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**Letter to the Editor**

# An Analysis of the Effectiveness of Leg-Dropping from the Bed before and after Sleep in Correcting Pelvic Displacement

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## Dear Editor-in-Chief

Pelvic displacement moves the center of the body to the front, rear, or side, negatively affects the pelvic role in the skeletal core, and causes health problems in the spine, muscles, and organs, as well as postural imbalance (1).

The effects of pelvic imbalance on the musculoskeletal system include distorted spinal curvature, tilted sacral base, and leg length discrepancy due to fascial disorder with non-uniform tension in the iliolumbar ligament. Ongoing displacement can reportedly cause rotoscoliosis of the lower lumbar spine, leading to conditions that affect the entire musculoskeletal system (2, 3).

Pelvic displacement treatment involves manipulative therapy, which applies high-velocity low-amplitude stimulation to the displaced region of the pelvis, pushing the joint to the end of the paraphysiological space, beyond the physiological limit of normal exercise. By correcting the spinal segments, it is effective in returning normal spinal motion, activating the neural system, and restoring normal spinal arrangement (4, 5).

However, pelvic displacement manipulative correction has not been widely adopted in South Korea due to the time and cost required to achieve therapeutic effects.

This study asked participants with pelvic displacement to spend a short amount of time before and after sleep performing leg-dropping from the bed, which is the transformation of direct manipulation against posterior displacement of the pelvis, and its effectiveness in correcting pelvic displacement was determined. Results are expected to lead to this becoming a popular therapeutic method in South Korea.

This study was conducted on 25 male university students who had a pelvic inclination of ≥3°, as determined by a 3D spinal imaging device (Diers, Germany), and who complained of pain in the lumbar-pelvic region. They were asked to place the leg with posterior displacement of the pelvis at the outer side of the bed with the middle of their thigh at the edge of the bed so that their leg could drop. Then, they were asked to swing it via flexion and extension. This was performed for 15 min before and after sleep for 3 months. To assess the pelvic correction effectiveness, a 3D spinal imaging device was used to measure the angle and length of pelvic inclination and the pelvic imbalance angle. The visual analogue scale (VAS) was used to determine the degree of pain. Data were processed using the SPSS 23.0 Windows program (Chicago,

IL, USA) to obtain the mean and standard deviation and perform a paired t-test for pretest and posttest comparison.

The participant characteristics were as follows: Korean university students (n=25; age, 21.32±1.49 yr; height, 174.40±6.68 cm; weight, 69.28±6.08 kg). After applying the leg-dropping motion from the bed before and after sleep, significant reduction was observed in the pelvic inclination angle ($P$=0.016), pelvic inclination length ($P$=0.012) and the pelvic imbalance angle ($P$=0.008), along with a significant decrease in pain ($P$=0.000) (Table 1).

**Table 1:** Changes of variables by applying the leg-dropping motion from the bed

| *Variables* | *Before* | *After* | *t* | *P* |
|---|---|---|---|---|
| Pelvic inclination angle (°) | 4.72±1.62 | 3.84±1.99 | 2.602 | .016 |
| Pelvic inclination length (mm) | 7.88±3.16 | 6.24±3.58 | 2.710 | .012 |
| Pelvic imbalance angle (°) | 4.60±4.65 | 2.68±3.99 | 2.884 | .008 |
| Pain scale | 4.60±1.60 | 2.48±2.06 | 5.229 | .000 |

Data are presented as mean ± standard deviation

Applying the motion of leg-dropping from the bed before and after sleep is effective in correcting pelvic displacement and reducing pain. This study is very significant, it exposed people suffering from pelvic displacement issues to a simple and positive therapeutic approach. It is expected to be widely applicable to pelvic and spinal correction programs in the area of public health and make a significant contribution to the development of relevant research.

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## Conflict of interest

The authors declare that there is no conflict of interest.

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