Journal of Physical Therapy Science

J Phys Ther Sci. 2016 Nov; 28(11): 3125–3130. PMCID: PMC5140813
Published online 2016 Nov 29. doi: 10.1589/jpts.28.3125 PMID: 27942133

Effect of spinal decompression on the lumbar muscle activity and disk height in patients with herniated intervertebral disk

Jeong-Il Kang, PT, PhD,[1] Dae-Keun Jeong, PT, PhD,[1] and Hyun Choi, PT, PhD[2,*]

[1)] Department of Physical Therapy, Sehan University, Republic of Korea
[2)] Department of Physical Therapy, Mokpo Mirae Hosipital, Republic of Korea
[*]Corresponding author. Hyun Choi, Department of Physical Therapy, Mokpo Mirae Hosipital: 351 Seokhyeon-dong, Mokpo-si, Jeonnam 530-828, Republic of Korea. (E-mail: pelvic@hanmail.net)

Received 2016 May 30; Accepted 2016 Jul 21.

Abstract

[Purpose] This study was conducted to clarify the difference in therapeutic effects between traction and decompression therapies, and their clinical therapeutic significance. [Subjects and Methods] The subjects were 31 patients aged 35 to 50 years who had unilateral or bilateral lumbar and radicular leg pain. An intervention program was implemented in 31 patients with lumbar herniated intervertebral disks. For the experimental group, 15 subjects were randomly selected to receive decompression therapy and trunk stabilization exercise. For the control group, 16 subjects were randomly selected to receive traction therapy and trunk stabilization exercise. [Results] Activities of the rectus abdominis, transverse abdominis, and external oblique muscles increased significantly in both groups. However, the activity of the erector spine muscle decreased, which was the only significant change in muscle activity among those of the other muscles in both groups. The disk herniation index in the experimental group decreased significantly in comparison with that in the control group, and the difference in the change in disk herniation index between the groups was significant. [Conclusion] Decompression therapy was demonstrated to be more effective clinically than conventional traction therapy as an intervention method for disk disease.

Keywords: Decompression therapy, Herniated intervertebral disk, MRI

INTRODUCTION

Human beings walk upright and maintain their postures with a narrow base of support and with the center of gravity of the upper trunk. Even if muscle tension slightly loosens, low back pain occurs because of stress from the mechanical posture of the muscle involved[1)]. This causative factor of low back pain can lead to problems in sense and timing of muscle contraction awareness, sense of heaviness, acting force, and acting load force[2)]. Of the cases of low back pain syndrome, 80% are related to the lumbar disk; and herniation of disk material is known as a secondary inflammatory response to stimulation of the dorsal root ganglion and nerve root is known as the cause of low back