

Abstract

Key words: temporomandibular joint, temporomandibular joint disorder, malocclusion, scoliosis, moiré, posture, spinal curves

Goal:

Our attempt is to determine whether subjects with pathologies in the orofacial area (malocclusion, TMJ disorders, jaw movement deviations) have higher prevalence of scoliosis or other spinal deviations than subjects without pathologies in the orofacial area.

Methods:

In 24 healthy young volunteers (2 men, 22 women; mean age 21,54 years) we measured following parameters of the orofacial area: occlusal parameters in static position (occlusal plane, midline deviation), position of the mandible (overjet, overbite) and also mandible movement parameters (protrusion, maximal mouth opening, mouth opening symmetry). Spinal parameters were measured using Video-Raster-Stereography device: Diers formetric 4D, a moiré topography based computerized system. We measured the scoliosis angle, kyphotic and lordotic angle, rotation of the vertebrae (maximal and mean), trunk inclination, trunk imbalance, fleche cervicale, fleche lombaire and also the amplitude of lateral deviations. To reveal possible relationships between parameters from the orofacial and spinal region Spearman's rank-order correlation or Mann-Whitney U test was performed.

Results:

Statistical analysis did not reveal any relationship between occlusal parameters in static position and spinal parameters. However, we found significantly higher scoliosis angle in subjects with mandibular deflection (Mdn = 15) compared to subjects with symmetrical mouth opening (Mdn = 10). Individuals with mandibular deflection (Mdn = 13.16) had also significantly larger amplitude of spinal lateral deviations than individuals with symmetrical mouth opening (Mdn = 7.44). In case of vertebral rotation RMS parameter, individuals with mandibular deflection (Mdn = 4.39) and individuals with mandibular deviation (Mdn = 3.40) have significantly higher degrees than individuals with symmetrical mouth opening (Mdn = 2.22).

Conclusion:

The relationship between occlusion and posture remains still unclear, because of the multifactorial etiology of postural and occlusal and temporomandibular disorders. Nevertheless, we found interdependence between jaw movement and posture in following parameters: scoliosis angle, vertebral rotation and amplitude of lateral deviations. When pathologies of the TMJ are present, the jaw pathway is altered and as the TMJ is one of the most loaded joints in the human body, these alterations can possibly influence the whole body posture.