aeris GmbH: Studies, Reports, Expert Statements and Awards

Content

Study: Active dynamic sitting reduces back pain (Hungenberg & Partner, Germany)

Robert Hlawna, Hungenberg & Partner, Germany: Long-term test for active-dynamic seat elements at Rohde & Schwarz GmbH und Co. KG (1995)

Aim of the study

The long-term test is a practical test with feedback on using the **swopper** in the office and is intended to examine the impact of active-dynamic sitting on back pain.

hungenberg

Hugenberg & Partner GmbH
Business consulting for office organization and design

Information about the study

Date:	1995
Time period:	108 days
Case group:	n = 10 employees
Control group:	-
Study design:	Test sitting on the **swopper** in the office, 3 interview phases (2 surveys, 1 questionnaire with evaluation).

Results

The employees had less back pain after using a **swopper**. 2/3 of the employees use the **swopper** all day. The opinions were very positive:

a) Positive sitting experience: rating 1.2
b) Seat control: rating 1.3
c) **swopper** is good for the office: rating 1.1
d) **swopper** preferred to old chair: rating 1.4

A significant improvement in back pain by sitting on a **swopper** was found in 79% of the employees. Approximately 3/4 of employees claimed to have previously suffered from back pain. Similar results were achieved with subjects that had hip problems, which also decreased through active-dynamic sitting.

Study: More comfort when sitting and better posture with **swopper** (LMU Munich, Germany)

Thomas Ehrmann, Dr. Nikola Seichert, Ludwig Maximilian University Munich, Germany: Sitting behavior of healthy subjects on different seat elements (1995)

Aim of the study

This thesis examines whether dynamic seat elements actually result in more movement when sitting and would thus set them apart from conventional seat elements.

Information about the study

Date:	1995
Time period:	-
Case group:	n = 24 subjects
Control groups:	1. Sitting on a stool without backrest with 5° forward inclined seat surface; 2. Exercise ball
Study design:	Test subjects sit 45 minutes each on the three different seat elements and complete reaction tests or reading and computer games. During this, the movement frequency of the subjects will be measured on their back.

Results

Motion frequency is significantly higher on the **swopper** than on the solid stool. Posture is better on the **swopper** and there are no recognizable disadvantages. The subjects rated the subjective sitting experience and comfort on the **swopper** higher than the conventional stool.

Study: swopper reduces back pain and improves well-being (FGAT at FH Hamburg, Germany)

Prof. Dr. Detlef Krüger, FH Hamburg Research Group Work Sociology and Technical Design, Germany: Longitudinal study of movement in the workplace (2002)

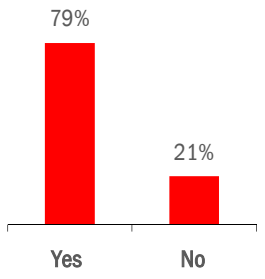
Aim of the study

The longitudinal study examined whether a person moves around more by sitting on a **swopper** at the workplace and if it can therefore prevent back pain.

FGAT
Research Group Work Sociology and Technical Design

Information about the study

Date:	2002
Time period:	4 weeks
Case group:	n = 1040 subjects
Control group:	-
Study design:	The subjects sit for four weeks on the **swopper**. Opinions and surveys after four weeks.



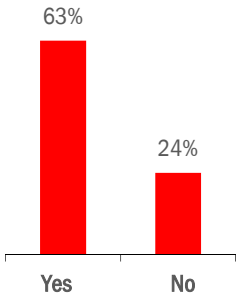
Have you had musculoskeletal system problems or muscle tension in the past?

Results

Nearly 80% of the subjects stated that they have had musculoskeletal system problems before and 83% see a correlation between a sedentary occupation and health issues.

After four weeks of using a **swopper**, over 60% of the subjects clearly indicated a significant to very significant improvement in their condition.

Sitting in motion thus has an extremely positive effect on the well-being of employees and has decreased back discomfort.



Have your symptoms and your physical wellbeing improved by using a swopper?

Study: swopper provides more motion than office chairs (University of Frankfurt, Germany)

Prof. Dr. D. Schmidtbleicher, Johann Wolfgang Goethe University of Frankfurt, Germany: Expert report on an alternative to the usual office chairs, empirical and analytical study of the **swopper** system made by **aeris** (2002)

Aim of the study

The analytical and empirical study is to find out if the **swopper** represents an alternative to conventional office chairs.

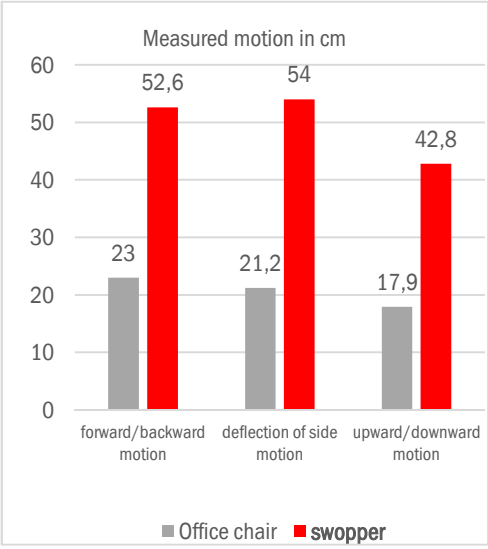
Information about the study

Date:	2002
Time period:	-
Case group:	n = 10 subjects
Control group:	Regular office chair
Study design:	Sitting on the **swopper** and on a regular office chair and handling eight different office tasks, measurements with three-dimensional accelerometer.

Results

The **swopper** is an ideal seating device and preferable to regular office chairs because twice as much motion is involved when sitting and working on **swopper** thanks to its technical features.

According to the results, the **swopper** optimally fulfills almost all the requirements for the design of the workplace in a movement-friendly manner. It enables a better supply of blood to the connective tissue structures and the muscle through improved circulation. The **swopper** can be used as a preventative treatment, since it increases the movement requirements of the spine-stabilizing skeletal muscles.



Study: swopper activates abdominal and back muscles (University of Frankfurt, Germany)

Prof. Dr. D. Schmidtbleicher, Johann Wolfgang Goethe-University of Frankfurt, Germany: Expert report on the activation of abdominal and back muscles when using the **swopper** made by **aeris** in regular office activities (2003)

Aim of the study

The study was designed to investigate whether sitting on a **swopper** increases movement, which in turn contributes to the stabilization of the spine. This was done by measuring the muscle activity of the erector spinae (back muscles) and abdominal muscles.

Information about the study

Date:	2003
Time period:	-
Case group:	n = 10 subjects
Control group:	regular office chair
Study design:	completing seven tasks while sitting at least ten times at random, while conducting measurements with an electromyogram – 4channels, erector spinae and abdominal muscles, left and right side each.

Results

The **swopper** represents an ideal seating device for office work. It generates more than twice the usual amount of movement during regular sitting and usual office work because of its design features. The abdominal and back muscles are activated by movement, especially when getting up and sitting down. This is caused by the specially developed **swopper** spring system. Increased activation of the abdominal and back muscles results in increased adaptation of these muscles, thus creating a stronger muscular stabilization of the spine.

More activity on the **swopper** with the following activities:

+ 13%	Turning the monitor on and off
+ 25%	Opening and closing lower drawer
+ 47%	Rotating the body, reaching for something on the shelf behind you
+ 63%	Reaching down to the left, retrieving a pen from the ground
+ 190%	Getting up and sitting back down
+ 36%	Reaching towards the front on the right side of the desk
+ 72%	Picking up and replacing the telephone

Study: Impact of the swopper on posture and circulation (University of Saarland/BAG, Germany)

Dr. Dieter Breithecker, German Federal Association for the Advancement Posture and Exercise, Dr. Oliver Ludwig, University of Saarland, Germany: Investigation on the changes in upper body circulation during sitting on chairs with a mobile seat (2008)

Aim of the study

The study shows that sitting on a **swopper** guarantees regular blood circulation in the upper body, thus resulting in a healthy depth of respiration and preventing poor posture.

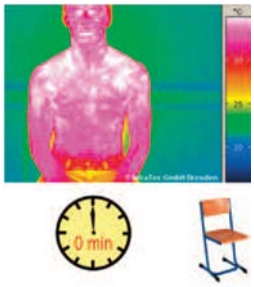
Data on the study

Date:	2008
Time period:	-
Case group:	n = 10 students
Control group:	Regular school chair, swivel chair
Study design:	Measurement of skin perfusion on the upper body with thermographic images of the unclothed upper body and back while sitting: 1st measurement (images), then 45 min of lessons on a regular chair, 2nd measurement (images), then 45 min lessons on a **swopper** or Panto Move, 3rd measurement (images).

Results

The measurements show that the body temperature of the student rose after a lesson sitting on the **swopper**. It therefore can be assumed that the blood flow to the skin and the underlying muscles has increased. Due to the constant motion the seating position varies constantly and the upper body is not in a static tilt. Thus, no pressure is put on the sternum, instead the respiration is deep and unrestricted and a proper upper body circulation is possible. The blood is enriched with oxygen which stimulates concentration.

1. Image



2. Image

3. Image

Lowering of chest perfusion from 1st to 2nd image by immobile sitting. Renewed increase in the 3rd image after sitting on the **swopper**.

Study: Comparison of kinematic characteristics in sitting behavior (HS Fresenius Idstein, Germany)

Prof. Dr. Christian T. Haas, University of Applied Sciences Fresenius Idstein, Germany: Comprehensive analysis of kinematic characteristics of sitting behavior on different types of seating furniture (2012)

Aim of the study

The study discusses the three dimensional movements on the **swopper** compared to an office swivel chair.

Information about the study

Date:	2012
Time period:	-
Case group:	n = 13 subjects
Control group:	Office chair
Study design:	60 minutes divided into: 1) D2 attention-stress test I, 2) reading a newspaper article, 3) summarizing the newspaper article at the computer, 4) D2 attention-stress test II; simultaneously kinematic and electromyographic data collection through ultra-sound sensors on the back, measurement of ground reaction force with pressure measuring platform.

Results

The sitting behavior on a **swopper** is characterized by relatively continuous variations in all dimensions. This spontaneous, intuitive and varied motion enhances entropy. When sitting on an aeris product you are in constant motion and that means you are sitting in a healthier way.

Study: Improved concentration with the swopper (FH Linz, Austria)

Manuela Michlmayr, FH Linz, Austria: Review of selected biomechanical parameters while sitting on two different seating systems – Part II (2012)

Aim of the study

The study examines the concentration of people in connection with sitting on movable or immobile seating elements.

Information about the study

Date:	2012
Time period:	-
Case group:	n = 11 subjects
Control group:	Conventional office chair
Study design:	Measurement of movement on each seating element, use of three D2 concentration tests, intervened by relatively long concentration phases, during which spaces must be removed from a predefined text.

Results

The measurements show a significant increase in concentration of the subjects while sitting on the **swopper**. During swopping, 70 % more movement can be measured in the lumbar spine area and at the CoP-fluctuation (anterior / posterior). Not only the concentration increases significantly during swopping, a decline in error rate was detected with the subjects as well. The more movement there was for the thoracic and lumbar spine, the better the subjects were able to concentrate.

Sitting on a **swopper** results in improved concentration, which is partly due to the active movement of the thoracic and lumbar spine.

Study: swopper prevents incorrect posture and tension (Cardiff University, United Kingdom)

S. Annetts et al, School of Healthcare Studies, Cardiff University, United Kingdom: A pilot investigation into the effects of different office chairs on spinal angles (2012)

Aim of the study

The study examined which seating element produces the best spinal posture in people while sitting.

Information about the study

Date:	2012
Time Period:	-
Case group:	n = 14 subjects
Control group:	Knee chair, saddle seat, regular office chair
Study design:	Writing texts while sitting on four different seating elements sequentially. Measurement with digital image measuring: the angle of the neck, tilt of the pelvis, angle of the lumbar spine, and tilt of the head are measured.

Results

The results of the study show:

Tilt of the head: lowest with the **swopper**
Angle of the neck: 45° angle with the **swopper**
Angle of lumbar spine: least with the **swopper**

When sitting on a **swopper** no strong tilting of the lumbar spine was observed. Swopping thus results in excellent posture and reduces incorrect posture of the lumbar spine. Because of the mobility of the **swopper**, the inclination of the head, neck, and pelvic area are very low. Tension and poor posture can therefore be avoided.

Study: Sitting on a swopper improves concentration (University of Mainz, Germany)

Prof. Dr. W. Schöllhorn, Dr. D. Henz, Johannes Gutenberg University of Mainz, Germany: The effects of dynamic posture control on concentration while sitting on a **swopper**: an EEG study (2015)

Aim of the study

The EEG study measures the effects of dynamic postural control while sitting on a **swopper**, on people's short and long-term concentration ability and their corresponding brain activity.

Data on the study

Date:	2015
Time period:	-
Case group:	n = 45 subjects, (3 groups of 15 subjects each)
Control group:	Static **swopper**, conventional office chair
Study design:	Measurement at rest pre-test: two minute EEG measurement at rest, concentration test 1: d2-R-test, during EEG measurements; concentration test 2: Mackworth clock test, simultaneous EEG measurements; finally another two-minute EEG measurement at rest.

Results

The EEG study data show better performance in terms of short and long-term ability to concentrate while sitting on the flexible **swopper**, especially when compared to static sitting on conventional office chairs.

The EEG measurements show a significant increase in attention and working memory processes of the cognitive system while sitting on the **swopper** (EEG theta activity). Moreover, the brain activity during a relaxed state of alertness, in which creative solutions occur, is increased while sitting on a **swopper** (EEG alpha activity).

Study: Sitting on a swopper improves concentration (University of Mainz, Germany)

The area of alertness (beta activity) is increased, which is an indicator of a raised psychophysiological state of awareness.

The results from the two concentration tests indicate a greater number of tasks completed with a lower incidence of errors when testing the short-term ability to concentrate, and a significantly shorter reaction time in the test examining the long-term ability to concentrate while sitting on the dynamically movable seating element, i.e. the **swopper**.

In conclusion, it can be stated that working while sitting on the flexible **swopper** has a positive impact on the ability to concentrate, in the observable behavior and the underlying brain activation. The results obtained in the present study show the potential of the dynamic postural control during sitting, its use in education and day-to-day work and have important implications for the design of study and working environments.

Expert report: Positive impact of swopper (Dr. Breithecker, BAG, Germany)

Dr. Dieter Breithecker, Director of the German Federal Association for the Advancement of Posture and Exercise, Germany (2002)

Our body is made to move. Rigidly sitting is a thing of the past, today we sit with movement.

Balancing the pelvis enables the balancing of the structural and movement system built upon it. This means that a (free flowing) mobile seat can optimally accommodate the subconscious changes in position of the pelvis. This effective and lively sitting style is based on the natural dynamic needs of the body. Thus, the person's natural impulses to move while sitting is no longer prevented, but encouraged and supported. The natural and individual manner of sitting basically happens reflexively as a sensorimotor reaction due to the flexible seat elements. The chair and the natural dynamic mechanisms of the organism thus constitute a system.

In particular:

- The spine vibrations are changed regularly
- The intervertebral discs are better supplied with nutrients
- It stimulates complex back muscles
- Over 100 joints in the spine are kept in motion
- Blood circulation and thus oxygenation is optimized
- The brain metabolic processes and therefore alertness and concentration is maintained

The active-dynamic sitting on a **swopper** activates the kinesthetic-vestibular (balance and movement) functions, whereby our inner body senses (proprioception) are comprehensively trained. The physical body awareness undergoes a higher level of sensitization. Additionally, the neurophysiological functions are being "kept alert". The strongest stimulus to synaptic interconnection and the release of nerve-cell-maintaining factors is motion in the form of complex movements.

Expert report: Improved performance in children with **swoppster** (Dr. Breithecker, BAG, Germany)

Dr. Dieter Breithecker, Director of the German Federal Association for the Advancement of Posture and Exercise, Germany (2005)

Children at school do it quite autonomously: rocking their chair backwards. This behavior is still scorned today, although it is extremely important for physical and mental development. Because it is a rhythmic and learning-enhancing physical activity to balance simply sitting still. Adults can also benefit from this, because active-dynamic sitting, which is made possible and required by sitting on a **swopper** not only strengthens the back, but also improves your well-being and ability to learn.

There is now enough scientific evidence that movement and the closely associated sensors in the body (proprioception) improve the overall metabolic milieu and in particular bring about better adjustment and processing abilities in the brain.

In particular, challenges to our balance system result in increased cerebral blood flow with improved metabolism. This stimulating factor for brain plasticity (positive adaptability and processing prerequisites) provide not only for an increased level of alertness in the brain (attention and concentration), but also for better learning abilities.

Swopping and the closely linked vestibular-kinesthetic stimulations thus positively influence brain metabolism, and thereby not only learning, but also age-related atrophy symptoms.

Expert statement: Swopping for preventing incorrect posture (Dr. Gröber, physician, Germany)

Dr. med. Klaus Gröber, Specialist Physician for general medicine, occupational medicine, environmental medicine, acupuncture, Aufkirchen/Berg, Germany (2006)

[...] This chair has fascinated me from the beginning, because it includes both the elements of comfortable and safe sitting and aspects of dynamic spine stabilization [...]. The fact that the chair rolls easily and is absolutely stable with its five wheels makes it usable not only as an office chair, but also for manual work in a sitting position. Height and shock absorption are easily adjustable, much like other high-quality office chairs.

The special feature of this chair, however, is its round, stool-like seat, prompting the user to automatically assume their seating position at the center and its corresponding smooth adjustments of the flexibility potential in all directions of the chair, which also makes it especially suitable for dynamic spinal training.

The chair is nevertheless stable. It forces the user to abandon the usual faulty hunchback posture. While sitting, you can push the pelvis forward and thus raise the spine in terms of proper orthopedic posture.

[...] The user can thus get dynamic muscle training with fluctuating types of strain throughout the paraspinal muscles from the head to the pelvis during daily work. [...]

In my opinion, the **swopper** concept works both as a therapy for a previously damaged, unstable spine and especially as an ideal preventive measure for incorrect posture – a problem known to be caused by working in an office.

Expert statement: Occupational medicine experiences using **swopper** (Dr. Hack, physician, Germany)

Dr. med. Anton Hack, Physician for occupational and general medicine, Director of Corporate Medical Services Gaggenau Factory of the DaimlerChrysler AG, Germany (2006)

Since 2001, the **swopper** is being used for different jobs at the Gaggenau factory. I have accompanied the introduction of the **swopper** in my capacity as the Senior Physician there.

Without exception, all **swopper** owners consider the chair a benefit to their health and do not want to do without it. Especially employees with back problems experience significant benefits. Health has a high priority for all employees who use the **swopper**.

Expert statement: Swopping has positive effects on back pain (Dr. Heyenbrock, physician, Germany)

Dr. med. Markus Heyenbrock, Specialist Physician for general medicine, chiropractic medicine, sports medicine, occupational medicine, Heimstetten, Germany (2006)

[...] the **swopper** introduces regular repetitive movement training of the lumbar spine through its sophisticated suspension and moving mechanism. This part of the axis-supporting skeleton is usually incorrectly strained in sedentary office occupations. The chronic static pressure on the lumbar spine in this case causes a shortening of all structures (ischiosacral musculature, ligaments, the entire spine, hips, thoracic spine, shoulder blades).

These static-stressful, and structure-shortening job profiles can be effectively counteracted with **swopper** office furniture. Its bouncing and swinging movements lead to unconscious, but regular and recurring reflexive motion patterns, which signify-cantly improve the mobility of the spine.

Moreover, pain intensity and work absence of employees is re-duced.

The theory could be positively observed in practice and con-firmed. In patients who were plagued for years with back pain, the symptoms disappeared or at least reduced to a minimum after using the **swopper** for several months.

This means less work absence at their workplace and signify-cantly lowered costs in the area of rehabilitation therapy and for prescription medications.

A recommendation for regularly supplying office work spaces with the aforementioned office furniture can only be advocated. So far I have not encountered any negative comments regarding the use of a **swopper**.

Expert statement: Use of swoppers at the workplace (Dr. Peinecke, chief physician, Germany)

Dr. Wolfgang Peinecke, Chief Physician, preventive, occupational, environmental health and safety at work, Rendsburg-Eckernförde regional hospitals and retirement homes, Germany (2006)

The negative effects of static sitting are well-known. It is therefore great to hear about a new, active-dynamic seat element, the **swopper**, offering an alternative to sitting in conventional office chairs.

In principle, the **swopper** differs from conventional office chairs in that:

- It adapts to the movements of the body
- It gives impulses to change position
- Tilting the seat surface and activation of the venous pump prevents blood circulation problems
- It pulsates vertically, encouraging better perfusion of the intervertebral discs and generally better blood circulation and functioning of both the internal organs as well as the head
- The deflection of the **swopper** occurs close to the ground and thus deflection-related scoliotic stresses on the spine is prevented

The basic **swopper** model has neither casters nor a backrest. The TÜV test for stability was successfully passed proving that falling is impossible when using the **swopper** as intended, despite the lack of a backrest.

This basic model is well suited as alternative seating for office use. It has proven to be a “training device” not only for patients with back pain, but also for employees with disc problems, whereby individually there are great differences, depending on the nature of the condition. [...]

The **swopper** is now also being offered with casters and a backrest, as the DYNAMIC. The casters are standard casters that are also used in other office chairs. These casters facilitate work in linear jobs.

Expert statement: Use of swoppers at the workplace (Dr. Peinecke, chief physician, Germany)

By using the backrest, it enables a rest phase between phases of active work. The free movement of the seat is thereby hardly restricted, thus retaining the benefits of swopping. The backrest provides excellent support to the lumbar spine and provides lateral and rearward movement options, so that even in a "relaxed position" you will not take on a rigid posture; and the intervertebral joints, ligaments, and muscles are lightly used.

The aforementioned model with backrest DYNAMIC and casters may therefore be well-suited for all-day use in the office. Additional use of a conventional office chair is therefore not absolutely necessary. Whether a **swopper** with casters and backrest should be used all day or for alternating should be left up to the employee who should decide for himself or herself what is good for them and what is not.

Expert report: Use of the muvman as an active standing seat (Dr. Breithecker, BAG, Germany)

Dr. Dieter Breithecker, Director of the German Federal Association for the Advancement of Posture and Exercise, Germany (2011)

In humans, the pelvis has become a load-bearing “key organ” in the course of its evolution. Every movement of the pelvis has a direct influence on the complex functions of our organism. The most important task for a society that has been downgraded into a constant seated position is therefore to obtain unrestricted mobility of the pelvis in the most wide-open seat angle possible.

We therefore recommend a frequent change of posture using sit-stand desks and sit-stand aids.

The **muvman** presents users with an especially ergodynamic sit-stand aid. Besides essential ergonomic standards, the special mechanism of the **muvman** in particular ensures the free-flowing pelvic dynamics as mentioned above. In addition to excellent progressive shock absorption, various circular movements are possible within the main movement axes in all directions. Along with the open seat angle and the resulting guaranteed relief of pressure from the internal organs (abdomen, lungs) the natural posture changes, which are generated by the sensations of the body, can now freely and subconsciously develop.

This in turn has positive effects on our complex interlinked biological functions (musculoskeletal system, cardiovascular system, brain metabolism, internal organs).

Expert statement: muvman relieves spine during assembly activities (Bosch-Siemens AG, Germany)

Katrin Fehr (FTH/AS-WT), Bosch-Siemens employee magazine, Germany (2012)

At first glance, the **muvman** stand-seat does not look different than other known standing aids. The big difference is in the details.

As the name **muvman** suggests, its special feature is mobility. Through the hinge in the foot plate, the seat surface can respond not only during turns, but also during sideways movements. Because of this dynamic sitting, the hips remain relaxed and flexible and the leg muscles remain active. This promotes blood circulation from the legs back to the heart.

When sitting without legroom, the distance to the unit is determined by the space needed for the legs. The employees for AS-OV stove assembly, who connect cables to oven backs, compensate for this great distance with classical seats by bending over the upper body.

As can be easily seen from the pictures, the 4° forward tilt of **muvman** and the smaller distance to the unit ensures a straight posture. This prevents a rounded back and increased strain on the spine and discs. The flexible and adaptable seat edge prevents stasis of the blood in the blood vessels.

The **muvman** has no backrest. The abdominal and back muscles must hold up the upper body and is therefore strengthened. It enables us to offer a good sitting position even for workplaces where it has so far only been possible to work standing up or in a hunched sitting position.

Expert report: Positive impact of aeris 3D ergonomics (Dr. Breithecker, BAG, Germany)

Dr. Dieter Breithecker, Director of the German Federal association for the Advancement of Posture and Exercise, Germany (2013)

The "3D ergonomics" concept and the family

In 1997, **aeris** presented the concept of 3D ergonomics with the active seat **swopper** for the first time. The unique technology and function (spring loaded, vertical swing, 360° mobility, lateral flexibility, and forward tilt towards the work surface) allow free flowing movements adapted to body weight and individual needs in a self-determined level of activity. This provides the seated person to have a more intuitive physiological experience, independently organized sitting behavior requirements in all spatial dimensions.

[...] **aeris** has sustainably defined the qualitative understanding of "dynamic sitting" with its 3D ergonomics concept. According to the motto: "Move your body and your mind will follow."

It's all about the quality of motion

The sitting behavior owing to 3D ergonomics go beyond the inflationary recommendations for dynamic seats or motion sitting, as they are advertised with a synchronous mechanism and the recommendations for regular seating position change. Such recommendations are based on a linear understanding, with a small variety of spontaneous seat variations in spatial dimensions.

Complex and physiological sitting behavior cannot be recommended or taught. They must be able to be independently carried out on the basis of physical, mental or emotional needs in the form of micro and macro movements, both spontaneously and intuitively. Free-flowing and three-dimensional seat movement is detached from the synchronization mechanism to promote a complex interplay of segments for legs, pelvis, spine, shoulder, and head.

Expert report: Positive impact of aeris 3D ergonomics (Dr. Breithecker, BAG, Germany)

Therefore:

- The physiological changes in posture are supported
- The discs are continuously supplied with nutrients
- The complex back muscles are stimulated
- The over 100 joints in the spine are kept in motion
- The internal organs are dynamically activated
- Blood circulation and thus oxygenation is optimized
- Brain metabolic processes and therefore alertness and concentration are maintained

Empirical data support 3D ergonomics

A study commissioned by the Federal Association for the Advancement of Posture and Exercise at the University of Fresenius in Idstein, Germany was able to scientifically prove the interaction of 3D ergonomics with the complex sitting require-ments. The study was based on a complex analysis of kinematic characteristics on different seating furniture (Haas et al. 2012).

One of the main findings of the study is that sitting on 3D ergonomics (in this case the **swopper**) allows for continuous sitting variations in all three spatial dimensions. Due to a large number of (biomechanical) degrees of freedom gained from this and the resulting interaction functions with sensory and muscular processes, the person sitting on 3D ergonomics has greater intuitive solutions (change in sitting behavior) at their disposal for independently taking responsibility for their own well-being, as well as their physical, mental and spiritual balance. Lively sitting on 3D ergonomics means “playing” with the sensory (proprioceptive) and muscular system and their interaction functions. In other words, the physiological organization of body posture when sitting, analogous to a standing position, is indispensable for maintaining regulatory cycles and control processes that get performed involuntarily many times per second. Specifically, the active person is in a relationship with their seating object using 3D ergonomics.

Awards:
The aeris “award list” (excerpt)

aeris
Life in Motion

Geprüft & empfohlen
AGR

besonders bewegend
erprobt + empfohlen

Ergonomisches Produkt
Zertifiziert von
IGR
Interessengemeinschaft der Rückenschullehrer/Innen e.V.
www.igr-ev.de

Ausgezeichnet!
aeris-Impulsmöbel GmbH & Co. KG
TOP 100
2007
Top-Innovator

Bundespreis 1997
Für hervorragende innovatorische Leistungen für das Handwerk

reddot design award
winner 2011

universal design award 2012

IFA
USABILITY PARK
2013
PUBLIKUMSPREIS

best of NeoCon 2013
Silver Award
presented by contract

2014 DESIGN JOURNAL
ADEX
AWARD FOR DESIGN EXCELLENCE
PLATINUM

INDUSTRIE PREIS 2014
QUALIFIZIERT

interior innovation award 2014
Selection

SBID International Design Awards 2015
FINALIST

ICON AWARDS 2016
INTERIOR INNOVATION
winner

BENELUX OFFICE PRODUCTS AWARD
WINNER 2015

FACTS
URTEIL
sehr gut
1/2016

GERMAN DESIGN AWARD
NOMINEE 2016

iF
DESIGN AWARD 2016

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