

# Intramuscular Stimulation (IMS) of Muscle Motor Points in the Treatment of Chronic Low Back Pain: A Randomized Clinical Trial

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## ABSTRACT

Simple or mechanical low back pain, as defined by the Clinical Standards Advisory Group (CSAG 1994), is the commonest and most rapidly increasing cause of loss of work, demand for health care and need for state benefit in society today (Fordyce 1994).

In most recent population studies 36-37% of the adult population reported back pain in the last year and approximately 60% would report back pain at some time in their lives (CSAG 1994). The annual cost of this back pain to the NHS was estimated to be £480 million (This does not include private consultations or medicines outside the control of the NHS).

Tulder (1997) carried out a systematic review of RCT's of the commonest forms of treatment in use for back pain, including Acupuncture (Dry-needling). This review concluded that the overall methodological quality of RCT's on the efficacy of treatments for back pain was very poor. Acupuncture in particular appeared to have poorly designed trials to support its use in a clinical setting.

However, acupuncture still remains a common and a popular form of treatment for back pain and although described as being of poor quality some evidence does exist for its use. Gunn (1980) in a study of chronic low back pain found that patients treated with dry-needling had significantly better outcomes than controls with respect to return to work ( $P > 0.005$ ). Garvey (1989) compared dry-needling to injection of local anaesthetic in patients with low back pain. Dry-needling resulted in a 63% improvement rate ( $P=0.09$ ). The use of dry-needling as opposed to injection of trigger points is further supported in other studies (Hong 1994).

This study aims to address the lack of evidence and to support the use of acupuncture (Intramuscular Stimulation) in the clinical setting for the treatment of chronic low back pain. To achieve this a randomised controlled trial was conducted to test the hypothesis that: Dry-needling of muscle motor points for chronic low back pain in conjunction with a program of exercise produces superior outcomes to the use of an exercise program alone.

Patients who had simple, chronic low back pain, as defined by the CASG report (1994), were randomly selected from a total of 6 months of referrals made to the Physiotherapy Department at St. Leonards Hospital. These referrals were from the patients General Practitioners. A total of 45 subjects, 24 in the experimental and 21 in the control were recruited.

Once it was established that these subjects fit the study's inclusion criteria and their written consent was obtained, they underwent the clinics standard back pain assessment, this was used to calculate a range of movement score (Stankovic and Johnell 1990). Subjects were also asked to complete two questionnaires as part of the study's outcome measures,

- The McGill Pain Questionnaire.
- The Roland Morris Physical Disability Scale.

A further Questionnaire was used at initial assessment to rule out any obvious Depressive overlay.

- The Distress and Risk Assessment Method.

At this point an independent clinician randomly allocated each patient to either the experimental or the control group. The experimental group was treated with instruction in a home exercise program and also started on a course of Intramuscular Stimulation (IMS). This consisted of up to ten treatments.

The control group received similar instruction in a course of home exercise but received no treatment with IMS. At termination of treatment both groups were asked to complete the questionnaires again and receive a physical re-examination of the spine.

A follow up appointment for 3 months post discharge was then arranged to physically re-assess each patient and to complete the two outcome questionnaires. The results were analysed, using the non-parametric Mann-Whitney U test.

The results supported the hypothesis that intramuscular stimulation and an exercise programme are superior to an exercise programme in isolation. At the pre-treatment measurement stage there was no significant difference between either the experimental group or the control group at any of the three outcome measures.

At both the discharge and the three month follow up stage there was a significant difference noted in the Roland Morris scores ( $p = .005$ ). Similarly, significant differences existed with the range of movement scores ( $p = .005$ ) and the McGill pain questionnaire scores ( $p = .005$ ).

This study proposes that the use Intramuscular Stimulation in the treatment of chronic low back pain be considered a serious alternative to other conventional therapies. Further studies with longer term follow up and larger numbers of patients are now needed to confirm this assumption.

#### iSTOP Comments

*This important study confirms the results from a Randomized Clinical Trial with Long-term Follow-up at the Workers Compensation Board of British Columbia - "Dry Needling of Muscle Motor Points for Chronic Low-Back Pain" Spine, Vol 5 No 3 May / June 1980*