

## The Snap, Crackle and Pop of Chiropractic?



I read a blog today from a talented group of chiropractic orthopedists discussing the popping sound heard during an adjustment. Since some lay people think that the chiropractic manipulation is risky or requires that “crack” or “popping” sound, I thought I would write a newsletter that is not focused on the medical legal aspects of practice but will help doctors and lawyers better explain what it is that makes chiropractors unique in the world of rehabilitation and specifically, what to expect from chiropractic manipulation.

To start, chiropractic physicians do much more than a manipulation. Manipulation is just one of the many treatment modalities used by chiropractors, but it also represents one of the unique services that differentiates chiropractic physicians from other medical and rehabilitation providers. Chiropractors are physicians and trained like any other physician. We order all diagnostics testing such as imaging (ex. X-Ray, MRI, CT, ultrasound), Laboratory (ex. blood, urine, saliva, hair), and electrodiagnostic evaluations (ex. EMG, NCV, EP, EEG). We have subspecialists within the profession such as chiropractic orthopedists, chiropractic neurologists, chiropractic radiologists, chiropractic pediatrics and more.

What differentiates chiropractic physicians from other non-physician rehabilitation providers is our training in the differential diagnosis of conditions beyond the neuro-musculo-skeletal systems. It is our responsibility as physicians to treat the entire patient. As physicians, we are trained to identify abnormalities suggestive of diseases that may require the care of physician subspecialties. Some of these conditions may include metabolic, neoplastic, autoimmune, cardiovascular, and congenital just to name a few. Only after ruling out factors that contraindicate manipulation or require medical management will a chiropractor consider accepting the patient for care.

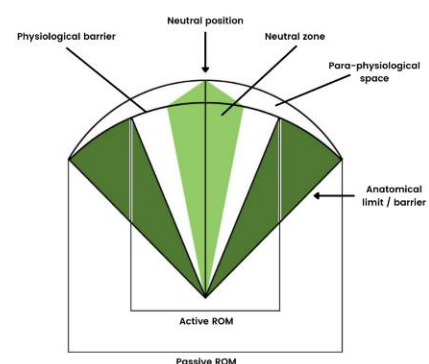
For background, joint mobilizations/manipulations are graded based on their speed and associated movement. There are 5 grades of mobilization described as follows:

- Grade I: Small, slow oscillations at the beginning of a joint's range of motion
- Grade II: Large amplitude with slow forces within the joint's entire available range.
- Grade III: Large amplitude with slow forces within the middle to end
- Grade IV: Small amplitude with slow forces at the end of a joint's range.
- Grade V: A single high-velocity, low-amplitude thrust (HVLA) at the end of the range but within the para-physiologic joint space. This is the classic chiropractic adjustment / manipulation.

While most rehabilitation providers, including chiropractors, are trained in grades I-IV manipulation, only chiropractors spend years studying Grade V manipulation and its many different forms of application to the spine and extremities. This training starts early in our education because performing Grade V manipulation is much more difficult than can be taught in a weekend course or a few months of training. Like any physician or surgeon service, a level of skill must be achieved and that can only be done by many hours developing and perfecting the hands-on art of the skill, not just the didactic aspects. Just as you would not want your spine surgeon to learn how to do a spine fusion over a weekend, you wouldn't want Grade V manipulation to be performed by a weekend warrior of manipulation.

What is a Chiropractic Adjustment/Manipulation and the popping sound that is often heard when it is performed? We have already read what a Grade V manipulation is and that it is the unique service that differentiates the chiropractic physician's training from other physicians and rehabilitation providers. So, let's review the popping sound which is the result of tribonucleation or cavitation. Tribonucleation is a mechanism that creates small gas bubbles by the action of making and breaking contact between solid surfaces immersed in a liquid containing dissolved gas. In the case of the human body, the liquid containing the gas is synovial fluid found in joints. You can watch this [video](#) showing the cavitation process in real time imaging.

When a joint is quickly mobilized during a grade V adjustment and the joints separate, the negative pressure may result in cavitation and the popping sound. It should be noted that the popping sound is not essential to achieve the desired mobilization. While the popping sound may be scary for some people, it is not associated with any tearing or damage to the bones or soft tissues. To the contrary, it results in restoration of the normal joint biomechanics and greater range of motion into what is termed the "para-physiologic joint space" (see graphic). The para-physiologic joint space represents the joint movement



beyond that which can be performed actively. Using Grade V manipulation, a skilled chiropractor can increase the active ranges of motion beyond its pre-manipulation range but still within the para-physiologic space and safely within the anatomical limit. Going beyond the anatomical limit of the joint will result in connective tissue injury and perhaps even bone injury. This is exactly why the chiropractic physician's training is so critical to providing this in a safe, controlled and efficacious fashion.

You may ask, why are Chiropractic care and Grade V adjustments so important to your clients? Here are a few of the many benefits:

- Improved range of motion.
- Restoration of normal joint mechanics.
- Elimination, reduction, and/or modulation of pain.
- Promotes optimal healing of the connective tissues.
- Restores joint position sense (proprioception).
- Helps to prevent reinjury.
- Reduces the need for pain medications that are addictive or interfere with tissue repair.
- Improves posture and balance.

In summary, while there are many physician and non-physician rehabilitation professionals that provide excellent medical and rehabilitative care, the only provider of rehabilitative care that is both a physician and offers a high level of expertise in Grade V manipulation is the chiropractic physician.