

## Westwood Massage



### The use of Heat during soft tissue repair

Thermotherapy consists of application of heat for the purpose of changing core temperature of soft tissue (tendons, muscles, ligament, fascia) with the intention of improving the symptoms of certain conditions. Heat therapy facilitates the healing process by producing blood vessel dilation (opening of the blood vessels). The goal of thermotherapy is to alter tissue temperature in a targeted region over time for the purpose of inducing a desired biological response. By increasing the temperature of the skin/soft tissue, the blood flow increases by vasodilatation and the metabolic rate will also increase. Heat increases oxygen uptake and accelerates tissue healing, it also increases the activity of destructive enzymes, such as collagenase, and increases the catabolic rate.

The therapeutic effects of heat include increasing the extensibility of collagen tissues; decreasing joint stiffness; reducing pain; relieving muscle spasms, increases blood flow and aids in the post acute phase of healing. Heat is most useful in warming up stiff or scarred soft tissues before stretching or exercise. Heat may also be useful in relieving pain or spasm associated with neck or back injuries.

Moist heat appears to be more effective in treating pain than dry heat, as the moisture allows the heat to penetrate more deeply into the muscle. In many cases, cryotherapy (cold therapy) is used to reduce inflammation before thermotherapy is used to increase blood flow to muscles.

#### **Methods of application**

- Heat Creams, Ointments and sprays - These popular over-the-counter remedies such as Deep Heat can provide relief from minor muscle pain. However, these topical treatments do not penetrate very deeply into muscle tissue, making them less effective in treating more significant pain.
- Warm Compresses - Moist heat packs are made of silica gel and are considered a superficial heating modality. Larger heat packs should be used for areas such as the low back or quadriceps, while the smaller, longer ones should be used for the cervical (neck) area. The temperature should range from 145-170°F. These packs should be used for 15-20 minutes, and be placed in a cloth pad to protect from burns. Additional towels may be necessary. The patient should try to avoid lying on the heat pack, and should be in a comfortable position.
- Hot packs are heated, cloth-covered pouches with a core of silica gel. They provide relief of pain located in a patient's trunk, spine or limbs. Hot packs also are used to treat muscle spasms, and the inflammations of tendonitis and bursitis. Variations of

this type of therapy include hot water bottles, warm and moist compresses and electric heating pads.

- Paraffin Bath - Paraffin (waxy white or colourless solid hydrocarbon mixture used to make lubricants) is mixed with mineral oil in a special basin into which the affected limb is immersed. This treatment can provide relief of arthritic symptoms. Paraffin dips use a mixture of oil and water to heat an area usually irregular in shape and somewhat small, such as a hand. The temperature ranges from 118 to 126°F. It is fairly inexpensive but not too convenient. Paraffin baths are generally used for arthritis and other chronic inflammatory conditions. There are two common methods for use, and immersion bath and the pack glove method.
- Warm Whirlpool Baths - It is good for covering large, irregular surface areas. The temperature should range from 105 to 110°F, and the duration of treatment should last from 15 to 20 minutes. If the core body temperature gets too high, hyperthermia should become a concern. Whirlpool baths promote vasodilation and help stretch collagen tissue.
- Hot Bath
- Saunas and Steam rooms
- Hot towels
- Infra-red lamps
- Ultrasound Therapy - A method of applying deep heat to tissues using high-frequency sound waves. Transmission gel, oil or water is applied to the skin covering certain areas of the body. Energy derived from a quartz crystal is then the passed from an applicator through the gel, creating deep heating to soft tissue and bone that increases blood flow and tissue metabolism and raises a patient's pain threshold.

### **Contraindications of heat treatment**

Heat treatments should be taken with precaution if you have any of the following conditions

- Diabetes
- Multiple sclerosis
- Pregnant women as this exposes the fetus to prolonged heat
- High or low blood pressure.
- Acute(new) injuries
- Swollen or inflamed joints
- Circulatory problems
- Deep vein thrombosis
- Infections
- Cancer - heat therapy should not be used on tissue that has received radiation treatment or on tissue that is directly over a cancer site.
- Implanted pins and plates
- A pacemaker
- Do not apply heat treatment over jewellery as this can cause the metal to heat up and burn the skin

Thermotherapy generally should not be used during the first several days after an injury, because heat increases blood flow and may worsen swelling. Heat treatments are

inappropriate for some individuals and conditions. For example, people who have impaired sensation (e.g. from neuropathy due to diabetes) are at risk of burns from overuse of thermotherapy.

### **Adverse reactions to heat treatment**

- May increase swelling and inflammation
- Risk of burning if the temperature is too high or the treatment is used for too long
- Erythema (reddening of the skin)
- Blisters
- Unwarranted masking of pain

### **When not to use heat**

- After physical activity
- If the area is numb
- If there is an open wound or burn
- Immediately after an acute (new) injury
- If body temperature is elevated from fever or heat stress

### **Action to be taken in the event of an adverse reaction**

- Immediately stop the Thermotherapy treatment
- Seek medical attention if necessary

### **How to treat a burn**

- Cool the skin with running cool or tepid water for at least 10 minutes, ideally within 20 minutes of the injury happening. This will prevent the burn getting worse.
- Do not use ice, iced water, creams, or greasy substances (such as butter) to soothe the burn.
- Remove any clothes or jewellery from around the burn, unless they are sticking to it.
- Cover the burn using strips of cling film, rather than wrapping it around a limb. A clean plastic bag is suitable to use for burns on your hand.
- If the burn is painful, taking a mild painkiller, such as paracetamol or ibuprofen, can help if it is safe for you to do so. However, always check the packaging to make sure that you take the correct dosage and never give aspirin to children under 16 years of age.
- Do not interfere with the burn, or break any blisters. If the burn is very painful, or seems to be getting worse visit your GP for advice.

**Contrast bath therapy**, also known as "hot/cold immersion therapy", is a form of treatment where a limb or the entire body is immersed in ice water followed by the immediate immersion of the limb or body in warm water. This procedure is repeated several times, alternating hot and cold.

The theory behind contrast bath therapy is that the warm water causes vasodilation (opening of the blood vessels) of the blood flow in the limb or body followed by the cold water which causes vasoconstriction (closing of the blood vessels), increasing local blood circulation.<sup>1</sup> Additionally, the lymph vessels contract when exposed to cold, and relax in response to heat. The lymph system, unlike the circulatory system, lacks a central pump. Alternating hot and cold, lymph vessels dilate and contract to essentially "pump" and move stagnant fluid out of the area. This positively affects the inflammation process, which is the body's primary mechanism for healing damaged tissue