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**EFFICACY OF EXERCISE PROGRAM WITH THE HUBER SYSTEM
COMPARED WITH CLASSIC EXERCISE PROGRAM IN
REHABILITATION FOR PATIENTS WITH CHRONIC LOW BACK PAIN**

BOJINCA M., BIDA D., MIHAI C. MILICESCU M., CORNEA R.

Internal Medicine & Rheumatology Department,

Dr I. Cantacuzino Hospital, Bucharest, Romania

BACKGROUND

Chronic, uncomplicated, low back pain is one of the most frequent medical problems in the general population. Exercise is generally accepted as treatment for low back pain but the best method is still in debate 1. HUBER® is a new rehabilitation device with complex actions on different muscular groups, postural equilibrium and mobility improvement 2, 3. HUBER® is endowed with an oscillating plate, which induces a 3D movement of all articulations and is equipped with strength captors on handles, which translate, on a screen, the global activity of muscular chains. This visual feedback allows constant adjustment of the developed effort. During exercises, HUBER® records variations of effort and coordination performance.

OBJECTIVES

Efficacy assessment of exercise program with the Huber device compared with classic exercise program in the treatment of chronic low back pain (CLBP).

METHODS

We studied 40 patients with CLBP. The patients were randomly assigned to one of two groups: exercise program with the Huber device (test group - 20 patients) and classic exercise program (control group - 20 patients). The patients were evaluated at the beginning of the study and after 15 exercise sessions using physical examination, visual analogue scale (VAS) for pain,

Schöber test and finger - floor distance for spinal mobility, Biering - Sorensen test and Shirado - Ito test for the strength of trunk muscles and Quebec scale for functional status. We used a variant of SPSS11 program for statistical analysis.

RESULTS

The mean age was 38.63 +/- 11.13 years for the Huber group and 42.27 +/- 9.41 years for the control group(p = NS). Both groups had significant improvements (p < 0.05) after 15 sessions according to pain (Huber 42.6%; control 24%), Biering - Sorensen test (Huber 52%; control 39%) Shirado - Ito test (Huber 50.2%; control 37%), and Quebec scale (Huber 52.8%; control 25.6%). The Huber group had a more important improvement for VAS, Shirado - Ito test and Quebec scale compared to control group (p < 0.05). Schöber test and finger - floor distance did not show significant modifications at the end of the study or between groups. The patients in both groups did not experience significant adverse reactions.

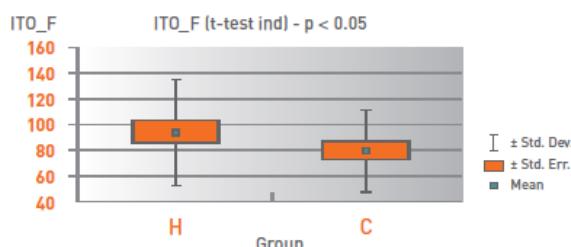
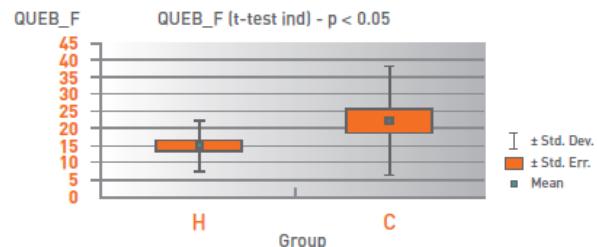
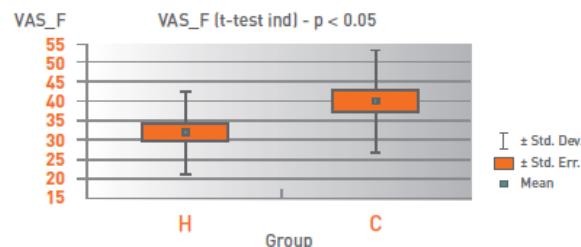
CONCLUSIONS

Standardised exercise program with the Huber device is effective, well tolerated, and induces significant improvement for patients with chronic low back pain. Compared with classic exercise program, the program using the Huber device induces significantly more improvement for pain, trunk flexors muscles strength, and functional status. This results open up new prospects for the use of this technique in rehabilitation programs.

1. Datta D, Mirza S, White A. Low back pain. In: Harris EJ, Budd R, Genovese M, et al., eds. Kelley's Textbook of Rheumatology. Vol. 1. Philadelphia: Elsevier Saunders, 2005:588-616.
2. Portero P, Thoumie P. Study of muscular function in healthy subjects after training with Huber system. Aix les Bains: Congress of French Association of Equilibrium & Posture, 2005.
3. Maertens de Noordhout B. Utilisation of Huber system in Rehabilitation Medicine. Dijon: Congress of French Society of Rehabilitation Medicine, 2005.

TEST	HUBER (0)	HUBER (15)	p (t-test) H0/H15	CONTROL 0	CONTROL 15	p (t-test) C0/C15
VAS	55.45 +/- 14.95	31.8 +/- 10.47	< 0.05	52.45 +/- 17.5	39.9 +/- 12.86	< 0.05
BIERING - SORENSEN	60.15 +/- 34.81	92.15 +/- 35.87	< 0.05	58.8 +/- 39.14	81.65 +/- 19.38	< 0.05
SHIRADO - ITO	61.8 +/- 44.94	92.85 +/- 41.44	< 0.05	58.25 +/- 24.3	80.07 +/- 37.61	< 0.05
QUEBEC	31.71 +/- 11.53	14.95 +/- 7.06	< 0.05	30.25 +/- 19.38	22.5 +/- 15.53	< 0.05

TEST	HUBER (15)	CONTROL 15	p (t-test) HUBER/CONTROL
VAS	31.8 +/- 10.47	39.9 +/- 12.86	< 0.05
SHIRADO-ITO	92.85 +/- 41.44	80.07 +/- 37.61	< 0.05
QUEBEC	14.95 +/- 7.06	22.5 +/- 15.53	< 0.05



1. Datta D, Mirza S, White A. Low back pain. In: Harris EJ, Budd R, Genovese M, et al., eds. Kelley's Textbook of Rheumatology. Vol. 1. Philadelphia: Elsevier Saunders, 2005: 588-616.
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