

Differences in spinal postures and mobility among adults with Prader-Willi syndrome, essential obesity, and normal-weight individuals.

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Introduction: Spinal kinematics/motion are reported to be altered in adolescents and adults with essential obesity, while no information is available in patients with Prader-Willi syndrome so far. The aim of this study was to examine cross-sectionally the characteristics of spinal postures and mobility in 34 patients with PWS, in 35 age and sex-matched adults with essential obesity, and in 37 normal-weight individuals.

Methods: Spinal posture and mobility were assessed using a radiation-free back scan, the Idiag M360 (Idiag, Fehraltorf, Switzerland). Differences in spinal posture and mobility between the three groups were determined using a two-way analysis of variance.

Results: Adults with Prader-Willi syndrome had greater thoracic kyphosis [difference between groups (Δ) = 9.6° , 95% CI 3.3° to 15.6° , $p = 0.001$], less lumbar lordosis ($\Delta = -6.5^\circ$, 95% CI -12.7° to -0.3° , $p = 0.03$) as well as smaller lumbar and hip mobility than those with normal weight.

Discussion: Although the characteristics of the spine in patients with Prader-Willi syndrome appear to be similar to that found in subjects with essential obesity, Prader-Willi syndrome was found to influence lumbar movements more than thoracic mobility. These results provide relevant information about the characteristics of the spine in adults with Prader-Willi syndrome to be taken into careful consideration in the management of spinal conditions. These findings also highlight the importance of considering the musculoskeletal assessment of spinal postures and approaches targeting spinal and hip flexibility in adults with Prader-Willi syndrome.

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