

Tissue Distraction Release with Movement (TDR-WM): A Novel Method of Soft-tissue Release

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Abstract

The practice of cupping has been used for thousands of years and continues to be a common medical intervention in traditional Chinese medicine. The latest systematic review on cupping concludes that, to date, there is only low quality evidence indicating that cupping may be effective for reducing musculoskeletal pain. However, studies to date have only investigated static cupping techniques. Conversely, the novel cupping technique of Tissue Distraction Release with Movement (TDR-WM) involves the gliding of the cups in various directions while the patient simultaneously actively moves the relevant joint and tissues underneath the cup. During TDR-WM, the negative pressure inside the cup literally lifts and separates the tissue underneath the cup; the addition of active movement of the tissues while the cup is applied may further assist the release of the interfaces between the soft-tissues such as skin, fascia, neural tissues, muscles, ligaments and tendons. TDR-WM techniques have been clinically observed to be particularly effective in soft-tissue conditions where physical therapy treatments have classically focused on tissue compression. Since TDR-WM is a novel concept, no studies have yet been performed on this approach for the management of myofascial pain. However, based on clinical experience, patients with persistent myofascial conditions have shown resolution of their symptoms following only a single session of TDR-WM.

History of Cupping and the Evidence to Date

The practice of cupping is believed to date back as far as 5000 years ago. One of the oldest medical textbooks in the world has described the Egyptians' use of cupping dating back to 3500 years ago. In China archaeologists have found evidence for the use of medical cupping 3000 years ago. In ancient Greece, Hippocrates (2400 years ago) used cupping for the treatment of various illnesses.

Although a few thousand years have passed and cupping continues to be a common medical intervention in traditional Chinese medicine and in some parts of the Middle East, the practice is still not accepted by

health care providers in Europe and North America.

Perhaps one explanation for cupping not becoming more "popular" in Western medicine may be related to the traditional unsubstantiated claims that cupping can either help or cure multiple ailments ranging from colds to hypertension, infections to cancer. In fact the American Cancer Society quotes that *"...available scientific evidence does not support cupping as a cure for cancer or any other disease"*

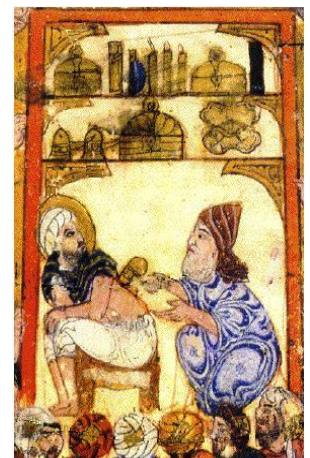


Photo courtesy of
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But what about cupping therapy for musculoskeletal conditions? Although the studies are of low quality, there is some evidence to support dry cupping techniques may be effective in reducing pain in individuals with knee OA (Teut et al. 2012), chronic neck pain (Lauche et al. 2012), low back pain (Markowski et al 2014) and fibromyalgia (Cao et al. 2011).

A randomized controlled trial on patients with chronic neck and shoulder pain showed that cupping therapy based on acupuncture points was effective at reducing pain (Chi et al 2016).

The latest systematic review on cupping (Lee et al. 2011) concludes that, to date, there is only low quality evidence indicating that cupping may be effective for reducing musculoskeletal pain but no evidence to support its effectiveness in treating any other medical conditions.

Types of Cupping

There are two basic types of cupping procedures: wet and dry cupping. The wet cupping procedure involves the making of small incisions on the skin prior to the application of the cups so that when a vacuum is created inside the cup, a significant amount of blood is drawn out. This technique can be considered a form of bloodletting, and will not be discussed any further in this paper.



Wet cupping

Dry cupping involves no direct drawing out of any blood, but still involves the creation of a vacuum inside a cup and distraction of the soft tissues, resulting in increased circulation to the skin. This is immediately seen by the redness produced underneath the cups.



Dry Cupping

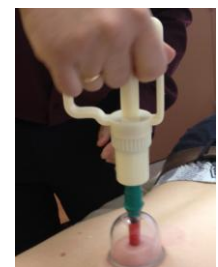
One form of dry cupping is referred to as “fire cupping”, where a vacuum is created by burning a small amount of alcohol inside a glass cup which is then quickly placed over the skin. The fire lasts for a very short duration inside the cup creating suction by consuming the air within it. This technique requires some skill in order to be performed safely and effectively.



Fire cupping

In ancient times dry cupping was performed using bamboo sticks, animal horns, or metal but in traditional Chinese medicine glass cups continue to be most commonly utilized.

In recent times, instead of using fire, pumps and suction guns have been developed to create the vacuum inside glass cups as they are considered easier, more time efficient and safer to perform.



Modern Suction guns

However, in the past decade silicone cups have also grown in popularity due to their ease of use. With the advent of silicone cups, some have abandoned fire and suction gun

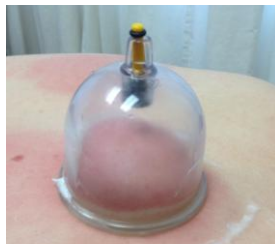


Silicone cups: New transparent

cups. The silicone cups are simply applied over the skin and with a squeeze of the top, a vacuum is produced. Other than being easy to apply, silicone cups are hygienic, easy to clean and pliable for gliding over uneven body surfaces.

Theoretical Benefits of Cupping

Despite the fact that cupping therapy has been performed throughout the world for over a thousand years, to date there are no proven scientific or agreed upon benefit of this medical intervention. It ancient times it was hypothesized that “evil spirits” were being sucked out of the body. In traditional Chinese medicine it is theorized that when cups are applied over specific acupuncture points it stimulates the flow of Chi (energy).



Sucking out evil spirits?
Stimulating Chi?
Increasing blood flow?
Releasing tight tissues?

Since the concept of Chi can be difficult to prove using a Western medicine approach, there have been other theories to help explain the possible therapeutic effects of cupping. Cupping therapy, which is based on creating a negative pressure and drawing body tissues outwards, may help...

- ✓ Increase local circulation
- ✓ Improve lymphatic flow
- ✓ Release scar tissue adhesion
- ✓ Relax muscle
- ✓ Release trigger points

Classical dry cupping is a static technique where several cups are simply left on for 3 to 30 minutes while the patient is passively lying down. Conversely, the primary focus of TDR-WM is to move and glide a single cup in various directions while the patient **simultaneously actively moves the relevant joint and tissues underneath the cup.**



Static Cupping: The patient passively lies on a bed and the cups are just left on



TDR-WM: The patient actively moves the relevant tissue while the cups are simultaneously glided

Advantages of transparent silicone cups



Transparent silicone cups allow one to see the skin and tissue response to the cupping. In addition, silicone has low toxicity and low chemical reactivity with lotions and creams. Silicone is non-porous so it will not support bacterial growth. In addition, silicone cups are odourless, non-shattering, watertight and hygienic as they are easy to clean.

Theoretical Benefits of TDR-WM

In addition to the abovementioned possible theories on the effects of cupping, there is another plausible explanation. During TDR-WM, the negative pressure inside the cup literally lifts and separates the tissue underneath the cup; the addition of active and active assisted movement of the tissues while the cup is on may further assist **the release of the interfaces between the soft-tissues such as skin, fascia, neural tissues, muscles, ligaments and tendons.**

TDR-WM Indications

✓ Anywhere that soft-tissue massage and release techniques are indicated. E.g. myofascial pain and scar tissue adhesions

TDR-WM Contra-indications & Safety

The only known adverse effect from TDR-WM is mild to severe tissue bruising. **Limiting treatment time to 2-3 minutes on the first session can reduce the risk of significant**

bruising. Treatment time may be gradually increased in future sessions based on patient response.

Some theorize that the bruising is in fact a healthy response to cupping. In traditional Chinese medicine, dark purple bruising post cupping indicates an unhealthy tissue due to stagnant blood but a red bruise indicates a healthy tissue response. However, in TDR-WM, regardless of colour, severe bruises are to be avoided. **Significant skin irritations and lesions following static therapeutic**



Post static cupping for only 3 minutes

cupping have been reported, therefore observing skin response during the performance of TDR-WM is essential to minimize this risk (Franco et al 2012).

TDR-WM Contra-indications

- ☒ Neural tissue sensitivity (e.g. avoid TDR over the nerve in those with “sciatica”)
- ☒ Blood diseases (e.g. Haemophilia)
- ☒ Patients on anti-coagulants (“baby” Aspirin excluded)
- ☒ Dermatitis
- ☒ Open wounds
- ☒ Varicose veins
- ☒ Hernia
- ☒ Severe edema
- ☒ Severe health issues (e.g. congestive heart failure, renal failure, etc.)
- ☒ Areas near large veins such as groin region
- ☒ Systemic inflammatory conditions (e.g. rheumatoid arthritis)
- ☒ Infections (e.g. patient presenting with fever & chills)
- ☒ Genital regions

Basic Cup Gliding Techniques

Although there are no rules or ideal methods of gliding the cups, there are three possible options.

The **longitudinal technique** is probably the most common technique where the cup is glided longitudinally along the muscles fibers. Although uncomfortable, this technique has a relaxation effect and can be performed on tight muscles or muscles in tone such as the erector spinae, hamstrings, and the gastroc-soleus complex.



The **cross fiber technique** may be used when the tissue is thought to be “bound down” or scarred and requires release. This technique is quite uncomfortable, but sometimes necessary.



The **circular technique** is used at the end of a TDR session to ensure that all the areas of the tissue are covered. The method is used on large areas such as the gluteal region.



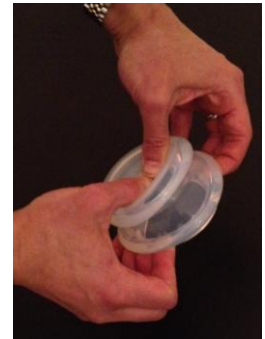
10 Steps to Effective TDR-WM

1. **Warm the relevant soft-tissue** either with 5 minutes of cardio exercise, repeated movements or a heating pad.
2. Disinfect the cups with antibacterial soap and warm water between each patient. If the silicone cup feels too rigid, simply rinse it for a few seconds under hot water.
3. Inform the patient that they will feel a pull on their skin and muscles as the cup is moved; which will feel quite uncomfortable. They must be warned that pain is inevitable during the technique, but that the pain from the cupping resolves **immediately** when the technique is stopped. The patient must be informed that TDR will be stopped or paused if requested. The discomfort induced during treatment varies depending on the region being treated. For instance TDR of the calf and gluteal muscles is extremely uncomfortable whereas TDR of the plantar aspect of the foot is often just ticklish.
4. Inform the patient that there is a **possibility of redness or bruising** after the treatment. Although benign, warn them that

the bruising may last from a few days to a week.

5. Ensure **plenty of moisturizing cream** is used on the skin to allow smooth gliding of the silicone cups. Without proper skin lubrication, cup gliding will not be possible and very painful if performed on dry skin.

6. To attach the cup, use both hands to press down with the thumbs on top while the fingers pull up the edges. The amount of suction is determined by the amount of squeezing. In patients with significant tenderness, **start with light pressure** then increase the distraction pressure as tolerated.



Squeeze method to attach cup

7. The cup may be **glided longitudinally, transversely or in circular fashion** with a gentle distracting force for **2-4 minutes**. Brief pause or rest periods may be needed if the patient reports of significant discomfort.

8. Guide the **patient to actively move the relevant joint(s) in a repetitive pattern** that will maximize the soft-tissue movement underneath the cup. The movement is often active assisted where the therapist guides the movement.



Patient is to actively flex and extend the knee while the cup is glided over the affected region of the quadriceps.

9. To remove the cup, simply pull up on the edge and lift. Once the TDR is completed, other forms of release, manual therapy, taping and exercises may still be performed if required.

10. If TDR-WM is effective, the patient should immediately report of reduced pain and improvement in mobility; if required, TDR may be repeated for another **2-4 sessions** (e.g. once a week). If significant improvement is not reported after the first session, future TDR sessions are usually not indicated.

Sample Clinical Case #1

Ilio-tibial band (ITB) syndrome is a common condition affecting some athletes and runners leading to lateral knee pain. This condition is sometimes resistant to traditional stretching, compressive massage and foam roller compression techniques. It is theorized that the ITB may become tight and adhere to the structures underneath it such as fascia and the quadriceps muscle. Therefore TDR-WM appears to be a viable alternative treatment option replacing techniques that aim to further compress down on the ITB.

With the patient is side lying, a large sized cup may be glided longitudinally along the ITB while the knee is passively flexed and extended. To further add to the ITB distraction and its separation from the underlying tissue, the cup may be manually distracted during the glide and the passive knee movement.



A patient with over a year history of ITB pain reported instant relief following a 3 minute session of TDR-WM. The technique was repeated a week later. Following only 2 TDR-WM sessions, he was symptom free and returned to his usual running.

What can we learn? TDR-WM may potentially be more effective than techniques that focus on further compressing down on soft-tissues that are hypothesized to be tight.

Sample Clinical Case #2

Dupuytren's contracture is a genetic flexion contracture of the palmar fascia. The most common treatment is surgical release of the fascia but recurrence remains relatively high.

Although anecdotal, the Dupuytren's contracture was reversed using the TDR-WM technique for 6 weeks. The patient had her own cup and performed TDR-WM on a daily basis for several minutes a day.

She simply left the small cup on the palm of her hand and repeatedly flexed and extended her hand. After several years of coping with the inability to extend her 4th finger, we were both amazed that she regained full extension using the TDR-WM.



What can we learn? If TDR-WM can potentially help one the most severe forms of contracture, perhaps it can also be effective in more benign soft-tissue restrictions.

Conclusion

Although various forms of therapeutic cupping have been performed for thousands of years in Asia and Europe, due to the limited evidence supporting this treatment technique the practice has not yet expanded to mainstream medicine in North America. The purpose of this paper was to introduce a novel version of therapeutic cupping referred to as TDR-WM which is distinctively different from traditional static cupping techniques.

The most important factor determining the success of TDR-WM is patient selection, therefore indications and contra-indications must always be considered. It appears that individuals with conditions such as “ITB syndrome”, “piriformis syndrome” and “upper trapezius trigger points” may receive greater and more rapid benefits from TDR-WM when compared to traditional forms of manual soft-tissue release techniques that focus on compressing down on painful tissues.

Compared to various manual soft-tissue release techniques, TDR-WM may not only sometimes be more effective, but the technique is certainly easier on clinicians’ hands and thumbs.

Based only on anecdotal clinical experience thus far, further research evaluating the efficacy of TDR-WM is warranted.

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If you wish to view short videos demonstrating TDR-WM techniques for various clinical syndromes, please visit the *Video Library* on

www.aptei.ca

The transparent silicone cups may be ordered from www.aptei.ca