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Reference
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Neck muscle vibration and stroke patients
S. Challois Leplaideur a, b, S. Challois Leplaideur a, b, C. Tassel-Tonche c, A. Yelnik c
a CHU Rennes, Rennes, France
b CHU de Rennes, Rennes, France
*Corresponding author.

Keywords: Stroke; Balance; Neck muscle vibration

Posture disorders determine the functional outcome of stroke patients. The short-term effect of neck muscle vibration (NMV) was explored in 30 patients (14 right hemisphere stroke and 16 left hemisphere stroke; average 61.6 years, average 3.1 months post-stroke). The lateral shift has been measured with a strength platform before and after ten minutes of NMV. The bias has been positive and significant for all patients. Sensory stimulations were more effective in reducing the bias in the LLH group than in the RLH group (p = 0.02 and p = 0.03 for galvanic mean displacement, respectively 14.2 (17.1) for RLH, 4.2 (8.8) for LLH). The sensory stimulations were more effective to reduce the bias in the LLH group than in the RLH group. Controls.

Discussion – These results suggest that areas of the right hemisphere are partly involved in the exaggerated postural bias of RLH whenever the bias observed in LLH could be exclusively the consequences of mechanical mechanisms.

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Polymodal areas in the right brain support the human sense of upright
C. Piscicelli a, *, J. Barra c, B. Lopez c, O. Detante d, D. Perennou a
a CHU de Grenoble, Clinique MPR, Laboratoire TIMC-Imag, Grenoble Université, Grenoble, France
b Laboratoire Mémoire et Cognition, Université Paris Descartes, France
* Laboratoire de Neurosciences Intégratives et Adaptatives, UMR 7260, CNRS Aix-Marseille Université, Marseille, France
c CHU de Grenoble, Neurologie, Université Joseph-Fourier, Grenoble Institute of Neurosciences UMR-S836, France
* Corresponding author.

Keywords: Sense of upright; Vestibular cortex; Stroke; Voxel Lesion Behavior Mapping (VLBM) statistical approach

Goals – The sense of upright is often altered after stroke. We analysed its neural bases in the personal (Postural vertical, PV) and the extrapersonal (Visual vertical, VV) spaces, in relation to the vestibular cortex.

Patients and methods – VV and PV were assessed in 66 first hemisphere stroke patients (58 ± 15 years, 25 F–41 M, 41 Right–25 Left), analysed by voxel lesion behaviour mapping (VLBM) statistical approach and then compared to a meta-analytic cartography of human vestibular cortex [1].

Results – VV tilts were contralesional in 45% and ipsilesional in 9%. PV tilts (42%) were always contralesional. Tilts in vertical estimates were more pronounced after right than left lesions for VV (−4.2° vs −1.7°; t(64) = −2.11; P = 0.03) and PV (−5° vs −0.7°; t(64) = −4.67; P < 0.001). In right lesions, polymodal areas of sense of verticality were the operculo-insular cortex and the posterolateral thalamus. Only 14% of this core for the sense of verticality overlapped the vestibular areas. In left lesions, the rarity of PV tilts (3 patients) made irrelevant any VLBM analysis.

Conclusion – The operculo-insular cortex and posterolateral thalamus in the right hemisphere support the human sense of upright, which must be improved by rehabilitation after right hemisphere stroke. Surprisingly, the overlap with the vestibular cortex was weak.

Reference
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Influence of repeated effort induced by a 6-min Walk Test on postural response in older women
P.-L. Bernard a, *, H. Blain a, G. Tallon a, S. Ramdani a
a UFR APS, EA 2991, Movement to Health, Euromov, Montpellier, France
b CHU, Pôle Gérontologie, Antonin-Balmes/Movement to Health, Euromov, Montpellier, France
* Corresponding author.

Keywords: Aerobic exercise; Elderly; Stabilometric analysis; Dynamic methods

Aim – The aim of this paper was to explore the effect of repeated efforts induced by a 6-minute walk test (6MWT) on the postural responses in 49 older sedentary and osteopenic women.

Methods – We hypothesized a degradation of the postural responses associated with an increase of center of pressure (COP) fluctuations and a loss of the complexity of the COP time series. To that end, we used kinematic stabilometric parameters combined with recurrence quantification analysis (RQA) and central tendency measure (CTM) extracted from COP signals.