement methods. Aspects analysed included comfort, options for motion, correlation of the chair with our bodies and the level of user acceptance. The analyses involved the following elements:

- Measuring the new range of motion (the chair’s options for motion);
- Simulating motion with 19 test persons to highlight the relationship between the body and motion in the chair;
- Analysing the pressure in the seat and backrest while the person moves - as an indicator of levels of comfort;
- Conducting a qualitative survey of the 19 test persons in order to assess the new options for motion.

Range of motion: a new dimension in motion that stabilises the spine

The innovative kinematics in the new office chair ensures an even, three-dimensional range of motion that activates a much greater number of muscles. The groups of muscles act as muscle loops in a complex system. The study awarded top marks for the interaction of the cervical, thoracic and lumbar regions of the spine into the leg muscles, as part of a natural and physiologically integrated framework. And patterns of movement that are unhealthy in the long term are eliminated. ON encourages freedom of motion. The muscle loops trigger the muscles deep in the back which are key to stabilising the spine.

Simulations: intuitive usage and assured support to correlate with the body

Computer analyses of the new options for motion carried out with the people trying out the chair, confirm that they interact with it completely naturally and intuitively. The chair encourages the body to move and also follows any of the body's impulses to move. Measurements of the distance between shoulders to the backrest during motion show that ON supports the body, not just in linear forwards and backwards motion, but also in sideways and rotational movements. Therefore people sitting on the chair feel at ease when moving about and no muscle strain is caused.

Pressure analysis: even distribution ensures extreme comfort and a fluidity of motion

Even when people move about on the chair, pressure distribution measurements in the seat and backrest are constant and no peaks in pressure are recorded. This shows the chair is very comfortable. The even distribution of pressure between the left and right hand side of the seat and backrest shows that the conventional, linear path of movement (forwards and backwards tilt) is also very appealing. People sitting on the chair will probably be able to switch to ON easily because familiar patterns of motion can be carried out reliably and synchronously with their bodies.

Assessment questionnaire: subjective perception confirms the objective benefits

A questionnaire, filled out at the end of the analysis, asks what the test persons subjectively felt about ON. The extremely positive responses to aspects such as "Freedom of movement", "Comfort in movement" and "Motivation to adopt a variety of postures and movement" show that the test persons were aware of the quantified options ON offers and experience the benefits as such. And what is more, 95% of the people taking part would like an office chair that provides the functions ON is capable of.

The study concludes that the new dimension in seating that the office chair ON demonstrates, responds to the demands for a new way of thinking vis à vis ergonomics. "Towards people and their individuality. Postures and motion should be allowed and not prevented. Encouraging the body's own physiological skills instead of establishing rules and regulations".

We can send the detailed study by e-mail on request. In addition to facts and figures about ON, the study also lists reference values for conventional, linearly flexible office chairs.

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