

Assessing the impact of dental malocclusion on the body postural balance: correlation between angle class, pelvic balance and center of foot pressure

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Eye movement problems, hearing loss, or unstable pod support systematically affects postural balance. On the other hand, musculoskeletal problems such as misaligned teeth can affect postural stability. If the foot sensors, visual system, and vestibular system are classically considered as postural sensors that are somehow involved in postural control, the mandibular system has not yet been classified as a postural sensor. In recent years, many studies have focused on the possible relationship between the stomatognathic system and posture. Several biomechanical and neurophysiological hypotheses have been attempted to explain this relationship, including: muscle chain, trigeminal nerve activation or inhibition, sternocleidomastoid muscle contraction, and facial chain theory. Our study is a prospective, descriptive, and analytic study conducted on two groups: a test group of 53 patients who present malocclusion class II or III compared with 53 controls matched for age and gender. The evaluation of the center of foot pressure (CoP) and the confidence ellipse area (mm²) were performed by stabilometric platform using bipodal test in two occlusal conditions, in maximum intercuspation (MI) and with a cotton roll (CR), with and without visual cue. A pelvic level device was used to perform the pelvic balance examination. Statistical analysis used the chi-square test, the McNemar test, and the Pearson test. In the case group, the bipodal test was poor (outside reference values) in MI open eyes, MI closed eyes, CR open eyes, and CR closed eyes in 47.2%, 62.3%, 58.5%, and 64.2%, respectively, vs 54.7%, 43.4%, 34.0%, and 67.9%, respectively, of controls ($p < 0.05$). No subjects in the control group were diagnosed with pelvic imbalance, against five patients (9.4%) in the case group ($p < 0.05$). Pelvic imbalance was noted in two patients with class II.

Biography

Samia Karkouri is Professor of Physical Medicine and Rehabilitation–Faculty of Medicine–Rabat, Morocco. Head of Department of Physical Medicine and Rehabilitation, El Ayachi Hospital, Rabat University Hospital General secretary of Moroccan Society of Physical and Rehabilitation Medicine SOMAREF.