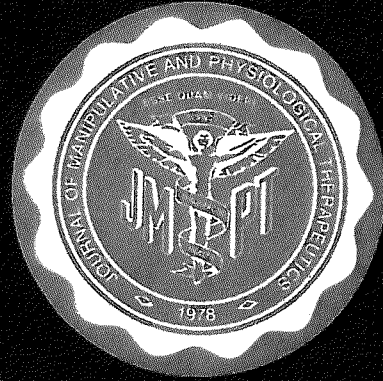


JOURNAL OF  
MANIPULATIVE  
AND  
PHYSIOLOGICAL  
THERAPEUTICS



Dedicated to  
the Advancement of  
Chiropractic Health Care  
Principles and Practice

Volume 28

Number 4

May 2005

ISSN 0161-4754

 National  
University of Health Sciences

 The Official Scientific Journal of  
the American Chiropractic Association

VOLUME 28 NUMBER 4



MAY 2005

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# TREATMENT OF CHRONIC NONRESPONSIVE PATIENTS WITH A NONFORCE TECHNIQUE

Ronald L. Rupert, MS, DC,<sup>a</sup> Cheryl L. McKinzie, MS, MA,<sup>b</sup> Milton T. Morter, Jr, DC,<sup>c</sup> and Dwain M. Daniel, DC<sup>d</sup>

## ABSTRACT

**Objective:** To investigate how chronic pain patients respond to treatment with Bio-Energetic Synchronization Technique (BEST).

**Methods:** Twenty-four adult patients with chronic pain-related conditions that failed to respond to previous chiropractic care were recruited. Subjects were given baseline assessments including pain Visual Analog Scale, Profile of Mood States, and the Global Well-being Scale. The 5-week treatment program consisted of an initial 3-day session with BEST therapy, followed by a single treatment session for the following 4 weeks. Patients were reevaluated at the end of the 3-day session and at weekly intervals throughout the course of care. At the end of week 5, patients were asked to assess their degree of satisfaction with the treatment.

**Results:** Patients had 3 main categories of pain: headache ( $n = 8$ , mean duration 15 years), neck pain ( $n = 18$ , mean duration 11 years), and low back pain ( $n = 17$ , mean duration 10 years). Global Well-Being Scale scores significantly improved at the end of the 3-day session ( $P > .05$ ) but not subsequently. The Profile of Mood States reflected favorable changes in all areas. Significant improvement in vigor ( $P > .003$ ) and fatigue ( $P > .006$ ) existed at the end of 5 weeks ( $P < .01$ ). The reduction of pain was significant at both the end of the 3-day session and at follow-up ( $P = .0003$ ). A statistically significant decrease in depression ( $P = .004$ ) was noted after 3 days, and a substantial although not significant ( $P = .06$ ) decrease in depression existed at the end of 1 month. Eighty-two percent reported satisfaction with BEST (47% reported being "extremely satisfied" and 35% "satisfied").

**Conclusion:** In this group of chronic pain patients, improvement in patient outcome measures was seen after 5 weeks of therapy. These patients also responded with a high degree of satisfaction with care. (*J Manipulative Physiol Ther* 2005;28:259-264)

**Key Indexing Terms:** *Chiropractic; Low Back Pain; Neck Pain; Depression; Headache*

There are many of nonforce or very low-force treatment techniques used both historically and presently by chiropractors and other health providers. Those within the chiropractic profession include Directional Nonforce Technique, Toftness, Spinal Touch, Perianal Reflex Technique, and Logan Basic Technique.<sup>1</sup> It

is difficult to estimate the extent of use of these procedures by the chiropractic profession. In a national survey of chiropractors, the use of specific techniques has been assessed. However, with the exception of Logan Basic, no other low-force or nonforce technique appeared on the list associated with the survey.<sup>2</sup> Thirty percent of chiropractors confirmed that they used Logan Basic. The only survey option for chiropractors using light or no-force methods was to select "other" technique, to which 15% responded. In addition, there is little information related to efficacy or support for the proposed underlying mechanisms espoused by technique proponents.

Bio-Energetic Synchronization Technique (BEST), a nonforce technique, was developed in 1972.<sup>3</sup> The technique uses an eclectic approach that attempts to eliminate internal and external factors interfering with human health. According to the developer, BEST treatment attempts to address all 3 forms of interference, which may be physical, mental, or chemical.<sup>2</sup> BEST proponents suggest that chiropractic management focuses on removing or correcting the physical problems that interfere with optimal body function via spinal manipulation. Chiropractic care also addresses some of the chemical issues through dietary recommendations. However,

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Sources of support: Supported by a grant from Morter Health Systems & Parker College of Chiropractic.

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Paper submitted August 18, 2003; in revised form December 22, 2003.

0161-4754/\$30.00

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doi:10.1016/j.jmpt.2005.03.013

those who practice BEST believe that the mental issues that impede health optimization are typically not treated in chiropractic practice and that the reason some patients do not get better under other types of chiropractic care is that 1 of the 3 forms of interference (physical, mental, or chemical) was not fully addressed by the physician.

In a literature search of MANTIS, MEDLINE, and CINAHL using terms "chiropractic," "spinal manipulation," "low-force," "nonforce," there were no studies that investigated the many forms of nonforce therapies and their usefulness. There have been a few theoretical and limited clinical publications related to BEST<sup>4-6</sup>; however, no previous research could be identified that showed clinical efficacy for BEST or any other nonforce form of treatment. The review also failed to identify any previous chiropractic clinical trial where the subjects were failed cases from previous chiropractic care.

The primary purpose of this study was to evaluate patients with chronic conditions and evaluate pain levels, satisfaction, energy, and other emotional states before, during, and after a 5-week regimen of treatment with BEST technique. A secondary objective was to use methods not previously reported in the literature where only failed chiropractic patients were used to evaluate alternative chiropractic methods.

## METHODS

This study was conducted using a pretest-posttest single-group design. A total of 24 adult participants were recruited for the initial 3-day session, and 21 agreed to continue for the subsequent 4 weekly evaluation/treatment regimens. Inclusion/exclusion criteria were established as follows: (1) the patient must have a chronic musculoskeletal condition that included chronic pain ("chronic" for this study was defined as equal to or in excess of 3 months' duration), (2) they must have had previous chiropractic care, (3) the previous care must have failed to resolve the complaint, and (4) they must not have had previous BEST treatment. All subjects were asked to refrain from any other forms of treatment during the initial 3-day session and for the 5-week follow-up period if possible.

The recruitment of patients for this research included clinic outpatients, as well as students, staff and faculty, and their families, of Parker Chiropractic College. Screening was accomplished with e-mail to all individuals associated with the College. Patients of both student interns and staff doctors who had chronic nonresponding pain were encouraged to participate. These patients received verbal communication at the time of their office visit or via telephone. This protocol was reviewed and approved by the Parker institutional review board; participants were informed of the type of treatment and testing they would receive, and each signed a consent form.

Patients received treatment at no charge in a dedicated treatment area at the College. This area permitted all patients to sit in a lecture-type room and interact with the doctor and each other. A single treatment table was in place at the front of the room. A payment of US\$50 was given at the end of the first 3-day session to defray travel and expenses. An additional US\$50 was provided to those who completed the 5-week session.

## Tests Performed

Participants were required to fill out a Health Status Questionnaire, Depression (SF-36D), which is a norm-referenced standardized measurement of a variety of health-related concepts.<sup>7</sup> The SF-36D has 36 questions about health, and the 3 remaining questions screen for depression and dysthymia. Each participant completed a questionnaire related to their current health problems. All of these instruments were completed before initiation of treatment.

Four other outcome assessments instruments were used. Three were taken before beginning the trial: the Visual Analog Scale (VAS) of their current level of chronic pain,<sup>8,9</sup> a Global Well-being Scale (GWBS),<sup>10</sup> and the Profile of Mood States (POMS).<sup>11</sup> The VAS we used consisted of an unnumbered 20-cm line where participants were to mark the level of their pain on a scale from "No Pain," to "Worst Possible Pain."<sup>12</sup> The patient marks on the VAS were later measured in terms of centimeters. The GWBS is a 0-to-10 scale where the participant is asked to mark on the line how they feel today. The range is from "The worst I have ever felt," to "The best I have ever felt." The VAS and GWBS were assessed at each visit. The POMS is a standardized norm-referenced measurement of 6 mood states. It consists of 65 adjectives rating how patients feel. The POMS was assessed before treatment, at the end of the 3-day period, and at the 5-week follow-up. At the end of week 5, patient satisfaction was assessed using a Likert scale.

## Treatment and Follow-Up

To insure that BEST technique was proficiently administered, the technique developer participated and supervised all patient care. BEST is an eclectic approach incorporating education, training, and mental preparation that attempts to encourage the body to heal itself. The BEST theory is that the whole being is a system that needs to be returned to a balanced state. The treatment approach involves extensive education related to nutrition, diet, and lifestyle modification. BEST also emphasizes the patient's responsibility for their own health and attempts to motivate and empower them to be more responsible for their own lives.

The nutritional education consisted of encouraging patients to increase vegetable consumption and reduce dietary animal protein. Supplementation consisted of ground barley plant tablets, a digestive enzyme, and trace minerals.

Treatment involves the patient being placed on a treatment table where muscle strength tests are performed with the patient in both the prone and supine positions. These tests can involve strength assessment of the arm or leg. During the test, while in the supine position, the patient is asked to think about the chief complaint or the major stress in their life. This process is believed to determine if there is an emotional component involved. The treating doctor then places the patient prone and uses leg-length assessment in an attempt to evaluate "balance." This is believed to be a method of assessing the balance of the autonomic nervous system. If the treating doctor finds leg-length variations other than anatomical variations that would suggest autonomic imbalance, then a treatment is administered. This consists of the doctor placing one hand on the back of the skull of the prone patient, and the other on the sacrum. Light pressure is then applied to these 2 regions. The pressure is described as a form of light touch with about the same amount of pressure that could be placed on the eye without pain.

Subjects were initially given a baseline set of the tests described above and participated in a 3-day treatment program. The 3-day program required subject participation for 5 hours on day 1, 6 hours on day 2, and up to 5 hours on day 3. Most of this time was spent providing didactic patient education related to the physical, chemical (primarily nutrition), and mental elements that interfere with health. Patient education was given in a group-lecture format. Some of the time on each of the 3 days was spent with individual patient evaluation and treatment. On the end of day 3, all subjects were reevaluated.

Subsequently 21 of 24 patients were scheduled for 1 brief visit a week for the following 4 weeks. At each visit, subjects were evaluated and treated using BEST technique if deemed necessary. The maximum number of treatments consisted of treatment on the initial weekend and 4 follow-up treatments at subsequent weekly intervals. In addition, pain at each visit was reassessed with the VAS and the GWBS. On the last visit, all these tests as well as the POMS were repeated, and patient satisfaction was evaluated. Although the treating doctor was the developer and had a vested interest and bias regarding BEST, all baseline patient evaluations and subsequent reevaluations were performed by individuals who had clinical experience but no affiliation with or previous use of BEST procedures.

#### Data Analysis

Data analysis was performed using SPSS for Windows, Version 11.0 (SPSS, Inc, Chicago, Ill) and Microsoft Excel for Windows (Microsoft Corp, Redmond, Wash). Data entry was randomly rechecked to insure quality. The SF-36D and the POMS were scored according to standardization protocol as provided by the authors.<sup>6,7</sup> Statistical analysis

**Table 1. SF-36D patient profile**

Health concepts	Mean <sup>a,b</sup>	SD
Physical functioning	82.14	4.98
Social functioning	55.92	1.83
Role-physical	26.00	1.69
Role-mental	29.17	1.23
Mental health	74.43	4.64
Energy/fatigue	53.63	3.52
General health	69.08	4.35
Pain	56.82	3.60

<sup>a</sup> High score is consistent with positive health status.

<sup>b</sup> Scores have been converted to a 100-point scale.

includes descriptive statistics and the use of the *t* test of the difference between the means.<sup>13</sup>

## RESULTS

### Demographics

The 24 participants consisted of 16 men and 8 women. Ages ranged from 22 to 79 (mean 36.63, SD 13.8) years. There were 14 married, 7 single, and 4 divorced participants. Race composition was 22 whites, 1 African American, and 1 Hispanic. Subjects included 1 student spouse, 2 employees, 1 alumnus, 2 relatives of employees, 4 patients, and 14 students. All 24 subjects completed the 3-day seminar. Twenty-one subjects agreed to participate in both the initial 3-day session and the 4 weekly follow-up sessions. Week 1 follow-up included 18 of the 21 participants (86%), week 2 follow-up included 15 (71%), week 3 included 11 (53%), and week 4 included 18 participants (86%).

### Participant Profile

The results of the SF-36D taken before treatment are summarized in Table 1. According to the D-scale on the SF-36D, 10 of the participants were at risk for depression, and 2 participants were at risk for dysthymia. The pretreatment response to the question, "Compared to 1 year ago, how would you rate your health in general now?" 25% responded that they were somewhat better, 37.5% responded that they were about the same, 25% responded that they were somewhat worse, and 12.5% responded that they were much worse than 1 year ago.

Twenty-three of 24 participants responded that they were experiencing pain. Pain was related to 3 primary areas: low back, head, and neck. Chronic low back pain was experienced by 17 subjects (mean duration 10.06 years), 8 complained of headache (mean duration 15.25 years), and 18 had chronic neck pain (mean duration 10.61 years).

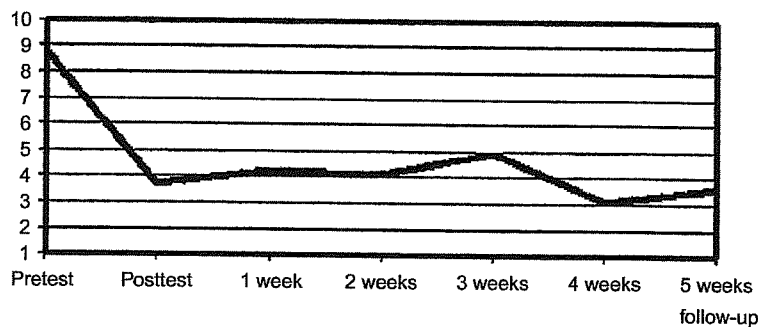
### Scaled Results

Changes in response to the question "Are you in pain?" pretreatment/posttreatment and pretreatment/1-month

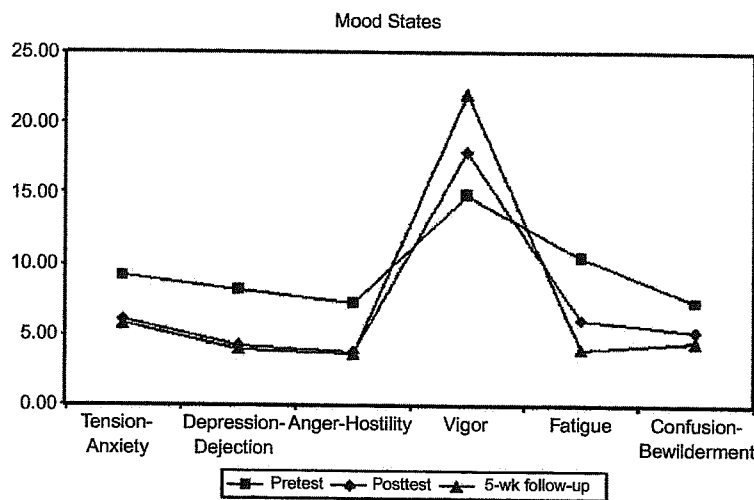
**Table 2.** Pretest and posttest POMS profile

Mood state	Pretest mean	3-d Posttest mean	5-wk Follow-up mean	Pretest/posttest <i>t</i>	Pretest/posttest <i>P</i>	Pretest/follow-up <i>P</i>
Tension-anxiety	9.17	6.13	5.89	2.80	<.010	<.183
Depression-dejection	8.25	4.25	3.89	3.21	<.004	<.061
Anger-hostility	7.29	3.88	3.89	2.23	<.036	<.104
Vigor	14.88	17.96	21.94	-2.66	<.014	<.003
Fatigue	10.50	6.13	4.06	2.86	<.009	<.006
Confusion-bewilderment	7.33	5.21	4.72	2.59	<.017	<.166

Posttest denotes after initial 3-day session.



**Fig 1.** VAS pain evaluations over time based on a 20-cm scale. Mean pretest pain was 8.8.



**Fig 2.** POMS mean scores across the trial. The posttest measure was done after the initial 3-day treatment session.

follow-up and both were significant by paired *t* test (pretreatment/posttreatment  $t = 3.08, P > .005$ ; pretreatment/follow-up  $t = 4.61, P > .0002$ ). Results of the VAS were significant by paired *t* test (pretreatment/posttreatment  $t = 5.32, P > .0001$ ; pretest/follow-up  $t = 4.91, P > .0003$ ). GWBS was significant for pretreatment/posttreatment conditions ( $t = -2.095, P > .05$ ) but not for pretreatment/follow-up conditions by paired *t* test.

**Profile of Mood States**

Changes in self-evaluation on the POMS were all significant by paired *t* test between pretest and posttest conditions (Table 2). Participants lowered their scores in tension-anxiety, depression-dejection, anger-hostility, fatigue, and confusion-bewilderment. Vigor scores improved after 3 days of BEST treatment. At the 5-week follow-up, participants continued to report improvement in

**Table 3.** Subset of at-risk of subjects ( $n = 10$ ) for depression based upon the SF-36D

	<i>t</i>	<i>P</i> (2-tailed)
Tension-anxiety (pre-post)	1.37	.20
Depression-dejection (pre-post)	2.01	.08
Anger-hostility (pre-post)	0.85	.42
Vigor (pre-post)	0.18	.86
Fatigue (pre-post)	1.09	.31
Confusion-bewilderment (pre-post)	1.19	.27
Are you in pain (pre-post)	1.00	.34
VAS (pre-post)	2.45	.04
Well-being (pre-post)	-2.61	.03
Are you in pain (pre-5-wk follow-up)	2.83	.03
VAS (pre-30-d follow-up)	1.88	.16
Well-being (pre-5-wk follow-up)	-1.90	.11

all areas, but only fatigue and vigor were significantly improved ( $t = -3.505, P < .003$ ) and fatigue ( $t = 3.106, P < .006$ ). Participant scores in the other areas measured continued to stay reduced, however, not significantly (Figs 1 and 2).

#### Additional Analysis

A subset of the participants was analyzed separately from the group. Those participants who were at risk for depression on the SF-36D ( $n = 10$ ) were analyzed by paired *t* test, and several areas were found to be significant in pretreatment/posttreatment and pretreatment/follow-up (Table 3).

#### Satisfaction

Overall satisfaction with BEST treatment was positive with 82% satisfied; 47% of the participants were extremely satisfied with their treatment, 35% were satisfied, 12% were neutral, and 6% were extremely dissatisfied ( $n = 1$ ).

#### DISCUSSION

There are limitations to the all pre-experimental studies such as the pretest/posttest single-group design used in this investigation.<sup>13</sup> They are vulnerable to a number of internal and external threats to validity. One such threat is the possibility of regression to the mean. Because of the lengthy and unique interaction of the doctor with the patients in this therapeutic encounter, it is possible that a novelty effect or the power of charisma of the treating chiropractor could account for some of the changes measured. Another weakness is the potential bias related to the method of participant recruitment and clinical studies involving financial incentives. Most participants had an affiliation with the chiropractic college, and this could also introduce bias.

The chiropractic profession uses many types of nonforce and low-force techniques that have been largely lacking in supportive research. This lack of research support may in

part be caused by the limited research funds, professional biases, and unwillingness by those who develop and promote a technique to put their procedures to any objective evaluation process. With the need for evidence-based practice and developing "best practice" strategies, it is incumbent that these techniques, if they are to be used, should receive scientific scrutiny.

The quality and competency of the health provider are always an issue of concern. For this study, there was an advantage to enlisting the developer of BEST, with more than 20 years of practice experience, to provide patient evaluations and treatment. The disadvantage was the limited availability of this provider after the initial 3-day session. Subsequent evaluation/treatment sessions had to be scheduled for all patients on a single day each week. This led to scheduling conflicts, especially with some of the student participants, which in turn adversely impacted the dropout rate. On the third follow-up week, there were substantial scheduling conflicts which dropped the compliance on that day. Future studies should provide more flexibility in scheduling.

The patients in this study were treated as a group, and all subjects attended and completed the initial 3-day education, motivation, evaluation, and therapy session. The group approach is not a common procedure with other chiropractic techniques, where there is generally a one-on-one doctor-patient encounter. Although there are practice protocols that do include open practice procedures that encourage interaction between patients, this still appears to be the exception in private practice. The group design may have introduced a bias as the practice of permitting patient interaction appears far less common than one-on-one encounters. However, although treatment was administered in a group setting, all patient assessments at baseline and at subsequent follow-up were performed in a single doctor-patient environment. There is evidence that group therapy could have a positive effect on patient response to care.<sup>14</sup> There is research to suggest that a group therapeutic approach can have a profound effect in a context where the patients have specific shared problems.<sup>15</sup> Others note that there is improved patient outcome when there is uniformity in the therapeutic goals.<sup>16</sup> The group treatment and interaction of the patients selected for this study shared some similarity in that they all had chronic pain conditions that failed to resolve with previous care. They also shared a common treatment and interacted as a group.

Depression has become an area of growing concern within the population.<sup>17</sup> Murray and Lopez<sup>18</sup> found it to rank fourth as a burden for disease dysfunction and associated risk factors. It is estimated that by the year 2020, depression could rank second behind heart disease as a risk for disease. Depression is linked to increased risk for cancer, heart disease, immune compromise, allergies, migraine, and infectious disease. It is well documented that people with chronic injury or illness develop.<sup>19</sup> There is also evidence that depression increases the risk of visceral complaints. One prospective study in the United Kingdom

found that children with reported adverse psychosocial exposure were more likely to report new-onset low back pain.<sup>20</sup> It is possible that low back pain may be a feature of somatization rather than an issue of injury or overuse.

Other studies have reported similar findings with adults.<sup>21,22</sup> Depression was a predictor of chronic low back pain in men, but not women, in occupational injuries.<sup>22</sup> This previous research suggests that the chronic pain patients involved in this research were likely candidates for high levels of depression. The depression screens of the SF-36D identified nearly half ( $n = 10$ ) of the subjects at risk for depression (Table 3). And it is possible that the reason BEST providers have empirically reported a high level of success with their patients is that the technique attempts to address human traumatic emotional life events that cause depression and anxiety. The most significant change in the group at the end of the 3-day session was decreased in depression ( $P = .0004$ ), and depression remained improved but not significantly ( $P = .06$ ) at the end of the 1-month follow-up. With this marked change in depression noted, future studies should consider more in-depth assessment of this phenomenon and use the Zung Depression Inventory or other measures.

One of the questions that must be explored with future research is whether BEST is effective at directly reducing depression by addressing psychological issues with the patient or if reducing pain may create a concomitant reduction in depression. Because BEST attempts to address both of these physical and mental domains, any reduction in depression could be a factor of reducing problems in both areas. Despite the profound changes seen in this group of chronic patients, especially in both pain and vigor, the study design cannot confirm a cause-and-effect relationship. The study does raise some interesting questions related to chiropractic care and depression, the possible impact of group dynamics, the impact of a charismatic healer, and the impact of an eclectic approach to health that includes multiple dimensions of the whole person. More rigorous research designs will be required in the future.

## CONCLUSION

After the use of the BEST treatment approach with 24 chronic failed chiropractic patients, significant improvement was noted in the level of pain, improved vigor, fatigue, and an improved sense of well-being. These results were obtained despite both the long-standing nature of the symptoms and failure to respond to previous chiropractic care. Overall, subjects were satisfied with the care provided. More rigorous research designs are required to evaluate low and nonforce chiropractic techniques.

## ACKNOWLEDGMENTS

The authors thank Ms Maria Dominguez for her assistance with patient recruitment and coordination of this project.

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