

**P61- IMMEDIATE EFFECTS OF FLEXIBLE AND RIGID  
LUMBOSACRAL ORTHOSES ON POSTURAL CONTROL IN  
CHRONIC LOW BACK PAIN PATIENTS**

Ahmadi A<sup>1</sup>, Farahmand B<sup>2</sup>, Maroufi N<sup>1</sup>, Bahrani S<sup>2</sup>

1 Physical Therapy; 2 Orthotics and Prosthetics, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran.

**Introduction**

Low back pain is one of the most common musculoskeletal problems. Although orthotic treatments are prescribed in many chronic low back pain (CLBP) situations, few studies have been performed on the effects of lumbar orthoses for CLBP subjects. Furthermore, a suitable orthosis for these people is not introduced.

**Purpose**

The purpose of this study was to evaluate and compare the effects of flexible and rigid lumbosacral orthoses (LSO) on postural control of CLBP patients.

**Material and Methods**

Twenty - two healthy and 22 women with nonspecific CLBP were participated in this study. Center of Pressure (COP) displacement and Velocity of COP displacement for both anteropostreior and mediolateral directions were measured as balance performance. The balance performance was assessed in two situations; quiet stance and after internal perturbation (rapid hip flexion) on force platform while wearing no orthosis (control), flexible or rigid orthosis.

**Results**

In quiet stance COP excursion was significantly higher in both anteroposterior and mediolateral directions in subjects with CLPB compared to the healthy individuals ( $P < 0.05$ ). Velocity of COP displacement in anteroposterior direction was significantly higher after perturbation and without orthosis condition ( $P < 0.05$ ). Both flexible and rigid orthoses had significant effect on CLBP subjects ( $P < 0.05$ ) and no significant difference was found between flexible and rigid orthoses ( $P > 0.05$ ).

**Conclusions**

Patients with nonspecific CLBP exhibited greater postural instability related to the healthy controls, signified by greater COP excursions and displacement velocity. It seems that flexible and rigid LSOs may improve postural control in CLBP patients.

**Key words:** Chronic Low Back Pain, Lumbosacral orthosis, Postural control, Center of Pressure