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*"Using Magnetic Fields to Increase Flexibility and Reduce Pain with Respect to Ailments of the Ambulatory Apparatus."*

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Study conducted at Marburg Teaching Hospital, Drau (Slovakia) and the Institute of Hygiene, Graz University (Austria)

Between 01/02/95 and 12/05/95, 14 male and 14 female patients with ambulatory and sustentacular apparatus ailments, were treated solely using a magnetic field treatment device (QRS). The patients had no prior surgical treatment related to their ailments. The QRS was previously unavailable on the Austrian market.

The patients (Ave. age 46.1 + 10.8 a) were suffering from intervertebral disc prolapse (diagnosed via myelography), spinal stenosis (on basis of CT), and osteoporosis (densitometry). They were treated in 20 sessions (8 minutes, twice daily - once in the morning and once in the afternoon) over a two-week period (Mon-Fri) on a mattress-like application mat using the maximum field-level setting on the QRS device ( $B_{max} = 4 \text{ mt}$ ).

Success of the therapy was evaluated using a 10-point Dole scale, comparing a measured distance between the fingertips and the floor while the patients were bending forward both prior to, and following, treatment. Evaluation of the subjective pain experienced by the subjects was carried out using non-parametric maximum, sequential-range, and semi-qualitative Chi2 tests. Flexibility was evaluated using the two-tailed t-Test for unequal variances (parametric test).

Using the sequential-range and maximum tests (111.2), there was a significant reduction in pain ( $p < 0.05$ ). Further level of significance could not be determined in either case due to methodological reasons.

Proceeding on the null hypothesis of an equal distribution for the categories, "improved" and "worsened", the results of the Chi2 test ( $p < 0.001$ ) were highly significant in favor of the effect of the magnetic field treatment. Increased flexibility in bending was also highly significant ( $p < 0.001$ ) (see 111.2).

The results presented in both categories reflect those indicated in international literature. Further cases are currently being studied.

### **1. Evaluation of "Pain Reduction"**

- a. Sequential Range Test. The limits for significance ( $p < 0.05$ ) were far exceeded which indicates that improvement was achieved on this level.
- b. Maximum Test. The negative (and positive) differences in the Dole scale values were compared (end of therapy minus beginning of therapy). This resulted in highly significant differences ( $p < 0.001$ ) indicating a reduction in pain through magnetic field application.
- c. One-dimensional Chi2 test with one degree of freedom (including correction of continuity): There were 28 improvements and 0 deteriorations. Assuming equal distribution (equal amount of improvements and deteriorations), the result was as follows:  
Chi2 -26.04 (N=28).  
This indicates a highly significant decrease in pain ( $p < 0.001$ ).

### **2. Evaluation of "Mobility"**

The t-test (two-tailed, unequal variances), on the average distance from the floor when bending forward, before and after the MFT series, had the following result:

(Temp = 3.56; FG = 51.07).

This indicates a highly significant increase in mobility ( $p < 0.001$ )