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und Arbeitsmedizin

Up and Down – Up and Down

How dynamic sitting and standing
can improve health in the office



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Introduction

The aim of this brochure is literally to get you jumping to your feet. And not only while you're reading it, but several times a day. Why? Quite simply because we all spend too much time sitting. In our free time, at work, during training – modern man has neglected his talent for standing and has got used to the sitting position (at work as well). This has become possible thanks not least to computers and similar devices which have tied many people permanently to their desks. In former times it was still necessary to move around a bit in the office – fetching a file, taking some documents into the next office – but now all that's required for most jobs is a mouse click.

This development makes things comfortable for us, but it doesn't do much for our health. In fact our whole organism needs movement to stay healthy in the long run. Something that is ignored in the daily routine of many people. And that's why around 8 % of those who work at the computer screen day after day suffer from a range of different health disorders, from sore eyes and tense shoulders through to back problems.

None of this is any good, for the individual, for the company or for the economy. What we should look for is dynamic solutions which really get us moving. As often as possible, as regularly as possible and whenever possible also at work (in the office). The present brochure will show you how to do this. It follows on from the previous brochure

›The ups and downs of sitting – Sitting at work and elsewhere‹, which was devoted to the subject of sitting in all its forms. One or other of the things dealt with in this brochure will be repeated briefly here for those readers who are unfamiliar with ›The ups and downs of sitting‹. But the focus is on the ›dynamic office‹, in other words basic information is given on how to design the office workplace by appropriate work organisation and with ›dynamic‹ furniture to make it more motion-friendly.



Motionless in front of the screen ...

Sitting as a health problem

Sitting all day long

Around 18 million people in Germany go to the office day after day for a sit-in; they take their place at their desk, on which there is normally a computer screen. The computer has become a common tool, and the typical office workplace nowadays is a computer workstation. Although in many offices there's certainly a lot going on – the average office worker spends about 80,000 hours seated in the course of his working life. The consequences of this motion deficiency are well known; according to a study conducted in 1997 by the Federal Institute for Occupational Safety and Health (see annex) 80% of those who work at the computer every day regularly suffer from health problems. Two thirds suffer from tension and pain in the shoulder and neck, more than half have back problems and around 45% suffer from eye problems and headaches.

Consequences of sitting

Lack of movement not >only< costs many computer workers their health, but also costs the companies and economic a lot of money. In 2005 alone, according to the report by the Federal Government on safety and health at work, around 23% of all days lost at work through sickness (= 97.8 million days) are due to disorders of the musculoskeletal

system and connective tissue, causing lost production of 8.8 billion euro and a loss of gross value added of 15.5 billion euro. But our sedentary style of life and work are not the only cause of all the back problems; other risk factors include lifting and carrying, continuous standing and excess weight. It has also been proven scientifically that the combination of sitting and lack of movement can wear out almost all spines and intervertebral discs in the long run.

Don't just sit out your back problems!

Many people react to >sitting-related< back problems by avoiding any physical effort – after all, it's natural to conserve the body and minimise wear. But the prospects for such an avoidance strategy are not really very good – on the contrary! Rather the human body is designed for a lot of movement. It not only withstands movement admirably, it even needs it desperately to stay healthy. Simply cruising along gently is certain to be a dead-end:

- Without an appropriate load (= movement) the vertebral bodies lose their strength as the carrying elements of the spine in the long run and the stabilising ligaments go limp.
- Without movement the muscles which enable the spine to move waste away.

- The intervertebral discs only stay supple and retain their buffering effect if they are alternately subjected to and relieved of load. Otherwise they literally lose their fluid and they become brittle and porous.
- The vertebral joints need movement; without this the joint capsules shrink, which is painful.
- But problems are also possible in the lower extremities since continuous sitting both obstructs the blood supply to the legs and can also lead to a shortening of the leg muscles.

In other words: life in the slow lane may be a comfortable option, but in fact it hardly does the spine any good, or the rest of the organism for that matter. Note this: you can't just sit back problems out; they have to be tackled actively!

Sit down and relax?

Sitting is still seen here generally as a relaxed posture, and activity performed sitting down, as opposed to physical activity, is still classified as light work. And from the point of view of a fletcher in a foundry or scaffolder this may be true. Even so, sitting, and especially continuous sitting over long periods, should not be underestimated; for the back and the muscles, any continuous sitting is hard work. Sitting places a greater burden on the intervertebral discs than standing or walking. If, for example, we take the pressure on intervertebral discs during walking as 100%, the pressure with sitting up straight increases to as much as 140%. And if you relax – in other words slouch forward – at your desk, the pressure on the intervertebral discs will increase to 190%, or more than twice that when you are standing!

You can't just sit back problems out;
they have to be tackled actively!

The old teacher's maxim – Sit up straight! – would therefore seem to make sense, since then the load on the intervertebral disks is less than if you take up a relaxed, or slouching sitting posture. The problem is that sitting upright only works with static muscular exertion (holding work). And although there is little »external« evidence, this is so strenuous that after only a brief time we slump down, with consequences for our intervertebral discs as already described. Even if you force yourself to sit upright and without any support, you don't stand a chance. Studies in work physiology have shown that static as opposed to dynamic muscle exertion uses more energy, which leads to a faster heart-beat and longer recuperation times. Accordingly the muscular system goes flabby early, which may also involve fatigue pain. And if you constantly overstrain your muscles and subject them to an inappropriate load with static holding work, you're well on the way to getting chronic pains in your muscles, joints and tendons.

You therefore have a problem: on the one hand, the sitting position is the one that enables many people to perform their job nowadays. On the other, the usual continuous sitting is a posture which will sooner or later cause such major health problems that even the ability to perform a job will be at risk. This is definitely a classic dilemma ...



Do yourself a favour and move!

Sitting in motion

Are you sitting correctly?

Let's get something straight before we start: If you are looking here for the definitive recommendation on how best to sit continuously, you'll be disappointed. There's no such thing as correct or incorrect sitting – only excessively long sitting! If you stay for hours in a sitting position, you won't do your spine, your muscles or your circulation any good. So when we talk here and elsewhere about ›correct‹ sitting, we mean correct sitting in the physiological sense. In ergonomics this is taken to mean a sitting posture where the spine largely adopts its natural double-S shape. This is possible if you tilt your pelvis slightly forward when seated, which will mean that the ribcage is slightly upright and the cervical spine is stretched. In this position a human can breathe freely, his organs are not squeezed and his spine is in almost as a good a shape as when he's standing.

Seating support

You can practise sitting like this, but because of the static muscle load involved you won't be able to maintain it. Apart from the legs, which do not place any load on the back muscles in the seated position, the rest of the body mass – around 65 % of the total body weight – is supported by the muscles when you are sitting upright. And so if you want to sit up-

right hence save your intervertebral discs without overstraining your muscles, you have to give your body some support. And this is where the seat or office chair comes into play. All the things this has to do, how it should be equipped and how you can recognise a good office chair – that's a science in itself and is dealt with in detail in the BAuA brochure already mentioned, ›The ups and downs of sitting‹. We will therefore only look here at the basic aspects of the office chair's support function:

- The **back** should reach at least to the shoulder blades and its function is primarily to support the back over a wide area in all positions, thus taking up a portion of the weight of the upper torso.
- The **seat area** should be such that the pelvis is not tilted and that physiologically ›correct‹ sitting is supported.
- The **armrests** not only help when getting up and sitting down, but they also serve to rest the arms, whose weight – around 10 kilograms – will otherwise hang from the shoulder girdle and place a strain on it.
- The **seat height** must be set so that both feet can rest completely on the floor.

With this kind of support you can stay sitting on your chair for a time. But no sitting posture can be taken up continuously! What is needed is movement...

Sitting in motion

What sounds paradoxical is in practice not a problem and is almost standard procedure for many office workers: sitting in motion. Motion here means nothing more than changing the posture and position of the body. And this is quite easy and comfortable to do even when you're sitting down! The aim is to avoid rigid postures with their adverse effects for muscles, the blood supply and intervertebral discs. If you follow the tips given in the box you will have no trouble doing this. But you shouldn't forget that as you work at a desk you will adopt a forward-leaning, upright and backward-

leaning position, and that you can and should alternate these. You can compare this to one of those little dolls that bounces back whenever you knock it down. There the outstretched (!) trunk rotates around the spinal vertical axis. The prerequisite for such dynamic sitting is an office chair with a movable backrest which not only goes along with these movements, but also supports them. Especially advisable are chairs where the mechanics ensure that the angle of the seat area changes at the same time as that of the backrest. It is of no importance whether this effect is achieved with a rocking mechanism, a synchronous mechanism,

If you take up a sitting position for hours, you don't do your spine, muscles and circulation any favours.

permanent contact or a mixture of these – the main thing is that it does it! To summarise: Modern office chairs permit changing sitting positions, and at the same time they give permanent support to the spine, primarily in the lumbar area, and prevent any one-sided loading of the spine and muscle fatigue.

How to liven up your sitting!

- Rock your pelvis back and forward!
- Shift your weight sometimes more to the right and sometimes more to the left half of your seat!
- Push your ribcage forward and backward or to the side!
- Every now and again stretch your neck by pushing your head back!
- When sitting forward support yourself on the desk!
- Lean back in a relaxed fashion against the back rest in the rear sitting position!
- While seated try to gyrate your hips!
- Utilise the positive effects of breathing on the spine and muscles: Breathe in as deeply as possible quite consciously, then breathe out slowly and press the residual breath out of your lungs. Try the exercise once more while stretching your arms and shoulders backwards as you breathe in and make yourself small like a parcel as you breathe out!



Standing upright for a change

Movement in the office

Be upstanding

Although what we've just described as sitting in motion makes sense and relieves the load on you – shifting around on your chair is far removed from real movement. Even if you fidget around a bit on your chair, the roughly 85% of the working day in the office you spend sitting down is clearly excessive. At any rate that's the view of occupational health professionals with a view to the muscles, intervertebral discs, ligaments and circulation system. When it comes down to it there's only one thing that helps – the office worker's just got to stand up so as not to sacrifice health and efficiency in the medium term. The old principle still applies: man is designed to move, in other words to switch between sitting, standing, walking, lying and all the postures in between. If there is no variation, the body is subjected to one-sided, and hence inappropriate loads. And so occupational health professionals recommend that the working day in the office be divided between 50% sitting down, 25% standing and 25% movement. Not exactly an easy task since it demands a number of changes in working procedures together with a workplace design that allows for movement. And like any respectable uprising, the one in the office also has to start in the minds of those affected...

Office routine on the move

But how can office workers be persuaded to give up their old habits and leave their seats? Certainly not an easy undertaking – especially since efforts have been underway for years to tie office workers to their desks in the name of so-called grasping space ergonomics. The idea behind this is that all items of work equipment must as far as possible be located on the desk so that they can be reached as comfortably as possible, and mainly from the seated position. Finally the workers should work instead of running around ›unnecessarily‹. Being tied so rigorously to the workplace was reinforced not least by the modern personal computer, which also helped to eliminate the last remaining opportunity to move in the office: Thanks to e-mail and the Intranet, operational matters being worked on can be moved conveniently from one place to the other – without the person working on them having to budge an inch! The advantages of such a lack of movement at the workplace are now becoming evident – not only the fact that health suffers, but also that productivity tends to drop with continuous sitting. Whatever, studies have shown that more movement at the workplace increases motivation and efficiency, and as a result absenteeism also decreases. Especially



Man is designed for movement, in other words to switch between sitting, standing, walking and all the postures in between.

since much that takes place in the office nowadays also does not necessarily demand a (continuous) seated posture.

Whereas previously monotonous activities such as entering data or word processing tended to be to the fore, the modern office has now developed into a workplace where information is generated and processed, where people communicate with one another and work together – and where often creativity and inspiration are called for! That is why every office should have enough space to move around in because without movement the blood pressure will drop right down, which means that supply to the brain's grey matter will be insufficient – not a good basis for creativity and productivity. Unfortunately most office workers have already got used to the sedentary style of life and work that a few little tricks have to be employed at the start of the office movement programme to get them on their feet. These include removing the working utensils most frequently used from the grasping space. The printer should be located at an appropriate distance from the desk, as should the fax and coffee maker. A telephone installed at a distance from the desk – on a standing desk for example – will also make for plenty of movement, depending on the need for communication. And there are other opportunities, according to the nature of the office work, to leave the 90-degree angle and to engage in walking upright or standing. These include, for example, activities such as reading, writing and discussing. Such a design and organisation of work geared more to movement assumes, of course, a workplace design which makes possible and supports the adoption of changing postures. More of this later.

How to turn your workplace into a gym

- If possible cycle to the office.
- If you go by car, park a little way away and walk the rest of the way.
- Of course you must take the stairs instead of the lift.
- Remove whatever you use frequently out of your grasping space.
- Sit actively and dynamically.
- If standing-sitting furniture is available, use it.
- Use a standing desk for everything that doesn't require that you are seated.
- Brief meetings, reading mail or telephoning: invariably in a standing position.
- Fetch things yourself instead of having them brought.
- Small office exercises at your desk every now and again, e.g. stretching fingers, rotate your shoulders, shake your arms, do stretching exercises, in short: use breaks as an opportunity to move!
- In-house do not deal with everything by e-mail or phone, but go personally.



Change and change about ...

Dynamic sitting and standing to get you moving in the office

Up you get!

Of course the dynamic office worker needs the right equipment so that he can carry on working after he's stood up and doesn't just stand around doing nothing. This became possible – at least theoretically – in the 1980s when an almost forgotten piece of furniture remerged – the standing desk. It is known that Goethe, Schiller and Einstein used one, until the start of the 20th century it belonged to the standard equipment of an office, and then it simply disappeared: office staff then occupied office chairs in front of their typewriters – and many of them haven't stood up since.

There are plenty of reasons why anyone working in an office should alternate sitting and standing – even better sitting, standing and walking: this is definitely better for the health of your spine, the tension in your shoulders and neck will be less, your circulation will be stimulated and – last, but not least – it may improve job satisfaction and productivity. As a result, occupational safety and health professionals have been endeavouring for some time not only to underscore the benefits of combined sitting and standing concepts with field tests,

but also to convince office workers ›out there‹ – and also their bosses – of the virtues of standing desks and similar furniture. This involves not only reducing the ratio of sitting periods to standing periods by providing standing desks or sitting-standing desks. After all, standing itself is not the actual goal, but a variation of the different postures and the frequency of such variations – both are crucial when it comes to countering the lack of movement in office work.

Variety is the spice of life!

In many areas office work has changed over the past few years, and this in turn has transformed the required conditions – namely the office furniture. Offices are therefore no longer only places where you are stuck to your computer screen working in silence. Rather they are places where you design, develop, plan, read, communicate and discuss. In other words: work organisation in offices in the direction of mixed work is certainly not the rule, but also no longer the absolute exception. Accordingly offices should be designed to facilitate and support varied work phases.

The prerequisite is a system-ergonomic design approach which considers the workplace as a whole, or as a combination of the job in hand, the appropriately adjusted work equipment, the working environment and the working people. In multiple-occupancy, open-space and combination offices in particular there are many possibilities for assigning the various activities to specific zones and thus – incidentally so to speak – encouraging sitting-standing dynamics in the office. We could imagine here, for example, not only the individual desk workplace, but also discussion places at mobile standing desks, quiet zones for concentrated work (sitting or standing), telephone compartments for confidential conversations, technical corners for printers and fax machines, and bars for social coffee and tea breaks. This does not turn the office into a gym, but it is definitely possible to achieve the two to four changes in posture per hour recommended by occupational health professionals. But it should be ensured that no posture is held for longer than 20 minutes at a time – basically the following applies: only a change of posture ensures a change of load!

Diversity of standing desks

The office furniture industry has recognised the (market) possibilities of the standing desk and has developed corresponding variations for all conceivable work opportunities. Here are the current possibilities:

- free-standing, stationary standing desks
- mobile, free-standing standing desks
- integrated standing desks
- extremely height-adjustable sitting-standing desks

According to the work layout, the spatial conditions at the workplace and, not least, the preferences and wishes of the workers, different standing-sitting concepts can be implemented which promote or support to a greater or lesser extent variation of posture in office work.

The natural area for using the free-standing, stationary standing desk is therefore wherever there is sufficient office space. It is advantageous to locate it near the conventional desk since it can then be used for telephone calls and other (non-screen-related) activities. It could be argued that a greater distance between the standing desk and the desk would ensure greater movement, but in practice this would be minimised because the use frequency would certainly decline. After all, who wants to carry all the paperwork to the standing desk if it's a long way away?

What would be a great alternative here is a mobile standing desk with lockable rollers since it can be used with great flexibility. It is not only available for use by different individuals at changing places of use, but it can also be moved to where the work is. From standing work next to the conventional desk to a discussion at the window with a natural view – with a mobile standing desk there is nothing to stop you standing.

But even where the office space is a little confined there's no need to do without sitting and standing dynamics. Integrated standing desks – as the name suggests – are integrated in the actual desk and can therefore be used in an instant. A further advantage is the fact that they can be easily fitted, rotating and swivelling elements ensure great flexibility – and standing desks which swivel out beyond the con-

ventional desk can even be used as a meeting table. And the fact that they are always there directly before your eyes acts as a constant call to change your posture every now and again.

Extremely height-adjustable desks – where possible with smooth, electrically driven height adjustment so it doesn't spill your tea or coffee, and also including memory function – are the latest thing in standing-sitting design. They make sense in particular where the jobs in hand require a lot of work at the computer screen and are (almost) the only possibility to get these ›computer screen slaves‹ on their feet. Let's be honest: what is a graphic artist, copywriter or designer doing at a standing desk when his most important tool – the computer – is still on his conventional desk? Even so – and this is the drawback of these ›up-and-down desks‹ – they don't force anyone to stand up regularly, they only offer the opportunity to change posture. Whether someone takes advantage of this depends on the user's self-discipline or the degree to which she or he is suffering. Here the principle is once more: the benefits come with use!

Stand up for your rights!

For all their diversity, standing desks should meet a number of criteria with respect to use, quality and safety.

- The standing desk should be capable of growing adequately with its user, height adjustments of 120 cm are the lower limit, and a maximum height of 131 cm is better.
- The desktop should be inclined! This is made possible with a tilting mechanism which is easy to adjust and which allows for an angle of inclination of between 0 and at least 8 degrees. And to ensure that, when the desktop is sloping, all the things on it don't just fall off, there should be appropriate clipping devices, non-slip surfaces etc. as standard.
- Desktops should not be too small – they shouldn't be less than DIN A 3, and bigger is of course better!
- Anything else? Sure! The standing desk should be capable of being equipped with various extras and meaningful accessories, e.g. telephone arm, shelves, workplace lamp etc.
- One leg standing, one swinging free? Stand-alone standing desks should have integrated foot supports for this purpose. This takes the load off the spinal column and helps to maintain the posture!
- Mobility brings benefits! A standing desk with lockable rollers can always go along with its users and follow them to where the work is. But whatever, stability must be guaranteed – also in the highest position.
- Flexibility for more mobility! Integrated standing desks should be ready for use with a simple manual operation when you need it – and should disappear just as fast when it's done its job. This is made possible by means of desk panels mounted on a swivel arm. But the whole thing must by no means become unbalanced.

Finding your feet!

And what sitting-standing concept or what ›standing furniture‹ is best suited for getting office staff off their behinds and onto their feet? Opinions on this differ, or the scientific studies and field tests do not reveal a clear picture. A study from the year 1997 (see annex) which examined the use frequency of standing desks over a period of more than 6 months arrived at the result, for example, that the introduction of standing desks in the companies examined led to an increase in the proportional standing time from 16 % to 31 %. It should be said though that a not inconsiderable portion of the ›standing work‹ was carried out at different locations regardless of the standing desk, e.g. at the conventional desk, next to the window sill and at the filing cabinet. In study's participants' own estimation they switched between sitting and standing about 20 times per working day. Undoubtedly a nice result, but the authors themselves put it in a somewhat relative context in that they confirm that the subjects had a high prevention and health awareness. Another study funded by an office furniture manufacturer and conducted in 1996 (see annex) reports a high acceptance of standing desks among the test subjects. 20 of the 24 office workers acting as test subjects wanted to hang onto their standing desk after the end of the test, and after four months those questioned claimed that they worked standing up more and more often, on average about one fifth of their working time.

The most recent study entitled ›Ergonomic Study of Alternative Office and Screen Work Concepts‹ is from the year 2000, it was funded by the Federal Institute for Occupational Safety and Health and it

was conducted by the Fraunhofer Institute for Industrial Engineering IAO. The aim of the research project was to reveal the possible preventive potential of alternative sitting opportunities as compared with the classic, standardised rotating office chair and the sitting-standing concepts in competition with a conventional sitting desk according to DIN EN 527. Here the standing desk failed to really impress the 42 test subjects – 3 to 5 phases per day were spent at the standing desk, although each phase lasted hardly 5 minutes. The combined sitting-standing desk performed more convincingly by the end of the test series – it motivated the subjects more often and for longer to change their posture, the use time was between one hour and two hours a day, which was the equivalent of about 40 % of the working time at the workplace.

There is therefore no really clear recommendation from science as to what furniture renders the office workers more dynamic most effectively. But apart from this, there is at least not a single study that questions the benefit of items of sitting-standing furniture and that would claim their effect is non-existent. On the contrary, all the evidence to date shows that they are definitely a suitable means of encouraging a change in posture – some more, some less ...

Behavioural prevention essential!

Experience shows that the provision of sitting-standing furniture or the introduction of a different form of work organisation – keyword: mixed work – alone is not actually sufficient to encourage dynamic sitting-standing behaviour in the office. After all, you can't force someone to phone standing up or re-



Only someone who is convinced that changes are meaningful will examine his behaviour and modify his sitting habits.

gularly raise the height of his desk. If the office workers are not willing to ›straighten up every now and again‹, any investment in improved hardware is a waste of money. Accordingly attention must be paid not only to circumstantial prevention, but also to behavioural prevention. Whether standing facilities are used or ignored depends very much on the workers' problem awareness. Only someone who is well informed and is convinced of the sense of any changes will examine his behaviour and perhaps change his sitting habits. The aim must therefore be to support any ergonomic and work-organisational design measures with targeted qualification in matter of health protection. Only a combination of circumstantial and behavioural prevention promises to yield success when it comes to tackling postural monotony in offices.

The BAuA study already mentioned has shown that people whose health was impaired and were forced to tackle the problem of an unhealthy spine tended to be more willing to try out alternative sitting furniture and sitting-standing concepts. Employers should not allow it to reach this stage. Workplace-related back exercise programmes in particular are an excellent method of educating the staff and getting them to behave in a way that protects their backs. As a basis for such a back exercise programme a workplace inspection should be conducted, followed by an analysis and rectification of possible ergonomic design deficiencies. If the ›hardware‹ is right, the working processes are the focus of attention. Together with the worker back-friendly posture and movement sequences are developed and practised. Other elements of the curriculum concern correct, i.e. dynamic sitting, the advantages

of sitting-standing dynamics and the correct setting-up and adjusting of the equipment. To ensure that the whole effort is worthwhile and produce really long-term, sustained changes in the behaviour of the persistent sitters, a workplace-related back exercise programme should be part of a programme for workplace health promotion in which the workers are actively involved.

Is it all worthwhile?

Always! And as often as possible. At any rate, that's the result of the ›survey of the users of integrated standing desks‹ conducted by the *Institut für Büro-dynamik und Ergonomie GmbH* in 1997. According to this

- the use of standing desks led to an improvement with respect to health disorders. 77% of those participating mentioned complaints relating to the back and neck beforehand, and of these 87% indicated an improvement from the use of standing desk,
- the absenteeism of workers decreased with the use of standing desks.

Even if we interpret the effects reported with restraint, the positive effects are unmistakable. Alongside the visible cost, such as absenteeism and lost production, there are also the concealed costs which have to be included in the calculation. Backache and tense neck and shoulder muscles have an adverse effect on the work, of course, and they lead to a loss of concentration, more mistakes, pain breaks and a loss of motivation. On the other hand, the direct costs for an electrical height-adjustable desk correspond approximately to those for one to two days

lost. If we take the scientific studies, which forecast a reduction in absenteeism from sitting-standing concepts by precisely those one or two days, the whole matter is paid for within a year. And here the extra motivation and job satisfaction aren't even quantified ...

Looking forward

It's time to stand up. Not just for the sake of standing, but in order to sit down again. But only after a short interval, perhaps after walking a few steps. And so on and so on, always alternating. The principle is still: a rolling stone gathers no moss. In terms of hardware, there is nothing to stop movement in the office; the sitting-standing concepts on the market are normally technical sophisticated and suitable for supporting and encouraging the urge to keep moving. And that leaves the software, in other words what's going on in our heads. And there's still a lot to be done here because old sitting habits die hard and our desire for comfort is often a hindrance. What is necessary here is to educate, promote and convince. Perhaps this brochure can help a little in this direction...

Links

The links presented here are only a small selection from the numerous Internet offerings on the subject of movement in the office. The selection should not be considered as a rating, and the same applies to the list of references.

www.baua.de

Site of the Federal Institute for Occupational Safety and Health with extensive information, and not only on the subject of office work.

www.buero-forum.de

This site is maintained by the furniture manufacturer's association Verband Büro-, Sitz- und Objektmöbel e.V. and gives information interactively on any topics relating to offices.

www.ergo-online.de

The technical information service of the Hesse Social Network deals extensively and informatively with many aspects of office work.

www.inqa-buero.de

Site of the New Quality of Office Work Initiative with specialist articles, information pool, event notices and many links on the subject of offices.

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Imprint

Up and down – up and down

How dynamic sitting and standing can improve health in the office

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