

statistically significant association was only detected between school backpack weight and the emergence of changes in the spinal curvature at the thoracic region ( $p=0.036$ ), in the right tilt position.

**Conclusions:**

There seems to be an association between the school backpack weight and the appearance of postural changes in the sagittal plane of almost all the regions of the spine analysed.

## Association between School Backpack Weight and the Appearance of Postural Changes in School-Age Children

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**Introduction:**

According to multiple authors, the use of backpacks with excessive weight might be associated with the prevalence of postural changes of the spine (e.g., Bartlett & Birmingham, 003; Falsarella, Bocaletto, Deloroso, & Cordeiro, 2008), creating instability and a higher susceptibility to spinal injuries (Ries, Martinello, Medeiro, Cardoso & Santos, 2012)

**Objectives:**

To verify the existence of association between the weight of school backpacks and the emergence of postural changes in a sample of students aged between 10 and 18 years old, from Amares, Braga.

**Methods:**

480 students (245 females and 235 males) from public middle schools in Amares county, aged between 10 and 18 years old, were given an individual questionnaire regarding their socio-demographic information, activities of their daily living and clinical history. The weight of each student and its school backpack was recorded, together with a dynamic evaluation of the spine in the frontal and sagittal anatomical planes using the non-invasive measuring instrument Idiag<sup>®</sup> Spinal Mouse<sup>®</sup>. The student population was then divided in two groups: students with “normal” backpack weight (< 20% bodyweight) and students with “excessive backpack weight (> 20% bodyweight). Chi-Square (X<sup>2</sup>) tests were executed in IBM SPSS to verify the level of association between variables.

**Results:**

In the sagittal plane, a statistically significant association was detected between school backpack weight and the appearance of postural changes in the thoracic, lumbar and sacral regions of school-age children ( $p<0,05$ ). In the frontal plane, a