

Using a fitness ball as a chair

This Information Bulletin explains why a fitness ball is not appropriate as a work chair. It also provides advice on sitting posture and the design of workplace chairs.

The fitness ball (also known as a 'Swiss', 'exercise' or 'physio' ball) is an inflatable ball designed for use in physical training, exercise or rehabilitation programs, with a variety of exercises targeting different parts of the body. Fitness ball manufacturers suggest that individuals may also find them useful to reduce back pain in sitting and to increase postural control. Some organisations and individuals have adapted their original use to provide a dynamic sitting surface, in place of a conventional office chair, in the belief that it will be of benefit to workers with back pain.

Using a fitness ball

There is no scientific evidence to demonstrate that the effect fitness balls have in exercise and training also makes them suitable for use on a daily basis as a seat at work.

The use of a fitness ball as an exercise device should not be confused with the requirement to provide suitable and safe workplace equipment. From the literature to date, researchers do not recommend the fitness ball as an alternative to conventional seating in the workplace. Workers may use fitness balls for exercise, which includes sitting posture, but this does not make them suitable for seating at work.

A fitness ball may be recommended by a health professional to treat a specific condition. In such a case the use of the ball as seating should be prescribed in a treatment or rehabilitation plan, along with recommendations about the duration of use and any other treatments provided.

The problem of using a fitness ball as a chair

Using the fitness ball as standard seating would constitute a daily regime of constant exercising. On the other hand providing fitness balls in a workplace may place the employer at risk of introducing a hazard.

Known hazards include:

- High concentration levels and fatigue from sustained exercising.
- The initial upright posture is likely to be lost over a long period of sitting because there is no full seat and back support.
- Upright postures cannot be maintained during tasks requiring reaching or moving around.
- Employees cannot swivel or navigate around the workstation.
- Getting on and off or reaching from the ball may constitute a falling hazard.
- The sitting surface does not provide adequate support for the buttocks and thighs.

There are some adaptations of the ball to fit within a standard adjustable chair base with a backrest. This would seem counterproductive as most of the exercise advantage would be lost, and the sitting surface would further decrease support for the buttocks and thighs.



Chairs in the workplace

People sit at work to perform tasks that require concentration, posture, stability and visual access, often to be sustained up to hours. Computer usage is an example of such work. For these situations, seating should be supportive and not require excessive effort to maintain the seated posture. In general, seating for the workplace should:

- Be adjustable in height and back position.
- Be stable and safe to use, not putting people at risk of falling, particularly when getting on and off.
- Have appropriate lumbar and thigh support.
- Allow movement of the chair.
- Allow a variety of supported postures relevant to the work being done.

Clearly, fitness balls do not have most of those characteristics.

Posture and the design of chairs

Sitting reduces energy expenditure during work. However, prolonged sitting may also affect the trunk muscles and increase compression on the spinal discs and the incidence of low back pain. Research shows that in sitting there is a significantly increased load on the lower lumbar discs compared to standing erect, and an even larger load when sitting in a stooped posture.

Researchers have determined that increasing the seat angle produces reduced muscle activity in the back and reduces disc pressure. Leaning back at an angle between 110 and 120 degrees decreases disc pressure to even lower than that in standing. In addition, both lumbar support and the use of armrests have been found to always result in reduced disc pressure. Muscle activity is reduced even further with a wider seat/backrest angle.

As a result, chairs have been developed with a variety of backrests and improved adjustability, including seat-to-backrest angles. These features assist the sitter to achieve optimum posture. Modern approaches to chair design reject the concept of a fixed 90 degree sitting posture, in favour of a more dynamic posture centred around an 'open' trunk-thigh angle of 105 degrees or more. A variety of chairs provide this posture, such as dynamic chairs (adjustable seat/backrest angle), 'sit/stand' chairs and 'sit/kneel' chairs.

Legal requirements

The *Occupational Health and Safety Act 1989* requires employers to provide, so far as is practicable, a workplace that is safe and without risk to health. This means that employers need to consider the safe design of workplace furniture and implement suitable systems of work. The employer has a duty to identify hazards of equipment and plant, and assess and control any potential risks.

Employers will not satisfy their legal duties to make work safe by providing fitness balls as furniture, except in situations where a health professional has recommended limited use of a fitness ball as a work chair as part of a rehabilitation program.