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Reviewing Posture Correction Strategies: Research and Recommendations

By Jasper Sidhu, BSc, DC

A bad posture is one of the more common complaints I see in my office. In a previous article [[Aug. 1, 2013](#)], I looked at the impact of a slouched posture, and identified the key contributors of a slouched posture that can create pain or dysfunction. This included prolonged static sitting and reduced lumbar lordosis. However, treatment of so-called "bad posture" appears to vary greatly among health professionals.

What exactly is the best treatment strategy for a patient who presents with a bad posture? Should a patient use a gym ball or an ergonomic chair for sitting? Will posture shirts and taping help? Let's explore some of the common and not-so-common treatment strategies you can utilize in your practice when you come across a patient with poor posture.

Gym Balls, Sitting and Posture Correction

Gym balls are popular among health and fitness professionals. Research is accumulating around the basis of utilizing gym balls for fitness and rehabilitation. They are also being recommended as alternatives to chairs for posture correction. The question is, are there advantages to using a gym ball instead of a regular chair?

Although there's an accumulation of research studies on the effects of gym balls on exercise fitness, there is a clear lack of findings when it comes to using it as an alternative to chair sitting. A study by McGill., et al., (2006) found that sitting on an exercise ball does not significantly affect magnitude of muscle activation, spine posture, spine loads or overall spine stability.¹ Two other studies found that sitting on a gym ball did nothing to alter the bad posture it was supposed to help.

Robinson J, et al., (2009) found that the gym ball and a stable seat both replicated a poor sitting position through a kyphosed and slumped posture.² Gregory DE, et al., (2006) came to similar conclusions, adding that there was an increased discomfort when using the gym ball.³ Kingma, et al., (2009) found that more

spinal shrinkage occurred while sitting on a gym ball as compared to an office chair.⁴ This leads to the conclusion that any advantages of sitting on a gym ball may not outweigh the disadvantages noted in this study.

Although the limited research is against the use of gym balls, many patients may still opt to use a gym ball. If this is the case, education should be focused on the fact that there will initially be discomfort when sitting. One can't expect to sit for prolonged periods of time on a gym ball from the outset. A case study by Merritt LG, et al., (2007) showed how two patients responded favorably to an gym ball.⁵ However, one patient was initially hesitant due to the discomfort. The patient was asked to begin with 2 minutes of sitting and then gradually build up tolerance. This led to significant improvements in back pain.

Bracing, Taping and Shirts

Recently, the use of aids such as taping and posture shirts has been recommended for those with bad posture. Due to the exposure of taping in the Olympics and various sporting events on television, there has been an increased awareness among patients when asking questions about these tools in practice. The question is, do they really work? The current research results are mixed.

A systematic review of the effectiveness of taping was recently conducted by Kalron A, et al., (2013) who concluded that there is no firm evidence of the effectiveness of taping on the majority of movement disorders.⁶ However, the study did find that the taping aided short-term pain relief.

Current posture-shirt research is even more limiting. However, there are some studies that seem to validate the use of posture supports, especially when it comes to "bad posture" and its effects. A study by Hwang-Bo G, et al., (2013) exclusively used taping to decrease upper back pain in a sedentary office worker.⁷ A study by Cole AK, et al., (2013) found that the application of a scapular brace improved shoulder posture and scapular muscle activity in athletes with forward-head, rounded-shoulder posture.⁸

What does this all mean for your patient with a bad posture? Taping requires very little effort, but from clinical experience, provides quick feedback from the patient on its effectiveness. The use of posture shirts and taping have the advantage of "reinforcing" the reminder to demonstrate positive posture habits. Patients should be taught that these tools are not a "cure," but an adjunct to their current chiropractic care.

Impact of Chairs on Posture and Pain

Countless number of chairs are recommended to improve back posture. However, let's discuss a couple of unique new findings when it comes to chairs, including a novel new chair designed to "force" your body to position itself in the right sitting posture. A study by 'O'Keeffe, et al., (2013) compared seating discomfort on a dynamic forward-inclined chair vs. a standard office chair. In subjects who experienced back pain from sitting that was relieved when standing, using the dynamic, forward-inclined chair resulted in less low back discomfort.⁹ However, a review of the literature on the effects of dynamic sitting on prevention and management of low back pain and discomfort came to the conclusion that dynamic sitting approaches are not effective as a stand-alone management approach to low back pain.¹⁰

Another study found that dynamic elements of these dynamic chairs yielded significant differences in the measured chair parameters, but did not affect the sitting dynamics of the subjects performing their office tasks.¹¹ Essentially, the effect on muscle activation, posture and kinematics was more significantly influenced by the tasks, rather than the type of chair.

This is an important finding. Instead of relying on a cure-all in the form of a chair recommendation, it's important to evaluate the type of tasks that are utilized in the office setting and begin the treatment process from there first. This reinforces the importance of a thorough clinical evaluation and treatment program, rather than have the patient hope for a simple cure by purchasing a chair.

Another trend involves "off-loading," which is designed to alter sitting posture for those with low back pain. A study pointed to the fact that sitting in a position in which the majority of the weight is on our ischial tuberosities is associated with elevated spinal loads. Off-loading essentially involves dropping the back part of the seat about 20 degrees, with an enhanced lumbar support. The study found that the sitting posture significantly redistributed the sitting load passing through the ischial tuberosities, thereby reducing lumbar paraspinal muscle activity in both asymptomatic and LBP subjects.¹²

Feedback Tools

Quite a few tools claim to provide auditory, vibratory or tactile cues as a reminder to sit in the correct posture. Surprisingly, most of these simple strategies have been shown to be effective. One study looked at the effect of posture-related auditory cueing on muscle activities. The study found that trunk flexion and forward head angle were significantly reduced.¹³ Simple cues led to positive changes.

One product takes advantage of this phenomenon by providing real-time feedback for people to sit in the correct posture. A study compared the product to verbal reminders and showed that while verbal reminders only led to a transient improvement in posture, the real-time feedback pad resulted in significant improvement, whereby subjects achieved correct posture 98 percent of the time.¹⁴

In summary, there are many tools out there that can assist your patient in pursuing a correct posture. However, the effectiveness of the tools will only go so far. Patient education, identifying trigger problems, and using a multifaceted approach will ensure greater success. Patients will continue to ask questions about some of these tools, from the gym ball to the ergonomic chair. By looking at the research and the conclusions of the article, it is my hope that the right type of information can be disseminated to help your patients overcome bad posture.

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