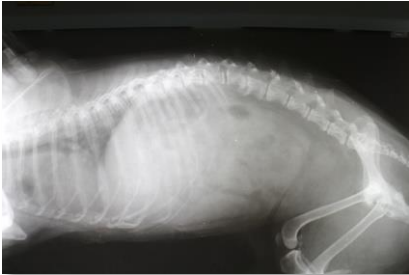


# REAL E-STATE WHITE PAPER MARCH 2019

## Adjustments Improve Mobility and Minimize the Degenerative Process

Doctor,

This white paper discusses the significance of the 2004 study published in **the Journal of Manipulative and Physiological Therapeutics** called *“Degenerative Changes Following Spinal Fixation in a Small Animal Model”*.



Just like every joint in the body, the spinal bones and joints are designed to move. Movement helps create a healthy and strong relationship within a joint. The biggest difference in the spine is the number of joints present at each segment. The spine is one of the most important parts to care for because it contains close to forty percent of the joints in the entire body. The role of chiropractic is to make sure every joint is moving and aligned as optimally as possible. This study evaluated changes which occurred in animal models as movement was limited or eliminated at different time intervals. The findings were significant.

- Using an established small animal (rat) model of spinal fixation (hypomobility), 3 contiguous lumbar segments were fixed with a specially engineered vertebral fixation device.
- Spinal segments of control rats were compared with those of animals with 1, 4, or 8 weeks of fixation.
- Subgroups of these fixation animals subsequently had the fixation device removed for 1, 2, 4, 8, or 12 weeks to evaluate the effects of attempting to re-establish normal forces to the vertebral segments following hypomobility. Eighty-seven animals (23 controls animals and 64 fixation animals) were used in this study.
- Outcome measures were degenerative changes of the vertebral bodies, intervertebral disks, zygapophysial joint osteophyte formation, and Z joint articular surface degeneration.
- Changes found in vertebral segments that were fixed (hypomobile) were compared with changes in adjacent non-fixed vertebral segments, and changes among fixation animals were compared with non-fixed controls.
- Very few degenerative changes were identified on the vertebral bodies and IVDs. Z joint changes were significant, both for osteophyte formation and articular surface degeneration.
- Fixed segments had more degenerative changes than non-fixed segments for all Z joint parameters. Osteophyte formation and articular surface degeneration were directly dependent on duration of fixation.
- These findings indicate that fixation (hypomobility) results in time-dependent degenerative changes of the Z joints.
- Findings support the notion that degenerative changes were reversible up to a certain time threshold, after which degenerative changes remained relatively constant (were found to remain throughout 12-wk post-fixation survival time).
- Articular surface degeneration changes that showed no sign of reversal occurred between 1 and 4 weeks of fixation (hypomobility). Osteophytic changes that showed no signs of reversal occurred between 4 & 8 weeks of fixation.
- Findings support the notion that inducing motion into hypomobile segments as early as possible and before the threshold is reached may be clinically important.

Every individual has a unique threshold for adhesion formation and permanent degenerative change. And this study points out that joint fixation should be addressed regularly leaving no problem areas longer than four to eight weeks. Any fixated segments lasting more than four to six weeks run a higher risk of experiencing permanent degenerative change. These findings support inducing motion (through adjustments) as early as possible and before the threshold is reached. The benefits of chiropractic go well beyond pain relief and one of the most important preventative advantages which chiropractic delivers is reducing the risk of degenerative changes by keeping spinal joints mobile and aligned.