

Auriculotherapy Treatment Protocol for Low-Back Pain: A Randomized Trial

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ABSTRACT

Background: The author developed an auriculotherapy treatment protocol to produce efficient pain relief in people with low-back pain. This treatment protocol is based on brain plasticity and integration of postural control information that can be modulated by auriculotherapy. This treatment has been developed and taught in the United States, Europe, Canada, and South America for many years.

Objective: The aim of this study was to compare the efficacy of verum auriculotherapy versus placebo treatment on patients with low-back pain.

Methods: To demonstrate the efficacy of this protocol, the author tested it, treating a maximum of five specific auriculotherapy points that stimulated in each ear pavilion. Stimulation was produced by an electrical current. The trial included 12 male patients who had low-back pain, who were divided into two groups of 6 patients each. The effects on group 1 (treatment of points that did not correspond with affected areas; i.e., placebo) and group 2 (treatment of points corresponding with painful areas; i.e., verum treatment).

Results: Group 2 (verum treatment) experienced a rapid and significant attenuation of pain in several minutes (a visual analogue score [VAS] average decrease of pain: -4.3 ; p -value < 0.002) and an immediate increase of lumbar flexibility as evaluated by the Schöber test (an average increase of lumbar flexibility of 2 cm, p -value 0.003). There was no effect on group 1 (placebo), which had an average score of -0.6 on the VAS with a p -value > 0.28 and an 0.1-cm of lumbar flexibility increase, with a p -value > 0.74 during the placebo treatment.

Conclusions: The length of pain relief varied among patients in group 2 and was not dependent on the purported cause of the postural syndrome. This effect could last for hours, weeks, months or longer. This auriculotherapy protocol is effective for decreasing pain and increasing lumbar flexibility in patients who have low-back pain.

Key Words: Auriculotherapy, Postural Balance, Lumbar Region, Low-Back Pain, Musculoskeletal Pain, Muscular Rigidity, Neuronal Plasticity.

INTRODUCTION

AURICULOTHERAPY IS A CONCEPT that includes diagnostic and treatment techniques using properties of the human ear to interact with the homeostasis of the body. This action is applied to the ear through cutaneous stimulation and induces specific responses. Depending on the mechanisms of stimulus, the bodily response will manifest as

neurologic, hormonal, or immune changes. Researchers currently agree that these responses are likely to be facilitated by the neuronal plasticity of the central nervous system (CNS).¹

The most common low-back pain manifests as pain without an anatomical lesion. The pain alone is a symptom of an underlying problem. Low-back pain with pain only as a symptom is statistically the most frequent clinical type of

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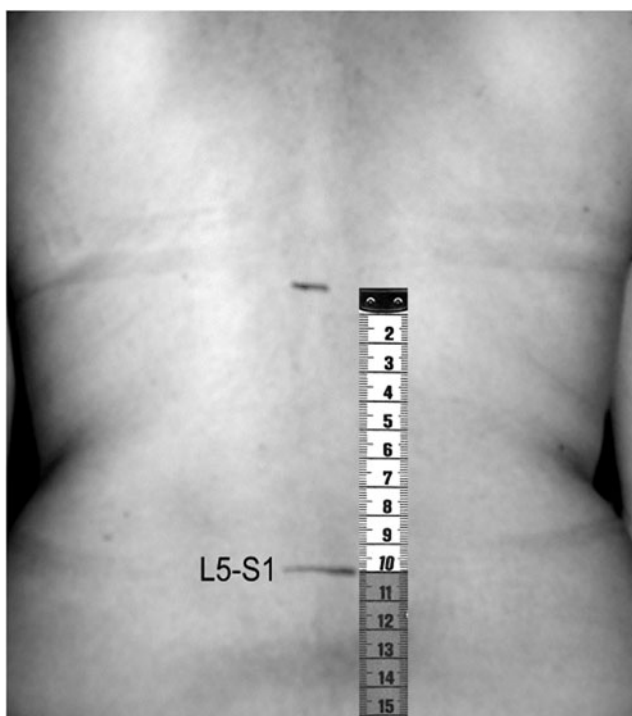


FIG. 1. Location of skin markers for the Schöber-test.

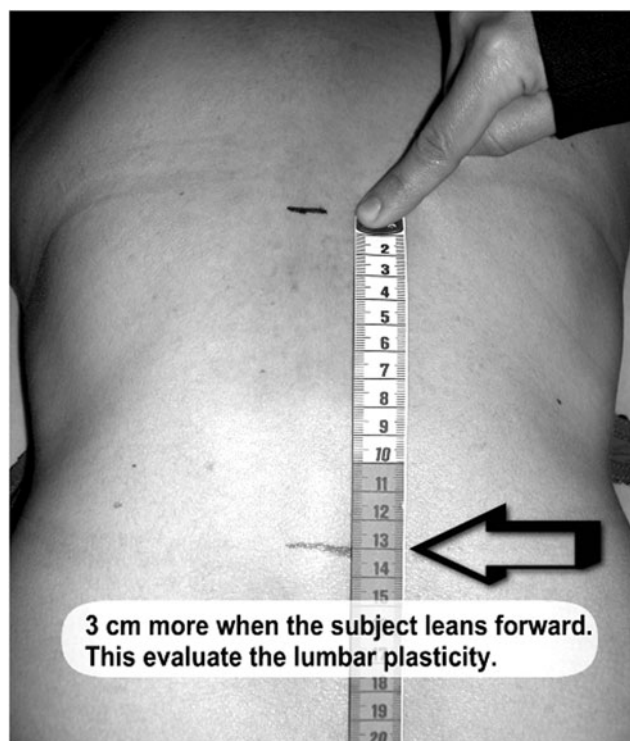


FIG. 2. Measuring lumbar flexibility with the Schöber-test.

spine pain, a frequent reason for patient visits to medical offices and a major source of expense for patients and health insurers. This common low-back pain is a result of abnormal mechanical stresses affecting different anatomical structures of the spine.^{1,2}

There is a strong correlation between low-back pain and mechanical asymmetries of muscle tone that are apparent when a patient is in a quiet standing upright position, which subjects these anatomical structures to abnormal loads. These asymmetries are the result of a malfunction of a complex system, the patient's postural system.^{2,3}

The postural system regulates muscle tone of the body when it is standing upright. It is constantly regulated by the CNS when the body is standing and incorporates information from inside and outside of the body, that orientates, positions, and stabilizes the body in space.^{4,5}

In current author's clinic, auriculotherapy was used to facilitate the integration of postural information to optimize the function of postural control. The effects of treatment are immediately visible on muscle-tone asymmetry of the body when it is standing upright; the amount of the lumbar-spine flexion increases and lumbar-pain decreases.⁶⁻⁸

METHODS

Selection of Patients

Twelve male patients with low-back pain for more than 2 years were selected at random and were randomly separated

further into two groups of 6 patients each. The current authors have chosen to carry out this study only on males, because of the variability of the sensitivity to pain and lumbar flexibility during the menstrual cycle, which would have introduced additional statistical biases when comparing the two populations.

Criteria for selection included: no pain or antidepressive medications used for 3 months prior to enrollment; no sleeping pills used for ≥ 1 month prior to enrollment; between ages 30 and 40; no lesions in lumbar spine (as noted on X-rays); no evident osteoarthritis; no cortisone injection for at ≥ 1 year; at ≥ 3 fingers of shoulder tilting.

Evaluation Protocol

Before and immediately after the treatment, the two groups were evaluated with a visual analogue scale (VAS) to determine each subject's level of pain.

A Schöber-test (for measuring lumbar-spine flexibility) was also performed in the same conditions (Figs. 1 and 2). The test consists of placing marks on the skin of a subject's back, while the subject is standing upright. The marks are placed at levels L5-S1, and another one is made 10 cm above those marks. This distance is measured again while asking the patient to bend forward as far as possible with the knees not bent. Normally, the distance increases from 10 cm to 15 cm (an increase of +5 cm).

Treatment Protocol

The two groups, after evaluation by an MD, were then examined further and marked on the ears with a black



FIG. 3. Area of spinal cord.



FIG. 4. Cerebellar peduncle point.

marker, with the corresponding points that had been detected following the treatment protocol.

A second MD asked each patient to take a card, from a stack of cards, at random. There were 6 cards indicating each type of treatment (verum or placebo), and all the cards were to be disposed of after use. Each card indicated whether the patient would be treated on the marked points and in the correct order by electrical stimulation, for a duration of 30 seconds on each point (group 2; verum treatment), or completely outside of the marks (group 1 placebo). The patient remained blinded to the type of treatment.

The final evaluation was made again by the first MD, who was also blinded to the treatment for each patient.

Auriculotherapy Protocol

The author's auriculotherapy protocol, following evaluation (in the clinic) of each patient's level of pain and spine flexibility, involved a three-step treatment approach for each patient:

Step 1: Postural syndrome determination. It was determined if the patient had a postural syndrome by observing whether the shoulders tilt when the patient was standing upright. The current author and colleagues have found that this shoulder tilt corresponds to an asymmetry of muscle tone between right and left sides of the body

and can cause mechanical stress of the spine. Statistics indicate that this is true only if the clinical evaluation of the shoulders tilt is 3 fingers' difference between the two shoulder blades. As this was the case with about 80% of people who came to our clinic for treatment we proceeded to step two.

Step 2: Treatment of ear points. In patients with a shoulder tilt, 5 points on each ear were treated *if discomfort was present at the point*. The five points included the following:

- (1) A spinal-cord point in the spinal cord large area (Fig. 3)
- (2) A cerebellar peduncle point (Fig. 4)
- (3) Cerebellar formation point (Fig. 5)
- (4) and (5) Vestibular nuclei points (2 points) (Fig. 6).

These points can be found by several different methods:

- (1) An electronic point detector.
- (2) Search for induced pain with a calibrated pressure of 250 g, which can be obtained by using a pressure feeler, with standard color blue for 250 g. (Sedatelec, Chemin des Mûriers, Lyon, France)
- (3) Choice of points, using the Nogier pulse (vascular autonomic signal) method. Points 1 and 2 are reactive to an F+30% frequency of Nogier, points 3 and 4 are reactive to an F-30% frequency.



FIG. 5. Cerebellar formation point.



FIG. 6. Vestibular nuclei points.

Once these five points are found, an Aiguilles Semi-Permanentes (ASP) needle can be inserted in each point. ASP needles are steel, semipermanent needles that last 3–5 days before they are pushed out to the surface of the skin. ASPs are made in France also by Sedatelec and are Food and Drug Administration–approved in the United States.

These points can also be treated by massage or electrical stimulation. The current author and colleagues have used electrical stimulation as a manual needling alternative in this study.

These points must be treated in this precise order, beginning with point 1 (the spinal-cord point), searching on the right, then the left ear, and treating one or both points if pain is present when both points are touched. The same procedure is followed for point 2, the cerebellar peduncle point, and so on. In most cases, 4 or 5 points are found and treated.

For point 1, the spinal-cord point, because the spinal cord is a large area, it is useful to locate several points that react to pain at pressure or electrical detection. In this study, however, only the more reactive point was selected.

Step 3: Control of results. The result was controlled by observing the patient's shoulder tilts to determine if the tilts had disappeared, which would have indicated integration of postural control. If the shoulder tilt remained, another point had to be found and treated.

Following auriculotherapy treatment, the patient was asked to stand and ambulate for one minute. After that, the therapist asked the patient for a subjective analysis of pain (again using the VAS) and evaluated any changes in low-back flexibility (again using Schöber test).

RATIONALE FOR POINT SELECTIONS

One of the most important pieces of information used in postural control—acting and automatically regulating muscle tone when a person is standing upright—is the feeling of self or proprioception information. This kind of information goes to the brain from muscular spindles and skin through the spinal cord (point 1) to the cerebellum (points 2 and 4), and is modulated by the vestibular nuclei (points 4 and 5).

The first brain-integration level of postural control information is performed by the vestibular nuclei, which are situated in the brainstem. They receive information from muscle spindles, the skin, the eyes, and the vestibular system. As a consequence, the vestibular nuclei can be *also* be considered “spatial nuclei”—not only vestibular nuclei. The consequences of a lesion of the vestibular nuclei are well-documented in the literature, particularly on body posture.^{6,9} The corresponding points on the ear pavilion of the vestibular nuclei were described by Paul Nogier, MD,

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TABLE 1. DECREASE OF PAIN FOR GROUPS 1 (PLACEBO) AND 2 (VERUM TREATMENT)

Group 1				Group 2			
Before		After		Before		After	
5		5		7		2	
6		5		8		3	
8		8		6		1	
6		3		4		0	
8		7		7		1	
4		5		2		1	

Group 1				Group 2			
Unilateral	Paired	Bilateral	Paired	Unilateral	Paired	Bilateral	Paired
<i>p</i> -Value	0.1428	<i>p</i> -Value	0.2856	<i>p</i> -Value	0.0009	<i>p</i> -Value	0.0018
Student	1.20	Student	1.20	Student	6.06	Student	6.06
Val 5%	2.02	Val 5%	2.57	Val 5%	2.02	Val 5%	2.57
Val 1%	3.36	Val 1%	4.03	Val 1%	3.36	Val 1%	4.03

Unilateral	Unpaired	Bilateral	Unpaired	Unilateral	Unpaired	Bilateral	Unpaired
<i>p</i> -Value	0.2542	<i>p</i> -Value	0.5083	<i>p</i> -Value	0.0008	<i>p</i> -Value	0.0016
Student	0.69	Student	0.69	Student	4.29	Student	4.29
Val 5%	1.81	Val 5%	2.23	Val 5%	1.81	Val 5%	2.23
Val 1%	2.76	Val 1%	3.17	Val 1%	2.76	Val 1%	3.17

Val, Student's value.

but never published, and the current author had demonstrated the body effect of their stimulation in a previous congress in Italy.⁶

The first point, the lower one, is in the area of the brainstem. The second one, in the navicular fossa, on the upper part of the ear, is quite the same as the knee point, far from the hip point or *Shenmen* point, and less constant than the previous one, corresponding to Dr. Nogier's phase 2 point.

All the treated points have been identified on the ear pavilion by a search for patients with chronic functional low-back pain lasting >30 years, that reacted more frequently to electronic detector points and were different from

points that had been described in the literature as spine structure points.

RESULTS

A comparison between the 2 groups on the VAS for pain (Table 1; Fig. 7) and the Shöber test for lumbar flexibility (Table 2; Fig. 8) showed a significant difference between the two groups after placebo or verum auriculotherapy was administered.

The average pain before and after treatment showed:

- *Group 1 (placebo group)*—an average decrease of 0.6 only (from +1 to -3), $p > 0.28$ (not significant).
- *Group 2 (verum treated group)*—an average decrease of -4.3 (from -1 to -6), $p < 0.002$ (highly significant).

The average lumbar flexibility increase before and after treatment showed:

- *Group 1 (placebo group)*—an average increase of 0.17 (from -1 to 2), $p > 0.74$ (not significant).
- *Group 2 (verum treated group)*—an average increase of 2 (from 1 to 3), $p < 0.003$ (highly significant).

DISCUSSION

This new auriculotherapy treatment protocol for low-back pain has been empirically proven to work clinically

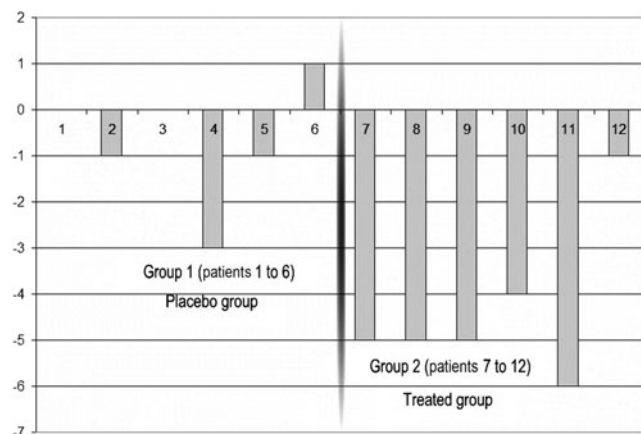


FIG. 7. Histogram of increased or decreased levels of pain in the two groups.

TABLE 2. LUMBAR FLEXIBILITY (SCHÖBER TEST) FOR GROUPS 1 (PLACEBO) AND 2 (VERUM TREATMENT)

Group 1				Group 2			
Before		After		Before		After	
4		4		5		7	
4		3		2		5	
5		4		3		6	
3		5		4		6	
3		3		4		5	
4		5		4		5	

Group 1				Group 2			
Unilateral	Paired	Bilateral	Paired	Unilateral	Paired	Bilateral	Paired
<i>p</i> -Value	0.3706	<i>p</i> -Value	0.7412	<i>p</i> -Value	0.0014	<i>p</i> -Value	0.0028
Student	0.35	Student	0.35	Student	5.48	Student	5.48
Val 5%	2.02	Val 5%	2.57	Val 5%	2.02	Val 5%	2.57
Val 1%	3.36	Val 1%	4.03	Val 1%	3.36	Val 1%	4.03

Unilateral	Unpaired	Bilateral	Unpaired	Unilateral	Unpaired	Bilateral	Unpaired
<i>p</i> -Value	0.3671	<i>p</i> -Value	0.7342	<i>p</i> -Value	0.0020	<i>p</i> -Value	0.0040
Student	0.35	Student	0.35	Student	3.72	Student	3.72
Val 5%	1.81	Val 5%	2.23	Val 5%	1.81	Val 5%	2.23
Val 1%	2.76	Val 1%	3.17	Val 1%	2.76	Val 1%	3.17

Val, Students value.

and is used daily in clinical practice. This trial demonstrated that these results cannot be explained by a placebo effect (electrical stimulation was given to both groups, albeit in different ear areas) and that the efficacy of precise points is more important than points chosen at random. However, it would interesting to prove their anatomical correspondence definitively, for example, by using neuroimaging techniques, such as functional magnetic resonance imaging.

CONCLUSIONS

This technique is an original one. Information about it has never been published prior to this article, but the technique

has been taught successfully to many practitioners around the world, with reports of good results among the patient populations.

This technique does not use direct treatment of lumbar spine points of the ear (those that correspond to the spine structures) but, rather, uses neuronal plasticity to increase postural control by treating the CNS integration of postural information used by brain to regulate muscle tone. The effects on pain and lumbar flexibility appear to be significant and, therefore, this protocol can be considered as a more-thorough treatment for health care of low-back pain.

ACKNOWLEDGMENTS

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DISCLOSURE STATEMENT

No competing financial interests exist in this work.

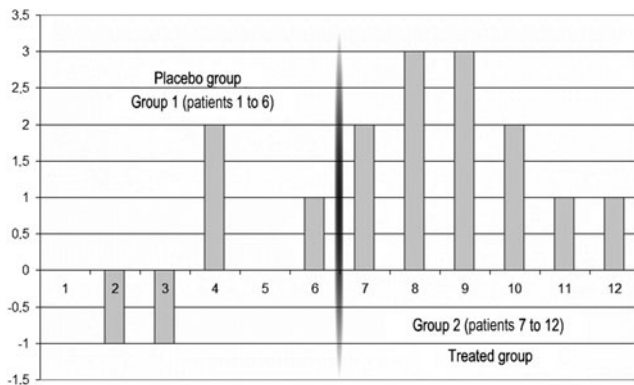


FIG. 8. Histogram of change in lumbar flexibility in the two groups (Schöber-test).

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