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Perspective

New Perspective: Outcome Measurement Indices for Yoga Therapy

Paul S Sung*

Departments of Bioengineering and Orthopaedic Surgery, University of Toledo, USA

DESCRIPTION

Low back pain (LBP) is among the most common musculoskeletal symptoms. Yoga therapy has been shown as an effective intervention for treating chronic or recurrent LBP. Yoga practice may increase muscle strength, endurance, proprioception, and balance while emphasizing movement through a full Range of Motion (ROM) to increase flexibility and mobility. For example, the rhythmic intervals of breath retention during yoga therapy could help rhythmic intervals of lumbar stability. The kinetics causing intra-abdominal pressure gradients may proceed independent of conscious, neuromuscular control. However, previous studies on yoga therapy mostly utilized pain/disability questionnaires or quality of life tools to compare the limited effectiveness following the intervention. An exercise program intended to be a regime of treatment for LBP is usually designed to improve function at the impairment level, such as pain and limited ROM, by improving muscular strength, muscular endurance, trunk flexibility, and/or cardiovascular endurance. Therefore, postural control in subjects with chronic LBP might require objective measurements on complex processes involving integrated motor function for impaired balance performance. The co-ordination of trunk mobility during functional movements depends on flexibility and stability with optimal spinal ROM. More importantly, core muscle strengthening for spinal stability would be critical through yoga therapy. In addition, the functional approaches to treatment may provide a practical approach to the LBP problem. Although wide ranges of exercise intervention have been developed and many are currently in use, there is conflicting evidence concerning the effectiveness of specific exercises for specific conditions. None of the available exercise interventions has emerged as the most commonly accepted treatment approach of choice for LBP. This problem may not be entirely the result of ambiguity of the effectiveness of the methods, but could be at least partially due to a lack of an outcome measure that serves as a meaningful, commonly accepted gold standard by which to compare the effectiveness of the various methods.

A recent study indicated that yoga intervention decreases functional disability, pain intensity, and depression at the 6-month follow-up in subjects with LBP. Another study indicated that yoga yields an incremental cost-effectiveness intervention for treating subjects with chronic and recurrent LBP. However, there is a lack of evidence regarding the effect of kinematic changes in trunk stability and/or flexibility following yoga intervention. In this regard, our motion analysis lab developed an objective tool to evaluate comprehensive postural sway during the one-leg standing test. The measurements of Relative Holding Time (RHT) and Relative Standstill Time (RST) during one-leg standing might be good postural measurement tools for yoga therapy intervention. These measurements were able to determine balance performance since subjects stand on one leg with the contra lateral hip flexed 90 degrees to maintain body stability. The RHT was defined as the ratio between the successful holding time and the requested holding time. The core spine was the direct upward perpendicular line from the pelvic plane of the second sacrum level. The pelvic plane included both sides of the anterior superior iliac spine and the second sacrum level. Therefore, the lumbar spine motion, which was affected by the pelvis and thorax, may be evaluated more accurately by three-dimensional relative motion from the core spine. Both holding time and kinematic changes from the core spine measurement would be a comprehensive objective tool since postural evaluation requires a process involving integrated motor function for impaired balance performance in subjects with LBP.

CONCLUSION

A trunk muscle imbalance may also contribute to unbalanced postural activity, which could prompt a decreased, uncoordinated bracing effect in subjects with LBP. As a result, possible kinematic rehabilitation training such as yoga intervention could be used in the prevention of falls in such subjects. Yoga is important to enhance both biomechanical and neuromuscular differences in subjects with LBP.

Correspondence to: Paul S Sung, Departments of Bioengineering and Orthopaedic Surgery, University of Toledo, USA, E-mail: drpsung@gmail.com
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