

Exercise Balls Used at Computer Workstations

Introduction

Most people would like to be more physically fit, improve their muscle tone, and be at a perfect weight. Our demanding personal life and the automated workplace sometimes work against us in achieving this goal. For many of us, work is not as physically challenging as in the past and, because of the resulting lack of exercise, we may not be in the best physical condition.

Some retailers, creating ideas for selling balls, say we can “exercise and work” at the same time. Substituting the standard office chair with the ball chair has been promoted by some to do just that. The ball chair is a large inflatable rubber ball available in different sizes. These balls are also known as exercise ball, fit or fitness ball, gymnastic ball, stability ball, ball seat, Swiss ball, and physio ball.



There has been much discussion in the ergonomics community about ball chairs. Most health and ergonomic professionals do not recommend the use of the ball chair while working. The purpose of this paper is to discuss the issues with the use of the ball chair in the office environment.

Why the Ball Chair?

The ball was originally introduced many years ago as a therapy tool, to be used under the supervision of an Occupational or Physical Therapist. As such, it was used to improve balance, movement patterns and muscle

LOSS CONTROL TIPS

strength. A benefit of using the ball as a therapeutic device is the opportunity to work on balance and strength in a variety of positions (sitting, prone, supine, side-lying, etc.). The ball became a useful tool at home and the gym as individuals engaged in their own fitness programs.

The ball was then introduced into the office, intended to promote proper seated posture. Most people who use the ball chair at the workplace say it forces them to sit upright keeping their back straight improving posture. Ball chairs promote “active sitting” which requires constant action of several muscle groups to keep the body balanced. Ergonomic chairs support the body in several ways, allowing periods of rest for some muscle groups. The following questions come to mind:

- Is working and exercising at the same time a logical pursuit at the office?
- Should we exercise our muscles for long periods, up to eight hours a day or more for some?
- Could this prolonged use of the ball chair lead to irritation, swelling of tissue, discomfort and injury?
- Is the ball chair an “accident waiting to happen”?

Our bodies are in a continuous “balancing act” when sitting on a ball chair. Studies found muscle activity is significantly increased, mostly in the muscles that hold our spine erect. This means our muscles and muscle groups are constantly tightening and loosening in harmony and opposition to keep us from falling off the ball chair. One study reports an increase of perceived discomfort when sitting in a ball chair. (Zavitz, 2006)

Circulating blood delivers nutrients (provides energy), oxygen (needed for cell metabolism), takes away waste products (lactic acid), and promotes healing of damaged tissues. Blood circulation is inhibited when muscles are working. Muscles working with little rest receive little or no nutrients, including oxygen, and waste products build up, resulting in lactic acid build up, muscle fatigue and perceived discomfort. Tissue injury or irritation may even occur during prolonged muscle activity.

Summary and Recommendations

Ball chairs do promote an upright posture and continuous spinal / muscle group activity while sitting on them. The positive aspects, however, are contradicted by the potential for fatigue and discomfort. From a general standpoint, there are significant ergonomic and safety concerns regarding the use of ball chairs in the office. The balls may introduce risks (injuries) associated with falls, and possible strains and sprains if one begins to fall and abruptly tries to “catch” oneself. There are concerns about getting on and off the ball; reaching for files, phones, etc.; moving toward and away from the work surface (the balls don’t – and shouldn’t – slide easily). The potential need to grip the work surface and use a bouncing motion to get in position creates risk of fall.

Manufacturers are now marketing balls in frames with casters. Some have backrests. The actual backrest support will in part depend on ball diameter which establishes seat depth; this determines whether or not the individual will actually be able to rest against the backrest. This design removes some of the exposure described above, however, leads to the question: What does a ball in a frame offer that a standard chair doesn’t?

Steady use of the ball chair may increase fatigue and discomfort through muscle activity and increase the possibility of a fall. The absence of back support associated with ball chair use can increase disc pressure (irritation for some with back pain). With the exception of inflation variation, the ball chair is basically not adjustable. It may be difficult or almost impossible for some users to obtain the proper position at the computer workstation. The ball chair may not be a prudent choice at a computer workstation. In fact, most ball manufacturers do indicate the ball is not a replacement for a properly selected adjustable computer workstation chair.

Employees should have an adjustable and supportive chair at a computer workstation. A standard, properly sized, adjustable chair is a more comfortable and safer choice.

The Hartford's Technical Information Paper Series publication "Chair Ergonomics – Selecting an Ergonomic Chair" discusses the principles of selecting an ergonomic chair.

Conclusion

There is no perfect computer workstation or chair. The human body cannot comfortably stay in a static position for long periods. To remain comfortable, we must frequently get up out of the chair and stretch, walk around, or engage in a non-computer related task. This should be done at least every hour for a minute or so.

We all want to be physically fit and comfortable. There is no easy path to weight reduction, physical exercise and good health. The ball is better suited as an aid to exercise

and it may be harmful if not used properly or in the wrong environment for long periods. We have to work at keeping fit but not for a third of the day, five days a week. Exercising in a proper environment (i.e., walking, running, going to the gym, sports, etc.) is part of maintaining a healthy mind and body. Being physically fit, exercising, and eating properly will also help us to prevent stress in our lives and endure the stressful times we often experience in the work environment.

References

Zavitz, Ben. "The latest fad in office ergonomics: exercise balls". Environmental and Occupational Risk Management, Inc., Sunnyvale, CA, 2006. <http://www.breathingsafety.org>

"Opinion: Balls as Office Chairs a Bad Idea", <http://www.ergoweb.com/news/detail.cfm?print=on&id=1091>, April 11, 2005.

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