

were calculated in both anterior/posterior (AP) and medial/lateral (ML) directions, eyes open (EO) and closed (EC).

The secondary outcomes were the clinical variables “Berg Balance Scale” (BBS) and “Dynamic Gait Index” (DGI) and a score determined from 9 spatiotemporal parameters: the “Gait Variability Index” (GVI).

Results Eighteen patients with type 2 diabetes were included with a mean age 63.3 ± 8.6 years, and BMI 30.3 ± 5.1 .

There was no statistically difference between NS and RSS for the COP-COM variable in all conditions (AP: $P=0.96$ EO and $P=0.68$ EC; ML: $P=0.75$ EO and $P=0.13$ EC), and also for the other variables BBS, DGI and GVI ($P>0.05$). However, the stance time was significantly reduced ($P=0.01$) and the swing time was significantly increased ($P=0.02$).

Discussion–conclusion The rocker sole shoes seem to induce postural change during gait, without significant differences in quiet standing. For future studies, more sensitive assessment must be used and the number of subjects has to be increased to confirm these results.

Keywords Diabetic neuropathy; Rocker sole shoes; Postural stability

Disclosure of interest The authors have not supplied their declaration of competing interest.

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CO051

Identification of a voluntary overcontrol of postural sway from static stabilometric assessment



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Objective When subjects present medically unexplained postural instability, a voluntary overcontrol of postural sway is often suspected. Aphysiologic postural imbalance may be detected in dynamic conditions on a servo-controlled platform (Equitest), but it remains difficult to objectify from static stabilometric evaluation. Our objective was to identify the key stabilometric parameters that allow to discriminate subjects with voluntary postural instability, control subjects and neurological patients with organic postural instability.

Material/patients and methods Stabilometric data from 41 control subjects, 21 voluntarily simulating postural instability, were compared with those from 173 neurological patients with postural instability (stroke, spinal cord injury, Parkinson's disease, cerebellar syndrome) and with data from 3 patients suspected to simulate postural instability.

Data were obtained in static condition of bipodal support, with open and closed eyes.

The studied parameters were: velocity of center of pressure (velocity-CP), area of the 90% confidence ellipse of statokinesigram (area-SKG) and number of peaks greater than 0.2 (NP2) on the curve of cross-correlations between anteroposterior and medio-lateral displacements of CP.

Results Eyes open, high values of the velocity-CP ($72.3 \pm 36.3 \text{ mm}\cdot\text{s}^{-1}$), NP2 (4.9 ± 2.4) and area-SKG ($13\,015 \pm 10\,667 \text{ mm}^2$) were observed in controls simulating instability, comparable to those of 3 patients suspected to simulate postural instability (velocity-CP: $15\text{--}131 \text{ mm}\cdot\text{s}^{-1}$, NP2: 3–9, area-SKG: $1117\text{--}6675 \text{ mm}^2$) and higher than those of neurological patients (velocity-CP: $16.8 \pm 10.1 \text{ mm}\cdot\text{s}^{-1}$, NP2: 1.3 ± 1.1 , surface-SKG: $385.7 \pm 436.9 \text{ mm}^2$; $P<0.05$). Similar results were obtained with eyes closed.

Discussion–conclusion Several stabilometric parameters obtained in static conditions seem relevant to identify aphysiologic postural instability related to a voluntary overcontrol of postural sway, while allowing to distinguish such subjects from patients with postural instability of neurological origin.

Keywords Malingerers; Postural instability; Cross-correlations; Posturography

Disclosure of interest The authors declare that they have no competing interest.

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CO053

Impact of fatigue on postural control in quiet standing in fibromyalgia



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Objective Fibromyalgia fatigue was described as an overwhelming feeling of tiredness that is not relieved by sleep or rest and is often not in proportion to the effort realized. In fibromyalgia syndrome (FMS), the fatigue has an important functional impact, often limiting the activities of daily living, can induce a state of deconditioning, and causing disturbance of locomotion, whose reasons are not fully understood.

The aims of this study was to evaluate the postural performance in quite standing of FMS patients, and to compare them to a control group, and to assess the influence on the posture of a fatigue induced by a short walk.

Material/patients and methods Were included: 11 fibromyalgia patients in fibromyalgia groupe (FMG) and 12 healthy subjects appeared in control group (CG). Foot center of pressure (CP) displacements on a task-force platform under two conditions: eyes opened – i.e. vision and eyes closed – i.e. no-vision, before and after a six-minutes walk test (6MWT) were recorded.

Results The results showed that subjects with fibromyalgia have a surface displacement of center of pressure more important than healthy subjects.

Therefore, before 6MWT, in “No-vision” condition, CP displacement was $200.05 \pm 145.31 \text{ mm}^2$ ($m \pm SD$) in CG vs $397.03 \pm 242.82 \text{ mm}^2$ in FMG ($P<0.05$). In “Vision” condition CP displacement were respectively $139.08 \pm 61.78 \text{ mm}^2$ vs $237.70 \pm 136.41 \text{ mm}^2$ ($P=0.06$).

The deterioration was more significant in FMG after the 6MWT, only in “No-vision” condition ($P<0.05$).

Discussion–conclusion FMG had postural impaired performance compared to healthy subjects, especially in the absence of compensation with visual input. This might be explained by sensory changes induced by chronic painful condition affecting muscles. In addition, the disturbance of postural performance is more important after 6MWT (unlike CG), highlighting the state of fragility of subjects and the risk of falls in fatigue condition.

We conclude that the compensation by the vision is important. The walk test induced fatigue property and a possible decrease in sensitivity of proprioceptive system.