The Benefits of Incorporating a Core Stabilization Program in Addition to Osteopathic Mobilization Techniques in the Treatment of Chronic Low Back Pain

What is Osteopathy?

In 1847 Andrew Taylor Still founded the unique non-invasive and drug-free manual medicine known as Osteopathy (Nordqvist, 2014). He believed that the body functions as a whole, meaning that if there is a restriction in one area, the rest of the body will adapt itself in response to the restriction (Nordqvist, 2014). Such compensations often lead to pain, inflammation, and/or discomfort for the individual (Nordqvist, 2014). For these reasons, Still's holistic approach focuses on overall health and well being rather than concentrating solely on the problem area (Nordqvist, 2014).

Osteopaths use a broad range of manual techniques such as stretching, deep tactile pressure, soft tissue therapy, muscle energy techniques, and mobilizations to treat and reduce stress and discomfort (Nordqvist, 2014). Such treatments involve a health care practitioner to gently and slowly manually mobilize and stimulate a joint and its surrounding tissues (NINDS, 2014). The philosophy of Osteopathic Medicine believes that "through the use of manual techniques the body's ability to heal itself can be greatly improved" (AACOM, 2014).

What are Osteopathic Mobilization Techniques?

More specifically joint mobilization (MOB) techniques have been described by the National Institute of Neurological Disorders and Stroke (2014) to be passive movements of a skeletal joint with the aim of improving range of motion and achieving a therapeutic effect. Additionally, they strengthen and mobilize the musculoskeletal framework and as a result correct improper biomechanics and enhance the nervous, circulatory, and lymphatic systems allowing the body to heal itself (Nordqvist, 2014). Osteopathic MOBs have been shown on many accounts to provide significant benefits to people suffering with musculoskeletal issues (Choi, Hwangbo, Park, & Lee, 2014).

What is Chronic Low Back Pain?

While there are many different musculoskeletal system diseases, low back pain is amongst the most prevalent with about 80 percent of adults experiencing it in some form at least once in their lifetime (NINDS, 2014). Although low back pain is very common, there is a great degree of variance in terms of causes, severity, and symptoms. The onset of pain can occur abruptly (for example after an injury or accident) (NINDS, 2014). It can also develop gradually over time, which is usually due to age related changes of the spine (general degeneration or "wear and tear" of the vertebrae, intervertebral discs, and/or facet joints) (NINDS, 2014). While men and women are generally affected equally, the intensity of pain can range from a continuous and dull ache to a sudden and deep stabbing sensation that can immobilize the patient (NINDS, 2014). The pain will typically present itself as localized (restricted or limited to a specific body part or region) and/or as referred pain (redirected to and perceived at another area of the body) (Ullrich, 2012). Common symptoms include: soreness upon touch, inflammation, pain, spasm, discomfort, weakness, and limited range of motion (Ullrich, 2012). Most often low back pain occurs at the lumbar vertebrae (known as L1-L5) which is the region of the spine that supports most of a persons upper body weight (NINDS, 2014).

The lower back is a complex anatomical region. It is functionally connected to all other parts of the body via the kinetic chain and it encompasses many underlying structures such as muscles, soft tissues, tendons, ligaments, joints, intervertebral discs, nerves, and the spinal cord all of which overlap one another (Ullrich, 2012). Consequently, an issue within any of these structures can result in low back pain for the patient. Additionally, if any part of our body functions with improper biomechanics, the stress creates a ripple effect across the kinetic chain often accumulating as pain in the lower back (Ullrich, 2012).

When the pain persists for 12 weeks or longer it is classified as chronic (NINDS, 2014). 20 percent of all (acute) low back pain cases develop into chronic cases with symptoms appearing up to a year (NINDS, 2014). The magnitude of people suffering with chronic low back pain has increased in recent years and continues to rise (NINDS, 2014). Behind hypertension and diabetes, it is the number

three most common reason people seek medical attention (Shaw, 2008). Also, the National Institute of Neurological Disorders and Stroke (2014) reports it as the number one reason for job-related disability and missed days of work. Therefore, chronic low back pain unfortunately has the ability to not only curtail physical functioning and impair immediate health, but it also negatively "affects quality of life, leading to socioeconomic problems due to increases in treatment expenses and other troubles that affect a person's life" (Choi et al., 2014).

Can Osteopathic MOBs Reduce Chronic Low Back Pain?

Considering the ever-growing prevalence of chronic back pain, in recent years scientists and researchers have made it a priority to find a solution to this epidemic. Linton and Van Tulder (2001) reported that there is "no significant evidence that ergonomic interventions, back school, lumbar supports or other modalities, or risk factor modifications can prevent [back pain] or related [disabilities]".

Research by Choi et al. (2014) however examined the effectiveness of MOB techniques on chronic low back pain. In their study the experimental group received MOB techniques and the control group received spinal decompression therapy (SDT); both groups received treatment 3 times per week for a total of 6 weeks. A visual analog scale (VAS) was used on both groups to measure and rate the patients low back pain throughout the experiment. At the end of the 6 weeks VAS for the two groups was compared in order to draw conclusion about the effectiveness of the two different treatment methods. Results showed that patients who received MOB treatments had more significant improvements than those who received SDT (Choi et al., 2014). Many other studies have also found that MOBs can give patients significant relief of chronic low back pain, supporting the findings of Choi et al., (2014).

What is a Core Stabilization Program?

The term "core" is often mistakenly thought to be synonymous with the term "abs". However, when referring to the core muscle group, all the muscles located in

the torso that work to keep the body stable around the spine should be included (Pinzon, 2003). Such muscles include: local stability muscles (transversus abdominus, deep segmental lumbar multifidus, psoas major), global stability muscles (oblique abdominals, spinalis, gluteus medius), and global mobilizer muscles (rectus abdominus, iliocostalis, piriformis) (Pinzon, 2003). Usually these muscles are under utilized and not consciously contracted during our day-to-day activities leaving them weak (Pinzon, 2003). A core stabilization program aims to strengthen and re-train all of these muscles to work together which in turn maximizes spine stability, enhances quality of movement (more control and coordination over arm and leg movements), and improves posture (better able to maintain a neutral spine) (Pinzon, 2003). In addition, all weight bearing, position, pressure, and stasis sensitivities should be identified when creating core stabilization programs so exercises appropriate to the specific structure injured can be prescribed (Pinzon, 2003).

How Can a Core Stabilization Program Help Improve Chronic Low Back Pain?

Research proves that incorporating core stabilization and strength exercises into a low back rehabilitation program can have many potential benefits, such as:

- Restoring muscle strength and function
- Improving strength of vertebral segments
- Reducing forces on the discs by providing additional shock absorption
- Increasing range of motion
- Correcting and maintaining optimal spinal curvature
- Educating the patient on the biomechanics of a healthy spine
- Minimizing inflammation, pain, and discomfort (Pinzon, 2003).

Evidently, a properly structured core stabilization program that is done on a regular basis can significantly reduce stress on the lumbar spine, minimizing low back pain.

All that being said, it should be kept in mind that though developing core strength is important, overtraining the abdominal muscles while neglecting the back and hip muscles (as individuals seeking a "6 pack" tend to do) can have negative reciprocations leaving the spine vulnerable and increasing the risk of further injury (Harvard Medical School, 2012).

Conclusions:

There seems to be a link between an immobile musculoskeletal system and weak core muscles in the development of chronic low back pain (Pinzon, 2003). Lumbar MOB treatments, which increase the range of motion through the lower back, are fundamental in improving quality of movement (Pinzon, 2003). Additionally, strengthening the core muscles that support and mobilize the spine aid in further repairing a damaged lower back (Pinzon, 2003). Mobility and core strengthening appear to be the key components in creating the best low back treatment option possible for the patient and thus minimizing clinic visits.

Osteopathic philosophy believes that the body is a unit with self-regulating mechanisms and the inherent capacity to defend and repair itself (NAO, 2010). Based on these principles, instead of opting for medications or surgery, patients experiencing chronic low back pain should seek a holistic manual approach to healing such as osteopathic MOB treatments and core stabilization training. From a psychotherapeutic point of view, a rehabilitation option such as a core stabilization program allows the patient the opportunity to self-manage their treatment, giving them a sense of control over their recovery (Pinzon, 2003). By encouraging the patients active involvement, the risk of injury reoccurrence or retrogression can be decreased (Pinzon, 2003).

In conclusion, whether a rehabilitation program is being used for injury prevention or for injury recovery purposes, first and foremost, it must be aimed to restore functionality among the affected patient (Pinzon, 2003). Through the combination of osteopathic MOB treatments and core stabilization training where the patient has the ability re-train their muscles, re-align their posture, and re-attain a pain-free life, this is achievable.

References

American Association of Colleges of Osteopathic Medicine. (2014). The history of Osteopathic Medicine. Retrieved from http://www.aacom.org/about/osteomed/Pages/History.aspx

Choi, J., Hwangbo, G., Park, J., & Lee, S. (2014). The effects of manual therapy using joint mobilization and flexion-distraction techniques on chronic low back pain and disc heights. *Journal of Physical Therapy Science*, *26*(8), 1259–1262.

Harvard Medical School. (2012). The real-world benefits of strengthening your core. *Harvard Health Publications.* Retrieved from http://www.health.harvard.edu/healthbeat/the-real-world-benefits-of-strengthening-your-core

Linton, S. J., Van Tulder, M. (2001). Preventive interventions for back and neck pain problems: What is the evidence? *Spine, 26*(7), 778-87.

National Academy of Osteopathy. (2010). What is Osteopathy? Retrieved from http://www.nationalacademyofosteopathy.com/what_is_osteopathy.html

National Institute of Neurological Disorders and Stroke. (2014). Low back pain fact sheet. Retrieved from http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm

Nordqvist, C. (2014). What is osteopathy? What conditions does osteopathy treat? *Medical News Today*. Retrieved from http://www.medicalnewstoday.com/articles/70381.php

Pinzon, E. G. (2003). Lumbar spine rehabilitation. *Practical Pain Management.* Retrieved from http://www.upasolutions.com/documents/PPM_SepOct03LumbarSpineRehab.pdf

Ullrich, P. F., Jr. (2012). Lower back pain symptoms, diagnosis, and treatment. *Spine-Health*. Retrieved from http://www.spine-health.com/conditions/lower-back-pain/lower-back-pain-symptoms-diagnosis-and-treatment