Abstract

Background: There is sparse literature that provides evidence of cervical and shoulder postural alignment of 15 to 17-year-old adolescents and that analyzes sex differences. Objectives: To characterize the postural alignment of the head and shoulder in the sagittal plane of 15 to 17-year-old Portuguese adolescents in natural erect standing and explore the relationships between three postural angles and presence of neck and shoulder pain. Method: This cross-sectional study was conducted in two secondary schools in Portugal. 275 adolescent students (153 females and 122 males) aged 15 to 17 were evaluated. Sagittal head, cervical, and shoulder angles were measured with photogrammetry and PAS software. The American Shoulder and Elbow Surgeons Shoulder Assessment (ASES) was used to assess shoulder pain, whereas neck pain was self-reported with a single question. Results: Mean values of sagittal head, cervical, and shoulder angles were 17.2±5.7, 47.4±5.2, and 51.4±8.5°, respectively. 68% of the participants revealed protraction of the head, whereas 58% of them had protraction of the shoulder. The boys showed a significantly higher mean cervical angle, and adolescents with neck pain revealed lower mean cervical angle than adolescents without neck pain. 53% of the girls self-reported regular neck pain, contrasting with 19% of the boys. Conclusions: This data shows that forward head and protracted shoulder are common postural disorders in adolescents, especially in girls. Neck pain is prevalent in adolescents, especially girls, and it is associated with forward head posture.

Keywords
adolescents; cervical; photogrammetry; rehabilitation; posture; shoulder.