

An investigation of low back posture and trunk muscle activation while exercising on the flexchair

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Low back pain (LBP) is a very common and costly musculoskeletal disorder (Woolf and Pfleger 2003), with many different contributing factors including provocative postures and movement patterns (Pynt et al. 2001; Pope et al. 2002; Scannell and McGill 2003; Lis et al. 2007). The posture of some LBP subjects differs to that of matched controls (Dankaerts et al. 2006; Womersley and May 2006). Postural correction may aid rehabilitation of LBP by reducing loads on the spine and facilitating normal levels of muscle activation (O'Sullivan et al. 2006), and this is commonly advocated in LBP management (Poitras et al. 2005). Modification of posture has been associated with improved clinical outcomes (Van Dillen et al. 2003; Dankaerts et al. 2007). However, postural correction can be difficult (Claus et al. 2009), possibly related to evidence of altered proprioception in LBP subjects (Brumagne et al. 2000; O'Sullivan et al. 2003). Appropriate performance of postural correction exercises requires accurate awareness of spinal posture and movement. Therefore, methods which facilitate spinal movement and aid postural awareness may be useful in rehabilitation. Recent studies demonstrate that provision of postural awareness training may help improve clinical outcomes in both acute (Horton and Abbott 2008) and chronic (Magnusson et al. 2008) LBP. The flexchair is a potential method of aiding spinal posture and movement awareness, and its effect on spinal posture and movement has not yet been investigated.

The aim of this study was to assess the effect of exercises performed on the flexchair on low back posture and trunk muscle activation. The activity of six trunk muscles was measured using non-invasive surface electromyography (EMG), while low back posture was measured using a 'spinal positioning monitoring device' (www.sels-instruments.be). Data are being analysed, and results will be presented at the meeting.

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