How the Mobilization Techniques benefit Osteopathy?

by

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Overview

Osteopathy is about health problems related to dislocation bones, nerves and muscles. Osteopathy first began in United States but now there are practices in many countries worldwide. In Canada, osteopathic manual practitioners or manual osteopaths maintain, improve or restore the normal physiological function of interrelated body structures and systems, and enhance the body's natural ability to health itself by using many techniques. One of that techniques is the mobilization technique which helps many patients restore their movement ability from injuries.

Osteopathy

Osteopathy first started in United States in 1874. The term "osteopathy" was coined by Dr. Andrew Taylor Still, MD, DO. It was created based on the belief that displaced bones, nerves, and muscles are the cause of most health problems. A doctor of osteopathy (DO) is called an osteopath and believes that when the body's structure is corrected, its function will also improve.

The body has 2 main structures that support and protect our organs - the muscles and bones of the body. If the muscles and joints are aligned and working properly, the rest of the body will use the homeostasis which is the process to heal itself. Poor joint mobility and tense muscles can affect the brain, nerves, blood vessels, lymphatics, digestive system, heart, lungs, and other parts of the body.

When an osteopath finds a problem in the spine or joints, he will try to understand why the problem developed. The treatment will focus on two aspects: 1) correcting the weakness that led to the spinal problem and 2) directly working on the joints or muscles to restore its function and movement. Once the joint function has been restored, the blood and nerve supply will also improve and the body will heal itself.

In Canada, many manual osteopath (DOMP) which can perform most like osteopaths (DO). In the first visit, patients will be asked many questions about their past and present health. Manual osteopaths will examine and evaluate your posture, range of motion, skin and muscle tone, tenderness, and reflexes. Lab tests, x-rays, or other diagnostic procedures may be done by doctors. This visit may take 30 to 60 minutes and return visits may be 20 to 30 minutes.

DO's and DOMP's may use the following manipulation techniques:
* Cranial manipulation: subtle and gentle pressure is applied to the skull.
* Muscle energy: straining and releasing specific muscles to help them relax.
* Functional and positional releases: putting you in a specific position to allow the muscles to relax and release spasms.
* Joint mobilization: moving a joint through its range of motion, gradually increasing the motion to free the restrictions.
* Articulation: a quick thrust similar to chiropractic adjustment.
* Soft tissue techniques: several techniques to remove restrictions in muscles, tendons, and ligaments.
Osteopathy manipulation is usually very effective in treating back and joint pain, injuries, and headaches. These techniques may be helpful in the treatment of other problems, such as insomnia, depression, menstrual problems, or digestive complaints. Asthma, arthritis, high blood pressure, and heart disease may also be treated with manipulation.

Mobilization Techniques

Mobilization Technique is a treatment technique used at the joint to manage the muscular dysfunction. Most manipulative and mobilization techniques are performed by manual osteopath, and fall under the category of manual therapy.
In most cases, at the end of a long bone there is a joint or articulation. The long bone is attached or joined to another bone by a joint. For example, the femur, the upper leg bone, is attached to the tibia, the lower leg bone, at the knee joint. The knee joint is made up of the surface of the tibia, femur, ligaments, and capsule. Thus, the knee joint is stable and yet mobile. When an individual is sitting in a chair and freely kicks his leg out (knee extension), the tibia moves, while the femur is stationary. However, at the surface of the articulating bones (tibia and femur), there is other movement. This movement is known as slide or glide; some have termed it “joint play.” When an individual kicks his leg out, the lower leg or tibia is not only moving forward, but also gliding across the end of the femur. Mobilization is the treatment technique that involves the clinician applying a force to mimic the gliding that occurs between bones. It is a passive movement, the goal of which is to produce a slide or glide. Mobilizations are usually completed at slow speed, sometimes with oscillations, and even with a “hold” or stretch. Manipulations are more aggressive, high velocity techniques, or thrusts. They occur very fast, and at the end of available joint play.

Purpose

Mobilizations are used to restore joint play that has been lost due to injury or disease. In order for an individual to kick his leg out, there must be sufficient joint play, or freedom for the tibia to move on the femur. Thus, mobilizations are used when range of motion or mobility is lacking. Furthermore, gentle oscillations within the available joint play range is a technique used to decrease pain . Manipulations are quick movements that occur beyond the available joint play range. The purpose of manipulations, or joint thrusts, is to increase the available range if it is not full. Secondly, manipulations are done to break adhesions that disrupt joint movement.

Precautions

Mobilizations and manipulations should not be done in the following circumstances:

* to the spine if there is severe osteoarthritis or osteoporosis
* if there is any tumor or malignancy in the area
* to the cervical region if there is dysfunction with the flow of blood within the vertebral artery
* if there is bleeding in a joint
* if there is a loose body in the joint
* to total joint replacements
* to joints near a growth plate
* if the joint is degenerative
* until a full diagnosis is reached

Description

Peripheral joint mobilization means mobilizing the joints of the periphery or limbs. There is a grading system for completing mobilizations. The grading system is based on how much joint play is available. Thus, the clinician must know what the total range is by examination through passive movement. Furthermore, there are stretching mobilizations used for pain management and stretching. The first common mobilization techniques are sustained joint play movements that have three grades. These mobilizations aid in decreasing pain and increasing mobility.

Grade 1

The manual osteopath applies passive movement in a very small range, approximately 15-25% of the available joint play range.

Grade 2

Bone is passively moved in a moderate range to 50% or half of the available joint play range.

Grade 3

Passive force by the manual osteopath causes one bone to move on the other to the end of the available joint play range.

Within these three grades the stretch or "hold" is approximately five to seven seconds.

The other common mobilization technique is termed oscillatory mobilization. These mobilizations have five grades associated with them. Grades one to two are used to help decrease pain within a joint. Grades three to five are used to increase mobility of joint play. Interestingly, a grade five mobilization is really a manipulation. The following are grades for oscillatory mobilizations:

Grade 1

Slow oscillations within the first 20-25% of the available joint play range.

Grade 2

Slow oscillations within 45-55% of the available joint play range, or from the beginning to the middle of available joint play range.

Grade 3

Slow oscillations from the middle of the available joint play range to the end of available joint play range.

Grade 4

Slow oscillations at the end of the available joint play range.

Grade 5

Bone is passively moved to the end-range, and a fast thrust is performed. This is manipulation.

Preparation

The practitioners should be aware of the following prior to performing manipulations:
The practitioners must use good body mechanics and be comfortable with the patient and the technique.
The practitioners must understand the patient's pain and not proceed if the patient has pain.
The patient must be comfortable with the practitioners, and the procedure must be explained fully to the patient.
The patient must be relaxed.

Aftercare

Individuals with a chronic joint problem may have Grade 1 and Grade 2 techniques used at the beginning of treatment to decrease pain. Then, after treatment, the patient progresses to more aggressive rehabilitation such as therapeutic exercise At the end of a rehabilitation session, Grades 3 and 4 can be used in conjunction with stretching to increase mobility. In an acute joint pathology, only Grades 1 and 2 should be used. Grades 1 and 2 mobilizations can be used at the beginning of therapy to reduce pain in an effort to increase performance during therapeutic exercise Grades 1 and 2 mobilizations can be used again at the end of the treatment before ice or cold treatment to help alleviate pain.

Complications

Some complications associated with mobilizations, but more so with manipulations are:
* fracture
* dislocation
* joint capsule tearing
* ligamentous tearing
* muscle or tendon injury
* nerve damage

Benefits

If done appropriately, mobilizations can help reduce pain and restore joint play, which is critical for normal mobility. Manipulations are beneficial for releasing adhesions and are usually done under anaesthesia by a medical physician.

Clinical cases using mobilization techniques

Eamonn's Research about the acute effect of ankle joint mobilizations during a single-leg drop landing in participants with chronic ankle instability shows the results indicate that mobilization acutely reduce the angle of ankle joint plantarflexion at initial contact during a single-leg drop landing. Mobilization also facilitates a more favorable positioning of the ankle joint when landing.

Report of Larry that shows about a real-world 8-week multimodal treatment program which includes the mobilization techniques, results in clinically meaningful improvements in knee osteoarthritis(OA) symptoms, with excellent generalizability across a broad range of patient characteristics.

Another case by Sean, examining the short-term effects of grade 1 and 2 posteroanterior joint mobilizations at the lumbar spine on subject pain and muscle force after an episode of acute, mechanical low back pain shows the great result about Grade 1 and 2 joint mobilizations which reduced subjects' pain and increased force production in the short-term stages of mechanical low back pain.

Conclusions

Joint mobilization techniques are used by the manual osteopath proving that they are effective and reduce patients' pain. Joint mobilization, specifically Grade 4 joint mobilization, can be an extremely important technique to incorporate into the treatment strategy for clients. And when properly applied, is effective and safe.

References

Burton Goldberg Group. *Alternative Medicine: The Definitive Guide* . Future Medicine Publishing, Puyallup, WA, 1994.

Inglis B., West R. *The Alternative Health Guide* . Alfred A. Knopf, NY, 1983.

Kastner M.A. *Alternative Healing: The Complete A to Z Guide to Over 160 Different Alternative Therapies* . Halcyon Publishing, La Mesa, CA, 1993.

Sifton D.W. *The PDR Family Guide to Natural Medicines and Healing Therapies* . Three Rivers Press, NY, 1999.

Woodham A., Peters D. *Encyclopedia of Healing Therapies*, 1st ed . Dorling Kindersley, NY, 1997.

Hertling D., Kessler R.M. *Management of Common Musculoskeletal Disorders* . Baltimore: Lippincott, Williams and Wilkins, 1996.

Lehmkuhl L.D., Smith L.K. *Brunnstroms Clinical Kinesiology* . Philadelphia: F.A. Davis Co., 1996.

Magee D.J. *Orthopedic Physical Assessment* . Philadelphia: W.B. Saunders Co., 1997.

Delahunt E., Cusack K., Wilson L., Doherty C. *Medicine and Science in Sports and Exercise* . 2013:i3:514-519.

Miller L.E., Block J.E. *Pragmatic and Observational Research* . 2013:39(6).

Hanrahan S., Bonnie L., Lunen V., Tamburello M., Walker M.L. *Journal of Athletic Training* . 2005:i2:88(6).