# Use an Exercise Ball for Exercise Not as a Desk Chair

FACT SHEET 88-011-0120

The human body was designed to move. However, office workstations are frequently sedentary, sitting at a computer. Acknowledgement of this movement shortfall has led some people to try to bring activity into sedentary work lives. One example is the replacement of the office chair with an exercise ball. While everyone should adopt a goal of increasing their level of physical activity to offset the adverse health effects of prolonged sitting, the concept behind sitting on a ball does not achieve the intended goal and results in avoidable risks.

## Perceived benefit?

The concept behind sitting on an exercise ball instead of a stable, adjustable, and supportive office chair has been called "active sitting"; the idea is that the instability of the ball acts as an exercise forcing the use and strengthening of core muscles of the midsection, and resulting in better posture. As an exercise technique, sitting on a ball for a short time may be beneficial since it does strengthen the musculature of the low back and abdomen. However laboratory studies have shown that when using balls as chairs for an extended time this concept does not work. A recent review of five research studies demonstrated *no increase in trunk muscle activation* with active sitting.[1] A separate study comparing sitting on a ball and a normal chair concluded that "No postural or muscular activation differences were observed between the ball and the chair…" [2] Finally, a third study found that "… energy expenditure associated with dynamic (active) sitting on a stability ball, beyond that of a standard stable chair, is minimal." [3]

## Real concerns

Exercise balls are designed for exactly that—exercise. While sitting on a ball does work your abdominal muscles, as is true of any exercise, muscles fatigue with sustained activation. This fatigue decreases the user's ability to maintain neutral postures and increases safety concerns. For example, anecdotal evidence from emergency room personnel describes people who fall and become injured from using active sitting devices such as balls used as chairs.[1]

Exercise balls do not follow design standards for chairs, both military and civilian. The American National Standards Institute's (ANSI) standard for computer workstation seating addresses the concern of seating stability: "…Workstation furniture shall …. Be structurally rigid and stable under typical usage conditions…" and, additionally "…Unstable work surfaces or chairs also may tip over or collapse if used to support the user during changes in posture…"[4] In MIL-STD-1472H under Seat Base it unequivocally states, "The use of any unstable form of seating (e.g. ball-type chairs) shall not be used."[5]

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## Recommended Alternatives

Currently, the best way to reduce low back fatigue and discomfort from extended sitting is to use a supportive and adjustable ergonomic chair; one that provides lumbar support with the backrest at a reclined angle will reduce spinal loads. Also, limit your sitting duration to one hour at a time, and frequently change your sitting posture. Consider adding taking breaks and walking around, i.e. visit a coworker rather than emailing, walk to the furthest printer, etc. Another method to limit sedentary time at a computer workstation is through use of a sit-stand workstation.[6]

Use of an exercise ball as a seating mechanism in a workplace environment has more disadvantages than benefits. Studies to date do not suggest significant health benefits justifying unstable sitting: "there is no increase in trunk muscle activation[2], No postural or muscular activation differences were observed between the ball and the chair,"[3] and "… energy expenditure associated with dynamic (active) sitting on a stability ball, beyond that of a standard stable chair, is minimal."[4]

## References


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