



# Dynamic Sitting

Office chair or stability ball or pendulum stool?



*The hype around gym balls as office chairs continues. Employers are receiving more and more inquiries about using stability balls as alternatives to office chairs. Sometimes these seating options are even recommended by physiotherapists because they are said to counteract a static seated posture and prevent postural damage and back pain.*

*Many people want to know: Is the stability ball or pendulum stool a healthy alternative to an office chair and is it right for our office?*



## What does the law say?

According to the [RGD of 4.11.1994](#) concerning minimum safety and health requirements for screen-intensive workplaces, the office chair must meet the following criteria:

- stability;
- unrestricted freedom of movement;
- comfortable sitting;
- adjustable seat height;
- backrest with adjustable height and tilt.

Neither the stability ball nor the pendulum stool meets these legal requirements; therefore, by law, they are not considered suitable alternatives to office chairs.

## What do occupational physicians recommend?

Without a doubt, dynamic sitting is preferable to static sitting. Dynamic sitting means that one's seating position changes frequently.

**Moving while sitting leads to a natural compression and decompression of the intervertebral discs and muscles:**

- The discs consist of a fiber ring and gelatinous core, acting as shock absorbers between each vertebra. Just like a sponge, they absorb nutrients as pressure builds up and releases.
- The expansion and contraction of the back muscles corresponds to the body's natural movement, thereby promoting blood circulation and preventing muscle injuries and tension.

Stability balls and pendulum stools keep the user remains in a constant unbalanced state. In order to maintain equilibrium, the user must constantly make small corrective movements using the back and spine muscles. Consciously or unconsciously, he or she has to concentrate to maintain this unnatural way of sitting. Without any back support, the user is quickly prone to hunching due to muscular fatigue. Stability balls and pendulum stools also pose a greater risk of falling.

With these risks in mind, it is important to understand what makes a good office chair. Office chairs are individually customized in order to prevent the need for these compensatory movements. A good office chair should support the user's natural posture and promote movement in proportion to the office task. A tilting, height-adjustable backrest offers custom support for the spine in different seated postures, and the inclining seat pan allows for natural tilting of the pelvis to the front. The ergonomic office chair should also be equipped with a synchronous mechanism (i.e. the seat and backrest move relative to each other). By ensuring a controlled shift in the chair's opening angle, this mechanism promotes a continuous change in leg posture and foot position.

#### **Brief overview of the essentials:**

- **Moving the spine supplies the intervertebral discs with nutrients.**
- **An adjustable backrest provides custom support for the spine in dynamic sitting positions and prevents fatigue.**
- **A tilting, height-adjustable seat supports a good pelvic position and promotes upright posture.**

### **What safety factors should be considered?**

People working in screen-intensive environments need an office chair with different settings to allow for various ergonomic postures.

As previously mentioned, stability balls and pendulum stools do not meet the statutory minimum requirements for office safety and stability. Moreover, they present a significantly greater risk of falling compared to the legally prescribed office chair and offer limited options for individual height adjustment.

Finally, there is the risk of the ball rolling out of control, thus posing a safety threat to users and other people in the office and potentially obstructing traffic and escape routes.



### **Conclusion**

The stability ball is an excellent training device for fitness and sports, but it is not a suitable alternative to an office chair.

Therefore, stability balls and pendulum stools should not be used in office environments.



## THE OFFICE CHAIR

EQUIPMENT: Legal and economic criteria

### 1. GENERAL REMARK:

The GRAND DUCAL REGULATION of 04.11.1994 setting out minimum health and safety requirements for work at visual display screens stipulates that the work chair must have the following features:

- an adjustable seating height;
- the backrest height and angle must be adjustable;
- the chair must be stable;
- the user must have complete freedom of movement;
- the chair must be comfortable.

On the basis of the ERGONOMIC CRITERIA applying and supplementing the minimum requirements, the office chair must also satisfy the following ergonomic specifications:

- base with 5 feet;
- separate seat and backrest;
- adjustable seating height, 420-550mm;
- adjustable seating depth;
- adaptable seating width, 400-480mm;
- fitted with end-position cushioning;
- option: adjustment of the seat angle;
- height of backrest above the seat >450mm;
- fitted with a lumbar support with adjustable height and depth (170-230mm); the height must be adjustable independently from the backrest height adjustment;
- synchronised mechanism with adjustment of the backrest tilting tension to facilitate dynamic seating;
- the backrest must be designed to remain in permanent contact or with different opening angles in relation to the seat;
- possibility of fitting armrests with adjustable height/width/depth/direction;
- easy actuation of the different adjustments;
- the seat covering will preferably be made of fabric which is rated fire-resistant and permeable to water vapour and air;
- the fabric must be very strong to avoid premature wear;
- castors for a flexible or hard floor must be fitted, depending on the particular use;
- impeccable finish.

The various quality certificates must be produced when the offer is submitted.



### Remark concerning seat foam

The quality of a work chair also depends on the density and thickness of the foam. Three criteria are to be taken into account: density, thickness and hardness. A judicious combination of these three criteria is essential to obtain the desired seating comfort.

For example, a very fine, very dense and very hard foam enables a degree of comfort resembling that of a foam which is very thick and not particularly dense or hard to be obtained. On the other hand, the visual appearance of the product will be completely different (depending on whether small or large cushions are chosen). Note: a thick foam which lacks density will be deformed more quickly (loose appearance of the fabric, deformation of the seating foam, formation of “waves” in the fabric); hence faster fabric wear.

We advise you not to mention the foam characteristics in your detailed specifications so as not to limit attractive offers of products that might not respect one of the criteria.

## 2. TECHNICAL INFORMATION:

### DIMENSIONS AND SEAT ADJUSTMENT RANGES (STANDARD EN 1335-1)

	Minimum dimensions, mm	Maximum dimensions, mm
Height of seat from floor level to upper surface of the seat	400	510
Seat width	400	+
Seat depth from front edge to back rest	400	440
Seat angle	-2°	-7°
Height of lumbar support above the seat	170	220
Backrest width	360	+
Backrest length	400	+
Backrest angle	15°	
Armrest width	40	+
Armrest length	200	+
Distance from front of seat to front of armrest	200	240
Height of seat armrests to top of the armrest	200	250
Free width between armrests	460	510