

Biomechanic Evaluation of the True Back II as a Passive Distraction Device

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Introduction

It is commonly thought that distraction of the spine has therapeutic value for a variety of spinal dysfunctions. Accordingly, many various methods have been marketed for inducing distraction of the spine, ranging from gravity boots to computer controlled devices with continuously monitored biofeedback.

This study was conducted to determine whether a simple device that can be used at home without professional supervision, the True Back (True Back, Clearwater, FL) induce a measurable biomechanic effect on the spine as a passive distraction device.

Materials and Methods

The True Back is a modification of an earlier device called the Ultimate Back Stretcher. The central support is provided by 2 rigid rungs running the length of the device with knobs believed to have an acupuncture-type effect on the paraspinal muscles. To use the True Back, the patient must sit on a firm surface with device positioned immediately behind, just touching the person. The user then lays down over it in the supine position with the body as relaxed as possible. The objective is to have the user lay as far back as possible and still have all the paraspinal muscles in relaxed state. If the user believes that his or her head is positioned too far back causing muscular tension, the head must be supported (as with a pillow) as much as needed to allow the musculature to relax.

Two similar but separate studies were done; each including twelve subjects (6 men and 6 women). All were screened for back problems; after this evaluation, all the participants were considered normal without any known pathologic conditions.

True Back vs Curved Foam VS Supine Rest

All participants were exposed to the 3 treatments in a treatment order factorial experiment, including reclining in the supine position for 10 minutes with no support, lying on the curved cut to the shape and size of the True Back device and lying on the True Back device. With the twelve subjects (6 men and 6 women) in the experiment, this design permitted evaluation of sex, treatment, and order main effects, and sex by treatment and treatment by treatment-order interaction effects. The sex by treatment order 2-way interaction and the sex by treatment by treatment by treatment order 3-way interaction cannot be evaluated. However, if treatment by treatment order and sex by treatment interactions are observed, concerns about a sex by treatment by treatment order interaction would arise. This design was analyzed with analysis of variance techniques using the general linear model procedure in version.

Discussion

In the study testing of True Back the curved foam was used to determine if the knobby shape of the individual rungs of the True Back had a significant effect. It was hypothesized that the irregular shape of the rungs might stimulate muscular trigger points in a manner similar to the use of acupressure, thereby increasing the effectiveness of this device. The first study found only a slightly greater lengthening of the spine, which was not statistically significant from the use of the True Back compared with the use of the firm foam cut into the same shape and size. The results of the spine lengthening from the use of the True Back was nearly statistically significant compared with the results of rest in the supine position. Ordering difference, based on a cumulative effect from repeated exposure to different interventions, may have been present. Therefore the experiment was simplified by eliminating the curved foam.

In study 1 testing the True Back device, not a statistically significant trend demonstrated that women responded more than men to the use of this device.

In addition, this study involved only one 10-minute use of the device being tested. A greater effect could be introduced by use for a different length of time or by repeated use of the device over a period of weeks or months. In addition, this study involved subjects without any known pathologic conditions whose spines were presumed to be functioning normally.

The True Back is targeted for person with back pain or stiffness. It is possible that persons in that targeted group could show a greater response to the use of this device than person without back pain or stiffness. This study does not directly address the issue of the therapeutic value of this device. What this study has done is address the question of whether or not the True Back has a measureable biomechanic effect on the human spine. An increased intervertebral disk height is commonly thought to lead to decreased constriction of the structures associated with the functional spinal unit and to increase freedom of motion, resulting in a better-functioning spine and a better state of being. The increase in sitting height observed in this study may occur as a result of increased intervertebral disk height resulting from water imbibition. Although the observed biomechanic effect of the increased height lays the groundwork for the idea that this device actually helps their users in a significant manner, clinical studies of person with pain or stiffness are required to firmly establish this point.

Conclusion

True Back appears to induce the biomechanic effect of lengthening of the spine after a single use of 10 minutes, the lengthening effects appears stronger for women than for men. This apparent disparity may be caused at least partially by insufficient resetting of the posturing mechanisms for men: ten pounds were placed on each shoulder of all subjects, despite the fact that men are typically larger than women.