Effect of Spinal Manipulation and Exercises on Cinematic of the Trunk of Obese Patients with Low Back Pain: Preliminary Results of a Pre-Post Study

1Fabio Zaina, 2Luca Vismara, 3Francesco Menegoni, 4Manuela Galli, 5Stefano Negrini, 6Valentina Villa, 7Paolo Capodaglio

1ISICO Italian Scientific Spine Institute, Milan
2Orthopaedic Rehabilitation Unit and Clinical Lab for Gait Analysis and Posture, Ospedale San Giuseppe, Istituto Auxologico Italiano, IRCCS, Via Cadorna 90, I-28824, Piancavallo (VB), Italy
3Psychology Research Laboratory, Ospedale San Giuseppe, Istituto Auxologico Italiano, IRCCS, Via Cadorna 90, I-28824, Piancavallo (VB), Italy

Introduction
In a previous study we demonstrated an increased thoracic stiffness and reduction of thoracic ROM in obese women with chronic low back pain (LBP). Spinal manipulation is recognized as a treatment effective on pain in LBP aimed at improving ROM, especially useful when associated with an active specific approach with exercises. The aim of our study was to evaluate the thoracic kinematic pre-post treatment in a group of LBP obese patients treated with osteopathic manipulation and exercises.

Methods
Assessment
Instrumental outcome measures: Cinematic of the dorsal and lumbar spine and pelvis during flexion, side bending and rotation (Fig 1-2). A VICON 480 A 6 TV was used.
Clinical outcome measures: VAS, Roland Morris Disability Questionnaire.
A Student’s t test was performed (p<0.05).

Procedure
Due to the high cost of the evaluation used, we included 6 obese females with chronic low back pain (BMI 44.09±7.17 Kg/m²; age 43.83±5.63) have been evaluated before and after a treatment with Exercises and Osteopathy. The treatment lasted 2 months and consisted of 3 session of osteopathy principally based on dorsal spinal manipulation and 10 sessions of 1h of exercises principally aimed at lumbar muscles strengthening.

A Student’s t test was performed (p<0.05).

Results
A significant improvement of the dorsal ROM (from 32°±5 to 39°±5, p<0.05) and the dorsal kyphosis ROM (from 1°±4 to 5°±4 p<0.05) was observed (Tab 1, Fig. 3). Also clinical outcome measures improved: the Roland Morris score changed from 6±4 to 1±1 (p<0.05) and VAS changed from 45±10 to 18±18 (p<0.05).

Discussion
A combined treatment with exercises and osteopathy is effective in obese patients with chronic low back pain to improve biomechanical parameters and the dorsal stiffness. Moreover the treatment reduced disability and improved pain. Further studies are needed to compare these preliminary results with other treatments.

Financial Disclosure
None of the authors has any financial conflict of interest nor received any grant for the present study

References
3Licciardone JC, Cleveland H, Colton C: The Disparity of Osteopathic Physicians in Financing Payment With Low Back Pain. JAOA. Supplement 8, Vol.104 No.11 November 2004