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Effects Thin plantar stimulation on postural coordination patterns.

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Key words

- Postural coordination,
- Hip strategy,
- Elderly,
- Plantar Somatosensory Performance,
- Thin stimulation,
- Postural control,
- Podiatry

Reference's:

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Background:

• Ageing alters sensorimotor function which impairs balance control and increases the involvement of the hip joint (1-5). Age-related reduction of plantar cutaneous sensitivity impairs the ability to detect small postural changes during upright stance and increases the risk of falls (2-4). Posterior bars (PB), plantar stimulation increasing somatosensory can increase postural stability (6) and reduce the involvement of the hip (7, 8). Nevertheless, PB effects on hip/ankle mechanisms have not been previously investigated. They can potentially be assessed with the passive Forward-Push Test (FPT), simple clinical test used to determine the preferential involvement of the hip or ankle joints in postural control (9).

Aim:

evaluation of PBs improving foot sensitivity on hip/ankle postural control mechanisms with the FPT test..

Material & Device

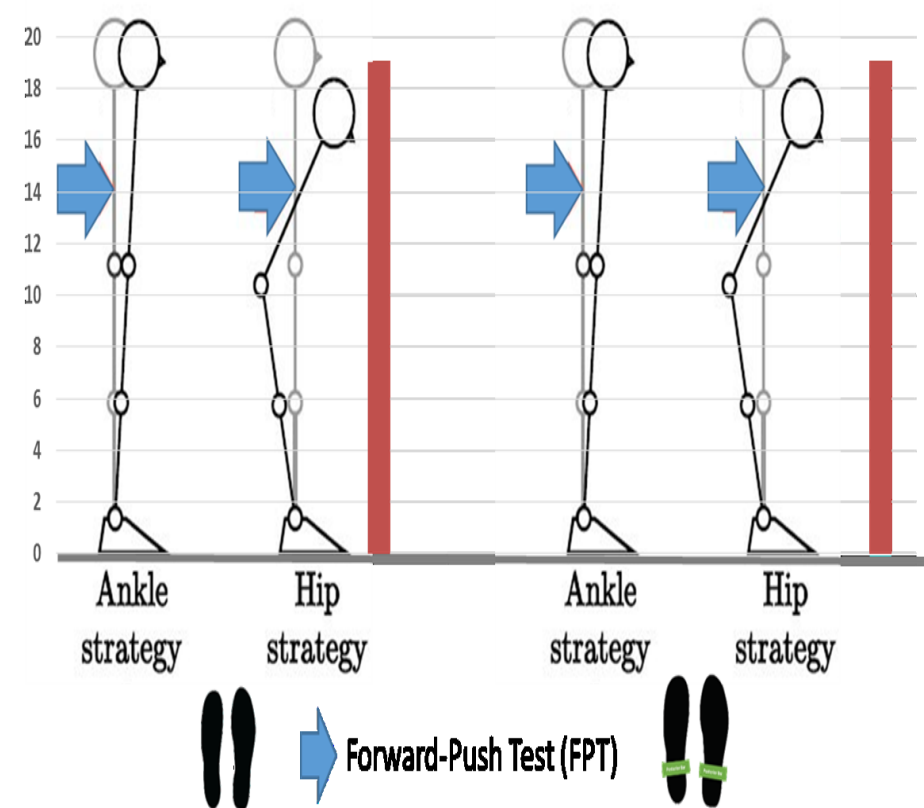
Subjects: **19 elderly women**
(77.52 years \pm 6.77)

Device specifications:
Thin Posterior Bars : 2 mm of 60sh in resin (9), were applied on rare foot/midfoot junction under each foot (9, 10)

Testing of coordination patterns
FPT was conduct randomly on the without or with PBs. Coordination patterns ankle or hip strategies were report before and after wearing PB

Results:

postural coordination patterns without PBs and with PBs
in number of subjects (N=19)



no significant differences were observed on the FPT when using PBs;

Discussion & Conclusion: Foot somatosensory cue are deficient in elderly and they used Hip Strategy. BPs increase the sensory cues with CoP forward (5) and best walking (6). **Anyway, BPs of 2 mm have no influence on FPT and does not reduce Hip Strategy**. However, BPs were included in orthotics devices (6). Therefore is not only the BPs witch improve the foot sensitivity but the combination BP and moulded insoles. Finally BPs contribution on FPT must be evaluated and only stimulation by thin BPs did not influence Hip Strategy as well as could be disadvantageous to control and balance recovery.