Reviewer's report

Title: Similarities and Differences of the Soleus and Gastrocnemius H-reflexes during Varied Body Postures, Foot Positions, and Muscle Function: Multifactor Designs for Repeated Measures.

Version: 1 Date: 23 March 2011

Reviewer: Vivian Drory

Reviewer's report:

To the editor:

This is a study that examines characteristics of the H-reflex, as recorded from the soleus, medial and lateral gastrocnemius, during lying with feet in a neutral position, during maximal dorsiflexion and maximal plantarflexion and during standing normally, on the heels and on the toes, in 10 healthy individuals.

The purpose of the study is stated as "understanding the normal H-reflex patterns recorded from the three muscles, and provide a reference standard for comparison to patients with L5 and/or S1 root lesions", in order to differentiate between L5 and S1 radiculopathies.

Both purposes are not fulfilled by the study: It provides a description of the variability of H reflex amplitudes and H/M ratios in the different positions, but the explanations provided in the discussion for the results are purely speculative, and therefore do not contribute to the understanding of the physiology of spinal reflexes and supraspinal influences. Also in order to propose the test for the clinical diagnosis of L5 vs S1 radiculopathies, validation of the results in patients with proven radiculopathies at different levels would have been needed. As the present study reports only data in healthy controls, a clinical application of the test cannot be speculated.

Other flaws of the study:

1. The population examined is very small (ten individuals only) and rather young (mean age 32 years) making a possible comparison to patients with radiculopathies irrelevant.

2. The statistical analysis included comparison of over 50 variables, but in spite of this, a very low significance level was set (p<0.05), revealing many weak correlations, probably part of them not clinically important and reproducible. Not a single comparison had a strong degree of significance.

3. The statement in the last paragraph that the study provides a "reference standard..." is far too ambitious as the study examined only ten individuals.

4. Most cited literature is more than two decades old, reflecting that during the last years the interest in the technique of H-reflex has faded away in view of the broad use of MR imaging and magnetic stimulation in the evaluation of spinal lesions.
In conclusion, the study is of very low clinical importance.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.