
**CLINICAL STUDY ON THE USE OF ELECTRO-STIMULATION
DEVICE AQ8 SYSTEM DEVICE IN PATIENTS WITH CHRONIC
LOW BACK PAIN HISTORY ASSOCIATED TO SPONDYLOLYSIS.**

(Disability Scale Questionnaire Low Back Pain Visual Oswestry Analog Scale. SPSS Software and technical normalized T student statistics.) ©

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I. Introduction.

Among the most common ailments that produce chronic low back pain is spondylolysis, a deformity of the spine that forms the anterior displacement of a vertebra on its lower immediate. This deformity may be due to a subluxation of the facet with integrity pars or lysis interarticularis isthmus, and manifests as chronic low back pain, with very little presence of symptoms of nerve root irritation.

Existing treatments are almost exclusively indicated in patients with moderate clinical, with prevalence of low back pain on cialgia, combining rest, the use of orthotics and exercises lumbosacral kyphosis Williams.

With the evolution of the study of this disease and scientific advances, it has gone from prescribing rest and infiltrations, to recommend exercise as a method of treatment, in this case, with the use of equipment AQ8 EMS SYSTEM, have combined with isometric flexion exercises without causing increases in voltage level spondylolysis, seeking to increase muscle strength of the vertebral stabilizers.

II. Current state of Electrical muscle stimulation.

Electrical muscle stimulation or neuromuscular stimulation, commonly known as electrostimulation, is the process of generation of muscle contraction using electrical impulses. These impulses mimicked the action potential from the central nervous system, causing muscle contraction, being a complementary technique for sports training, and there are numerous published studies about it.

These were basically electrotherapy devices producing specific types of current capable of generating a motor response. Electrical stimuli, when reach sufficient amplitude, produce a potential muscle action: nerve leading signals and the endplate causes a discharge and contraction.

III. Active Electrical Muscle Stimulation.

In the past two years, it has begun to study the use of stimulators of active type, in which the patient is not subjected to "docile" way to current issued, but actively participates in the development of treatment through controlled physical exercise, with established routines and specific movements.

In the case of this clinical study, we used an equipment under brand "AQ8 EMS SYSTEM", consisting of a control console where the parameters of use are set and a special suit equipped with 18 rubber electrodes.

During the course of the study the following factors are seen as a key of effectiveness:

Intensity applied. The greater the intensity, more number of activated motoneurons. The intensity is measured in mA (milliamps). Generally they are considered correct intensities between 28 mA and 120 mA, although it is optimal to use the maximum bearable.

Pulse type. It is crucial for comfort and efficiency. The wave must be completely biphasic and rectangular.

Physical exercises. According to each condition being treated, they are carried out under professional supervision , slowly and continuously.

IV. Electrical muscle stimulation in the treatment of spondylolysis.

The aim of this study is to verify the effectiveness of Active Electrical muscle stimulation in the treatment of 6 individuals with chronic diseases of backaches due to grade 1 Meyerding spondylolysis who have been treated for the past three years, obtaining temporary improvements with traditional therapies.

6 individuals meet in common the following requirements:

Age: between 52 and 55 years

No practitioners of any regular exercise

Normal eating habits, without excesses or deficiencies.

Absence of other serious illnesses or parallel treatments

Study methodology:

Men: 3

Women: 3

Frequency of sessions: 2 sessions weekly

Default program :

20 minutes Cardio program and 10 minutes Relax

Emission Frequency:

Cardio: 85Hz

Relax: 100 Hz

Depth : Cardio: 250 milliseconds , Relax: 100 milliseconds

Contraction time: 5 seconds

Relaxation time: 5 seconds

Number of sessions: 4

Initially verified parameters: age, sex, general health situation, height, weight and feeding habits.

Exercises carried out:

- Warmup : BW Squats
- Overhead Squats
- Single Leg Squats (Single Leg Stiff Leg Dead lifts)
- Overhead Lunges (Hip flexor stretches)
- Side Lunges
- Calf Raises
- Step Ups
- Pushups and Alternatives
- Glute Lifts

Treatment's target muscles:

- a. Cervical iliocostalis
- b. Cervical longissimus
- c. Iliocostalis Chest
- d. Longissimus Thoracic
- e. Longissimus Capitis

V. Study results.

Disability Scale Questionnaire Low Back Pain Visual Oswestry Analog Scale. SPSS Software and technical normalized T student statistic.

After four sessions of Active Electrical Muscle Stimulation with a frequency of two weekly sessions, it could reach the following conclusions:

1. 4 individuals, 3 men and a woman, were in 100% of cases muscle aches half after the sessions, which remained for the next 48-72 hours, not classified as annoying and unbearable intensity or not therapeutic care they required.
2. The 6 individuals reported feeling an improvement in their mood, willingness to exercise that grew during treatment.
3. 3 individuals (2 women and a man) left analgesic intake after the second session.
4. 5 subjects (3 women and two men) reported feeling an improvement of more than 80% in their everyday ailments, asking undergo treatment continuously. The remaining individual (a man), acknowledges having improved smaller: 50%.

Other factors studied secondarily the end of treatment 4 sessions the following results:

Stability and balance: 40% improvement in overall

Strength: 85% improvement in overall

Gait speed: 30% improvement in overall

General feeling of physical capacity: 90% improvement in overall.

VI. Conclusions:

After completion of this study, conducted over two weeks in February 2016, it has been able to confirm the effectiveness of this new system of active electrostimulation, with the following results:

Oswestry test: 98%

EVA: 1.9

Reduced consumption of analgesics: 55%

For physical rehabilitation specialists, the treatment of back ailments is a difficult field because of its complexity and the multiplicity of factors which contribute to pain therapies.

We can ensure that this study shows without a doubt that this new technique is highly effective, convenient, and superior to traditional therapies.

VII. Bibliography

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