Journal of Chiropractic Medicine (2016) **15**, 27–34

ELSEVIER

JOURNAL of CHIROPRACTIC MEDICINE

www.journalchiromed.com

Low Back Pain Response to Pelvic Tilt Position: An Observational Study of Chiropractic Patients

Salvatore J. Minicozzi CCEP, DC [a], Brent S. Russell MS, DC [b,*], Kathryn J. Ray DC [c], Alessandria Y. Struebing MSPH [d], Edward F. Owens Jr. MS, DC [e]

[a] *Private Practice of Chiropractic, Intelligent Chiropractic, Sandy Springs, GA*
[b] *Professor, Center for Chiropractic Research, Life University, Marietta, GA*
[c] *Private Practice of Chiropractic and Alternative & Holistic Health Care, New Day Network Wellness Center, Chicago, IL*
[d] *Research Director, The Institute for Neurosurgical and Spinal Research Foundation, Atlanta, GA*
[e] *Adjunct Professor, Center for Chiropractic Research, Life University, Marietta, GA*

Received 2 February 2015; received in revised form 1 November 2015; accepted 9 November 2015

Key indexing terms:
Lordosis;
Lumbar region;
Low back pain;
Chiropractic

Abstract

Objective: The aim of this study was to look for differences between patients with an increased pain response as compared with those with a decreased pain response.

Methods: Data were collected from consecutive new patients with lumbar or lumbopelvic pain in a chiropractic clinic. A pelvic tilt exercise was included in the initial examination, and pain response was noted. Analysis was made of pain and disability severity, as well as symptom location, chronicity, and other characteristics, before and after a course of chiropractic care.

Results: Patients with an increased pain response to pelvic tilt (n = 12) had higher levels of pain and disability at baseline than patients without (n = 34). There were no between-group differences in other aspects of their complaints; in age, sex, or body mass; or in the types of care they received (eg, manipulation, stretching, exercise instruction). On the average, both groups of patients showed improvement with chiropractic care, and there was no detectable difference in improvement between groups.

Conclusions: This study found that patients experiencing pain in response to a pelvic tilt maneuver may have a poorer precare status than patients with a decreased pain response.

Introduction

The following report explores a possible role for a common therapeutic exercise, known as the *pelvic tilt*, in the evaluation of patients with low back pain (LBP)

* Corresponding author at: Center for Chiropractic Research, Life University, 1269 Barclay Circle, Marietta, GA 30060. Tel.: +1 404 317 2842, +1 770 426 2641; fax: +1 678 331 4618.
E-mail address: brussell@life.edu (B. S. Russell).

http://dx.doi.org/10.1016/j.jcm.2016.02.009
1556-3707/

and radicular thigh and leg pain. The principal author is a practicing chiropractor who has, for many years, recommended the pelvic tilt to patients with lower back pain. He introduced it into his clinical regimen as described by a popular textbook on spinal rehabilitation.[1] The pelvic tilt exercise is performed with the patient supine; the hips are flexed to 45°, knees flexed to 90°; the patient is to then tilt the pelvis posteriorly, flattening the lumbar spine without raising their buttocks off the examining table or floor.[1] Performance of the posterior pelvic tilt maneuver involves some degree of flexion of the lumbar spine with a "flattening," or reduction, of the lumbar lordosis, a motion which can be done voluntarily.[2]

Posterior tilting of the pelvis has been recommended as an exercise for relief of LBP since at least as far back as the 1980s[3,4] and can still occasionally be found in patient education literature and Internet sites. Nor is the concept unique to this exercise; there are many published examples of directional preference—the identification of which positions and movement patterns relieve or aggravate pain—for lumbar flexion, as well as for extension and lateral bending[5–11]—and use of that information for therapeutic decisions.

Posterior tilting of the pelvis also involves contraction of the abdominal muscles[12–15] and has therefore sometimes been associated with core strengthening concepts of using the internal and external oblique and transverse abdominis muscles to impart active stiffness to the spine through their attachments to the thoracolumbar fascia.[16] However, as an exercise, posterior tilting of the pelvis is of fairly low intensity and does not use the abdominal muscles at a level that would strengthen them.[12,13] Variations on the pelvic tilt exercise have been used in other studies. Suputtitada et al[17] found that a sitting version of the exercise relieved LBP in the third trimester of pregnancy. Gürşen and colleagues[18] instructed women who had had cesarean childbirth to perform posterior pelvic tilts along with other exercises and Kinesio Taping. And, in a rehabilitative program for golfers, Shin et al[19] combined "pelvic anterior-posterior" exercises on a gym ball with other exercises and spinal manipulation. It may be worth noting that there are somewhat similar alternatives in which the patient draws in the abdomen in a manner similar to that of the pelvic tilt exercise but without tilting the pelvis or flattening the lumbar spine[20,21]; these include the abdominal drawing-in maneuver[22] or "abdominal hollowing."[12,13] However, abdominal hollowing does not seem to activate the abdominal muscles to the same degree as the pelvic tilt.[12,14]

In the principal author's experience, most patients performing a pelvic tilt maneuver have found some pain relief, and many of those patients seemed to have mechanical LBP with a relatively uncomplicated, favorable response to conservative care. Pain upon performance of the pelvic tilt maneuver was an unexpected finding, and some of those patients also had signs of nerve entrapment or neural adhesions and had less successful responses to conservative care. These individual cases stand out in casual observation but do not make clear whether there is anything beyond an occasional phenomenon.

The aim of this study was to perform a prospectively planned systematic analysis of patient records and look for ways in which patients with an increased pain response to the pelvic tilt are different from patients with a decreased pain response.

Methods

This study protocol was approved by the Life University Institutional Review Board. Study participants were consecutive new patients presenting to the principal author's clinic who complained of lumbar or lumbopelvic pain. The clinician described the study and asked patients to sign an informed consent form for the use of their information. Each participating patient also completed a Quadruple Visual Analog Scale (QVAS) and a Revised Oswestry Disability Index (RODI). Patients were excluded from the study for late-stage cancer or metastasis to the spine; neuropathy suspected to be related to diabetes, alcoholism, kidney disease, or other systemic illnesses; severe osteoporosis; pain believed to be nonorganic; disability requiring a wheelchair, walker, or leg brace; or any situation dictating emergency referral. Participants who reported a history of multiple incidents of trauma, previous abdominal or spinal surgery, or current pregnancy were excluded on a case-by-case basis if the situation was considered a complication for their LBP.

The principal author included a pelvic tilt maneuver as a part of the initial patient examination. A standardized form was developed to record the pelvic tilt response, age, sex, height, and weight; location, severity, and duration of LBP; whether patients primarily reported pain, paresthesia, or both; and whether the symptoms were only local or radiated into the lower extremity. Additional information collected included symptom characteristics such as stabbing, shooting, burning, achy, or dull; history of