



# Clinical impact of sagittal spinopelvic parameters on disc degeneration in young adults

Young-Min Oh MD PhD; Jong-Pil Eun MD. PhD



Department of Neurosurgery, Research Institute of Clinical Medicine of Chonbuk National University- Biomedical Research Institute of Chonbuk National University Hospital, Jeonju, Korea

## Introduction

The purpose of this study was to investigate sagittal spinopelvic parameters and the degree of disc degeneration in young adults.

## Methods

From 2009 to 2012, a total of 278 young adult male patients who ranged in age from 18 to 24 years ( $20.87 \pm 1.68$ ) were included in this study.

Pelvic incidence (PI), sacral slope (SS) and pelvic tilt (PT), Lumbar lordosis (LL), sacral inclination (SI), lumbosacral angle (LSA), and sacral table angle (STA) were measured.

Patients were divided into two groups according to their Pfirrmann grade. The no disc degeneration group (n=100) included those who had no disc degeneration (Pfirrmann grade I), and the disc degeneration group (n=178) comprised the patients who showed disc degeneration (Pfirrmann grade II to V).

## Results

LSA and STA were lower in the disc degeneration group than in the no disc degeneration group. The mean LSA values were  $116.80^\circ \pm 6.52$  in the no disc degeneration group and  $113.96^\circ \pm 7.05$  in the disc degeneration group ( $p < 0.001$ ). The mean STA values were  $97.41^\circ \pm 6.06$  in the no disc degeneration group and  $95.38^\circ \pm 6.12$  in the control group ( $p = 0.008$ ).

## Conclusions

In the present study, we found that patients with disc degeneration showed lower LSA and lower STA than patients without disc degeneration. This means that the patients with disc degeneration had more severe lumbosacral and sacral kyphosis, and vertical sacrum. We suggest that lumbosacral kyphosis and sacral kyphosis are risk factors for disc degeneration in young adults, and STA and LSA should be considered to prevent further disc degeneration. Also, our study demonstrated that lumbosacral structure with a more vertical orientation causes a tendency to develop disc degeneration and herniation.

## Learning Objectives

The purpose of this study was to investigate sagittal spinopelvic parameters and the degree of disc degeneration in young adults.

## References

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Fig 1a



Figure 1. Figure 1a denotes an MRI of a patient without disc degeneration and figure 1b shows an MRI of a patient with disc degeneration. The STA and LSA are lower in a patient with disc degeneration (Fig. 1b) than in a patient without disc degeneration (Fig. 1a). The sacrum of the patient with disc degeneration is more vertical (Fig. 1b) than that of the patient without disc degeneration (Fig. 1a).

Fig 1b

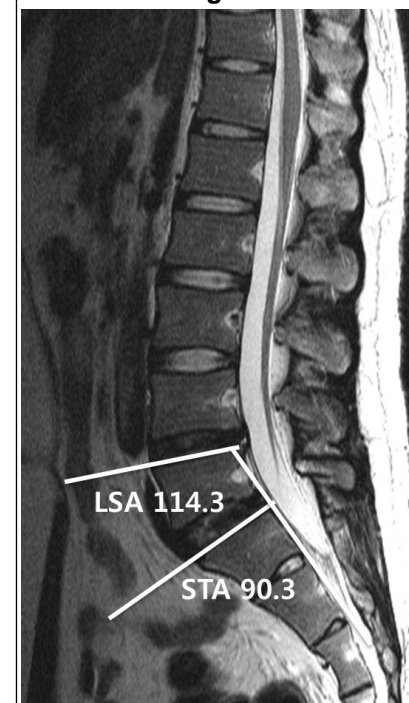


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