THE IMMEDIATE EFFECT OF BACK BUBBLE® TRACTION ON MECHANICAL LOW BACK PAIN: A PILOT STUDY

CONDUCTED AT THE LOS ANGELES COLLEGE OF CHIROPRACTIC

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ABSTRACT

Objective: Describe the immediate effect of two minutes of upright and low-inverted Back Bubble® traction on the intensity of mechanical low back pain.

Design. Pretest-postest clinical series.

Setting: Teaching clinic of the Los Angeles College of Chiropractic.

Patients: Ten subjects with mild and one subject with moderate mechanical low back pain selected by convenience from the student body of a chiropractic college.

Intervention: Two minutes of upright and low-inverted gravitational lumbar spine traction using The Back Bubble® traction device.

Outcome Measures: Before and immediately after The Back Bubble® traction, low back pain intensity was measured with a visual analogue scale. Subjects were also asked to report whether the device caused pain or discomfort in other body areas.

Results: Eleven subjects used the device in the upright position and had a mean reduction in low back pain of 87.0% (SD 21.4). Four subjects used the device in the low-inverted position and had a mean reduction in low back pain of 81.8% (SD 21.0). Two subjects had slight but tolerable discomfort in the lower anterior ribs while in the upright position and no discomfort was reported by subjects in the low-inverted position.

Conclusion: In these subjects, two minutes of upright and low-inverted gravitational lumbar spine traction with The Back Bubble® caused an immediate reduction in mechanical low back pain. Further studies of the effectiveness of The Back Bubble® traction are warranted using randomized blinded trials.

Keywords: Lumbar traction, Low-back pain, Lumbar spine, Pain-relief, Treatment, Equipment and supplies, Chiropractic methods, Chiropractic.

INTRODUCTION

The Quebec task force on spinal disorders listed lumbar spine traction as a “Common practice but no scientific evidence," for the treatment of mechanical low back pain [1]. Specifically, they pointed out that there were no controlled clinical studies showing the efficacy of traction for low back pain. However, their review included only one clinical study on traction for low back pain. A current search of the Medline and Chirolars databases found two randomized controlled trials published before, and three published since the Quebec task force report.

Mathews and Hickling's [2] double-blind controlled trial of lumbar traction for sciatica found that patients receiving traction had less pain and greater improvement in straight leg raise than those receiving simulated traction; however, the number of patients in each group was too small to detect significant differences between the two treatments. Larsson et al [3] randomly assigned 82 patients with low back pain and sciatica to autotraction (up to three one-hour sessions for one week) or to a control treatment of lumbar corset and rest. Patients receiving autotraction had significantly greater reduction in pain and improvement in the straight leg raise at one week and at three weeks. Three months later, however, there were no significant differences between the two groups. Pal et al's [4] study on continuous traction for back pain and sciatica found little difference between weighted traction and simulated traction; however, they felt that the small number of subjects made it impossible to detect significant differences between the two treatments. Mathews et al's [5] study of 143 patients with back pain and sciatica found that females under 45 years of age responded Significantly better to traction treatment than to infra-red heat treatment Finally, Tesio and Merlo [6] compared passive traction with autotraction for 44 patients with disc herniation. Patients receiving autotraction had significantly less pain and disability as measured with the visual analogue. pain scale, McGill pain questionnaire and Oswestry disability questionnaire. The improvement seen in the autotraction group was still present at follow-up, three-months later. In summary, three randomized clinical trials support the use of traction for low back pain and sciatica. The number of patients in two other trials were too

small to detect significant differences between treatments.

The objective of this pilot study is to identify whether traction with The Back Bubble® device provides relief of mechanical low back pain, and warrants further study in a randomized blinded trial. Another objective of this study is to identify whether The Back Bubble® device causes any discomfort.

MATERIALS AND METHODS

Subjects were selected by convenience from the student body of a chiropractic college. Subjects were recruited "Or the study if they presently had mechanical low back pain (pain aggravated by movement, relieved by rest, and not associated with serious underlying pathology). Subjects were excluded if they had non mechanical low back pain or undiagnosed pain. All subjects were asked to participate in a study testing a new traction device on low back pain.

OUTCOME MEASURES

The study design was a pretest-posttest clinical series. Subjects rated the intensity of low back pain on a 10-cm visual analogue scale (VAS) before and immediately after two minutes of lumbar spine traction in The Back Bubble®. Subjects were also asked to report whether The Back Bubble® caused pain or was uncomfortable in other body areas.

INTERVENTION

Each subject was shown the use of The Back Bubble® device in the upright and 6 low-inverted positions (Figs. 1 & 2). After completing the VAS, the subject was helped into the upright position and semi-suspended for two-minutes. Immediately after coming out of the device, the subject repeated the VAS. If the subject still had low back pain, he was helped into the low-inverted position, and again, suspended for two minutes. While suspended in The Back Bubble® device, subjects were asked whether they felt any pain or discomfort in the lumbar spine or elsewhere.

RESULTS

The age, sex, duration of pain, and VAS scores before and after traction for each subject is listed in Table one. There were eleven subjects (10 males, 1 female) with an average age of 33.4 years

(Range 24 - 45 years, SD 7.8). The average duration of low back pain was 36.32 months (Range 2 weeks - 12 years, SD 51.6).

Figure 3 shows the average VAS scores before and after traction. All eleven subjects used the device in the upright position and had an 87.0% mean reduction in low back pain (Range 35.1% - 100%, SD 21.4). Seven subjects had 100% relief of pain and four subjects had, on average, 64.34% reduction in pain. These four subjects used the device in the low-inverted position for two minutes and then repeated the VAS. After the low-inverted position, the mean reduction in low back pain was 81.8% (Range 61.0% - 100%, SD 21.0). On average, subjects in the upright position had a 1.97 cm reduction in their VAS, while subjects in the low-inverted position had a 3.32 cm reduction in the VAS. Two subjects had slight but tolerable discomfort in the lower anterior ribs while in the upright position. No discomfort was reported by the four subjects in the low-inverted position.

DISCUSSION

The results of this descriptive pilot study should be interpreted with caution, First, subjects were conveniently selected chiropractic students who were not naive to the possible benefits of traction. Also, there were only few subjects in the study and most had mild low back pain. One subject's pre-traction VAS score was 7.7 cm, and the other ten subjects' VAS scores ranged from 0.8 - 3.4 cm. Future studies should use patients with moderate to severe low back pain who are naive to traction. To strengthen the study, one should also include a comparison treatrnent group and/or placebo group, assign subjects randomly to each group, and blind the evaluator.

Assigning patients to either upright traction or low-inverted traction in a comparative study would help eliminate the possible cumulative reduction of pain provided by the upright and low-inverted positions, which may have occurred in the present study.

According to the distributer of The Back Bubble® device, individuals who have severe osteoporosis, heart disease, or morbid obesity may not be suitable candidates. Good candidates

for The Back Bubble® included physically fit individuals with mechanical low back pain [7].

CONCLUSION

Two minutes of Back Bubble® traction caused an immediate reduction in 8 mechanical low back pain in all eleven subjects. Two subjects noted minimal discomfort while in the upright position and no discomfort was noted by those using the device in the low-inverted position. Studies of the effectiveness of Back Bubble® traction on moderate to severe low back pain are warrented using randomized blinded trials.

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7. Back Bubble® manufactured by the Chattanooga Corporation. Back Bubble® Inc., P.O. Box 1285, Solana Beach, California 92075, 1-800-457-7246.

Figure 1. Upright Back Bubble® traction

Figure 2. Low-inverted Back Bubble® traction

Subject	Age	Sex	Pain Duration	Before	Upright	Low-inverted
1	42	Male	24 Months	3.1	0.0	--
2	28	Male	12 Months	3.4	0.8	0.0
3	27	Female	3 Months	0.8	0.0	--
4	34	Male	2 Weeks	1.5	0.0	--
5	44	Male	10 Years	3.2	1.2	0.0
6	24	Male	7 Months	2.0	0.0	--
7	37	Male	1 Year	1.7	0.0	--
8	45	Male	12 Years	7.7	5.0	3.0
9	27	Male	4 Months	3.0	0.5	1.0
10	25	Male	1 Month	2.0	0.0	--
11	35	Male	6 Years	0.8	0.0	--

Table 1. Patient demographics and VAS measurements before traction, and after traction in the upright and low-inverted position.

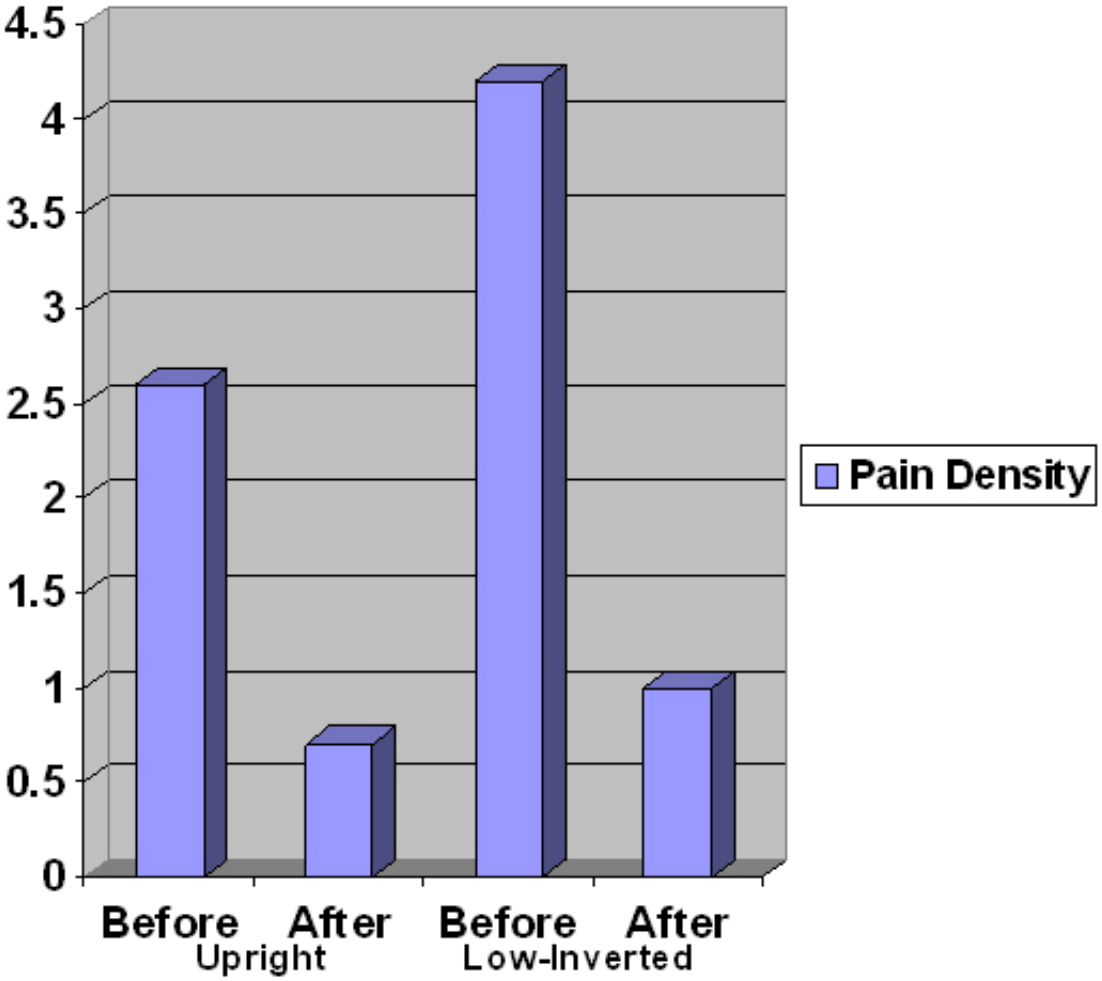

Fig. 3. Average pain intensity before and after The Back Bubble®.