

The effect of the mobilisation of the contralateral limb on knee extension in slump position in healthy adult subjects

Leonardo Pellicciari¹, Matteo Paci², Tommaso Geri³, Daniele Piscitelli⁴, Marco Baccini⁵

¹School of Doctorate in Advanced Sciences and Technologies in Rehabilitation Medicine and Sports, Tor Vergata University of Rome, Rome, Italy; ²Unit of Functional Rehabilitation, Prato Hospital, Prato, Italy; ³Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health, University of Genoa - Campus of Savona, Italy; ⁴School of Doctorate in Neuroscience, Bicocca University of Milan, Milan, Italy; ⁵Unit of Functional Rehabilitation, Motion Analysis Laboratory, Azienda Sanitaria di Firenze, Florence, Italy

Background and objective. The Slump Test¹ is a neurodynamic test, used when assessing patients with low back pain and associated radiating pain in the leg to discriminate whether the source of pain is of neural origin. According to the neurodynamic concept², it has been proposed that mobilising the unaffected leg with the patient in test position would decrease the adverse neural tension at the lumbar roots level³. As the angle between the lumbar roots and the spinal cord can be decomposed in a principal axial component and an accessory lateral displacement, it has been argued that tensioning the contralateral root would traction distally the axial component of the ipsilateral root thereby decreasing its adverse neural tension^{3,4}.

The objective of this work was to study the effects of the contralateral knee mobilisation on the knee extension range of motion (ROM) in slump position.



Figure 1.—Positioning of the subject.

Materials and methods. A repeated-measure design was used to study 38 healthy adult subjects, naive to manual therapy or neurodynamics. All participants underwent a placebo (sham mobilization), control (no mobilization) and experimental (passive left contralateral knee mobilization into extension) procedures in a randomized order. Right knee extension ROM was measured by an optoelectronic motion analysis system before and after each procedure. The assessor was blinded to the procedures. Data were analysed using a Friedman's ANOVA and post-hoc pairwise comparisons were made using a Wilcoxon signed rank test with Bonferroni's correction.

Results. The experimental procedure produced a statistically significant increase of the knee extension ROM when compared with the control ($p=.008$) and the placebo ($p=.009$) procedures. No differences were observed when comparing the control and placebo procedures. However, a significant increase of the angle delimited by the column segment and the segment thigh was detected after the experimental procedures ($p<.001$), but not after the placebo and control procedures.

Discussion

Although the experimental procedure increased the ipsilateral knee extension, it also changed the angle delimited by the column and thigh segments. The observed effect seems most likely attributable to a mechanical action of the hamstring muscles on the ischial tuberosities rather than to the neural mobilisation of the lumbar roots.

References

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Changes induced by treatment with botulinum toxin a in children with cerebral palsy : prospective study

Giorgia Sablone, Mariangela Marchettini

Azienda Sanitaria USL di Prato.

Aims. Botulinum toxin A is used in the management of spasticity in children with Cerebral Palsy (CP). In the treatment of hypertone of gastrocnemius and soleus muscles, its efficacy has been demonstrated in terms of improvement of Functions and Body Structures (range of motion, muscle tone, gait pattern). Low attention has been addressed to the components of Activity and Participation, according to the International Classification of Functioning, Disability and Health, Version for children-adolescents (ICF-CY). In the studies that consider the gross motor abilities, botulinum toxin A is given in more parts of the body. The aim of this study is to observe changes induced by treatment with botulinum toxin A in the gastrocnemius and soleus, both on Functions and Body structures and Activity and Participation of children/adolescent affected by CP, according to ICF-CY.

Methods. This prospective observational study included 14 patients with CP, between 3 and 17 years, able to walk without assistance, classified into I and II level of Gross Motor Function Classification System (GMFCS), afferent to botulinum toxin services of hospitals in Florence and Prato. Before treatment and 1 month after treatment were evaluated: range of motion of the ankle, muscular tone of gastrocnemius and soleus, gait