Hydrotherapy, Cryotherapy and Thermotherapy

Description of Course:

This course is designed to define hydrotherapy, cryotherapy and thermotherapy and identify the benefits and contraindications of each modality. It will include various spa modalities that utilize water in its three forms.

Objectives:

At the completion of this course, the motivated learner should be able to:
- Define hydrotherapy, cryotherapy and thermotherapy
- List and describe the three forms of water
- Identify the physiological changes produced in the body by hydrotherapy
- Name the local effects of heat and cold
- List the contraindications for hydrotherapy
- Identify spa treatments utilizing hydrotherapy
- Name the benefits and contraindications of cryotherapy
- Define the hunting response
- Identify spa treatments utilizing cryotherapy
- Describe the contrast method
- List the benefits of liniments and give examples
- Compare and contrast the benefits of heat versus ice
- Explain sanitation and safety measures for hydrotherapy

Terminology

Hydrotherapy
The external therapeutic use of water and complementary agents, such as soap and water, at temperatures no more than eight degrees from normal body temperature.

Cryotherapy
The application of cold, such as ice, icy water, chemical cold packs, or frozen gel to the body.

Thermotherapy
The application of heat in various forms, such as moist heat packs, whirlpools, steam baths, saunas, and paraffin baths.

Hydrocollator
An electrical unit used for making moist heating packs.
**Swedish Shampoo**
The same as a body shampoo – involves brushing the body with a brush dipped in warm, soapy water.

**Sitz Bath**
Sitting the client in a bath, covering hips up to the navel.

**Turkish Shampoo**
Similar to the Swedish Shampoo, except concludes with a ninety degree pail pour.

**Salt Rub**
Also known as salt glow. The rubbing application of wet salt on the skin.

**Cold Immersion Bath**
Soaking an affected area in a container of icy water.

**Ice Pack**
Plastic or cloth bags filled with icy or ice water and placed on an affected area.

**Ice Massage**
Combines circular friction with cryotherapy.

**Cryokinetics**
The combination of cold, followed by a full range of motion to the affected area.

**Cold Mitten Friction**
A tonic treatment consisting of the application of cold and friction movements used at a force of five to ten pounds of pressure.

**Contrast Method**
The combined application of heat and cold.

**Warm Immersion Bath**
Tub used for soaking or using jets of water against the skin, drained after each use.

**Hydrotherapy Tub**
Similar to warm immersion, but the water is treated to remain clean and sanitary for multiple uses.

**Paraffin Bath**
Used to apply heat energy to the tissues with a petroleum-based mixture.

**Hot Packs**
Moist heat applications used for pain relief.
Steam Bath
Hot vapor bath given in a specially designed chamber between 105 degrees and 130 degrees Fahrenheit, at 100% humidity.

Sauna Bath
Hot air bath between 160 degrees and 180 Fahrenheit, in six to eight percent humidity.

Introduction

Water has been used by man for centuries for health relaxation, relief of pain, and treatment of many ailments. The baths utilized by ancient civilizations such as the Romans, Greeks, Babylonians, Egyptians, Chinese, and Japanese are well documented. These ancient ancestors advocated the healing effects of water. We are still utilizing water today as a therapeutic modality. Massage therapists, physical therapists, physiatrists, and other specialists, employ water in their practices for treatment and pleasure.

Hydrotherapy (water therapy) is a natural way for massage therapists to expand their practice and utilize techniques that have been proven over the centuries. In order for the massage therapist to become successful in this modality, it is necessary to understand some basic properties of water.

Properties of Water

The properties of water are:
1. Colorless
2. Odorless
3. Tasteless

Water exists in three states:
1. Solid (does not flow)
2. Liquid (flows freely)
3. Vapor (flows freely and fills all dimensions of its containers)

The fact that water exists in the three above states within a relatively narrow range of temperature enhances its therapeutic versatility. Water is readily accessible and can be applied by the massage therapist with very little expense. Water can absorb large amounts of heat and is an excellent conductor of heat.

Hydrotherapy

In hydrotherapy, the environment of the body is changed by water at varying temperatures and by various mechanical means. In general, the physiological response of the body is directly proportional to the extent of the environmental change.
Physiological changes in the body produced by hydrotherapy are classified as thermal, mechanical, and chemical.

- **Thermal effects** are produced by water at temperatures above or below that of the body. The greater the difference, the greater the physiologic effect.
- **Mechanical effects** are produced by the impact of water touching the skin in whirlpools, sprays, douches, and friction.
- **Chemical effects** are produced when water is taken orally or as an irrigation of some body cavity.

Maintenance of a stable internal environment or homeostasis is essential for good health. Cell and tissue components constantly wear out and must be replaced to keep the body’s internal environment within normal limits. Water is a major component of this process. Although the body appears to be a solid object, it is not. Water makes up 65 to 70% of the lean body mass of an average adult, and about 70% of an infant’s body weight. Body water is distributed between intracellular and extracellular fluid. In order to preserve this homeostasis, the body must constantly make physiological adjustments to environmental influences.

The body temperature is the difference between the amount of heat produced by the body processes and the amount of heat lost to the external environment. Normal oral temperature is 98.6 degrees Fahrenheit.

The hypothalamus, located between the cerebral hemispheres, controls body temperature the same way a thermostat works in the home. A comfortable temperature is the “set point” at which a heating system operates. In the home, a fall in environmental temperature activates the furnace, whereas a rise in temperature shuts the system down. The hypothalamus senses minor changes in body temperature. The anterior hypothalamus controls heat loss, and the posterior hypothalamus controls heat production.

When nerve cells in the hypothalamus become hotter than the “set point,” impulses are sent out to reduce body temperature. Mechanisms of heat loss include sweating and vasodilation (widening of blood vessels and inhibition of heat production). If the hypothalamus senses the body’s temperature is lower than the “set point,” signals are sent out to increase heat production by muscle shivering or heat conservation by vasoconstriction (narrowing) of surface blood vessels.

Because extreme heat or cold can injure your client, the massage therapist must be constantly aware of water temperature. Water temperature below 32 degrees or higher than 124 degrees Fahrenheit can cause tissue damage. It is helpful to test the water with your fingertips, but more accurately, to use a thermometer.

If a client is placed in a tub at 97 degrees Fahrenheit, there is minimal physiologic response. The temperature creates a sedative effect because of its lack of stimulation of
physiological processes. However, if you place your client in a water bath at 110 degrees Fahrenheit, marked physiological changes are immediately apparent. The skin becomes flushed, the pulse rate increases, the temperature rises, metabolism rises, the blood becomes more alkaline, and the white blood cells increase in number. In some clients, there is marked anxiety. In twenty minutes, the body temperature may soar to 105 degrees Fahrenheit and the pulse rate increases to 160 beats per minute. Fortunately, water is versatile, so the therapeutic response can be changed by adjusting the temperature.

### Temperature Ranges

<table>
<thead>
<tr>
<th>Degrees Fahrenheit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>212°</td>
<td>Boiling Point</td>
</tr>
<tr>
<td>110 – 120°</td>
<td>Painfully Hot</td>
</tr>
<tr>
<td>104 – 110°</td>
<td>Very Hot</td>
</tr>
<tr>
<td>100 – 104°</td>
<td>Hot</td>
</tr>
<tr>
<td>92 – 100°</td>
<td>Warm</td>
</tr>
<tr>
<td>80 – 92°</td>
<td>Tepid</td>
</tr>
<tr>
<td>70 – 80°</td>
<td>Cool</td>
</tr>
<tr>
<td>55 – 70°</td>
<td>Cold</td>
</tr>
<tr>
<td>32°</td>
<td>Freezing Point</td>
</tr>
</tbody>
</table>

### How Heat is Transferred

Heat is transferred by three distinct methods:

1. **Conduction**
   Transferred by contact of one heated object or substance to another, such as hydrotherapy.

2. **Conversion**
   Transferred in a substance or tissue by the passage of some form of energy through it, such as ultrasound.

3. **Convection**
   Transferred by moving currents of heated liquids or gases.

### Hyperthermia

An elevated body temperature related to the body’s inability to promote heat loss or reduce heat production is known as hyperthermia. Prolonged exposure to high environmental temperatures can overwhelm the body’s heat loss mechanisms. Massage therapists must be aware of extremely hot temperatures to avoid hyperthermia.

### Hypothermia
Heat loss during prolonged exposure to cold overwhelms the body’s ability to produce heat, causing hypothermia. Extremely low temperatures may be as harmful to the client as extremely hot temperatures, so massage therapists must be aware to prevent injury.

**Local Effects of Heat**

Hydrotherapy does not penetrate deeply beneath the skin surface and is confined to the skin and subcutaneous tissues. An intense, moist heat can penetrate to the superficial layers of muscles. The most obvious change that can be observed is local redness or vasodilation. Heat also causes a migration of leukocytes through vessel walls in local heated areas which helps to clean up metabolic waste products and debris from damaged tissues. Muscles in the area are relaxed and local sweating and local analgesia are produced by moist heat. Heat does not penetrate as deeply as cold. Because heat applications stimulate blood flow to the area where heat is applied, there is very little penetration (no more than 1.0 cm) into the tissues. It is confined to the skin and subcutaneous areas because of the increased blood flow. That is why the entire body can be warmed because of a hot foot bath.

Due to the nature of shifting fluid concentrations with local heat application, there is a hydrostatic effect which means that blood is drawn toward the skin in one area of the body by local vasodilation and then there is a tendency to drain fluid and congestion out of deeper tissues, resulting the phenomenon of derivation.

The effects of local heat application include the following:

- Increased tissue metabolism
- Decreased muscle tonus
- Increased dexterity
- Increased temperature locally on the skin
- Increased diaphoresis and loss of salts
- Increased blood flow to the area- derivation
- Increased migration of leukocytes
- Analgesic, sedative effect

**Local Effects of Cold**

Because the local application of cold produces vasoconstriction, there is no influx of fresh warm blood to the area. As a result, cold penetrates deeply into the tissues from the surface. The local application of cold also causes a slowing of the local circulation, less leukocytic migration through capillary walls, and a decrease in tissue metabolism. The effects felt are numbing, analgesic, or anesthetic. Cold applications have been used for the relief of pain, such as acute bursitis, sprains, and acute joint pain. The use of prolonged cold can cause stupor and unconsciousness.

The phenomenon of retrostasis occurs in local cold applications as a result of vasoconstriction that drives blood out of the area into deeper or more distant tissues. This
primary action of a cold application is a reversal of the effect of derivation associated with local heat applications, and results in fluids and congestion being forced out of constricted peripheral skin capillaries and into the deeper tissues of the internal organs.

There is also a decreased rate of metabolism in the tissues where a cold application is applied thus causing an anesthetic effect by numbing the nerve endings. If you remember the acronym RICE, it assists in the application of hot or cold after a traumatic injury within the first 24-72 hours:

- **Rest** the injured area
- **Apply Ice**
- **Wrap with a Compression bandage**
- **Elevate** the injured limb above heart level

The effects of local cold application include:

- Decreased tissue metabolism
- Decreased local skin temperature and body temperature
- Decreased diaphoresis and loss of salts
- Decreased blood flow to the area or retrostasis
- Decreased migration of leukocytes

**Benefits of Hydrotherapy**

**The benefits of hydrotherapy include:**
- Production of a relaxed, calm effect.
- Stimulates nerve endings to create an invigorated feeling.
- Exfoliates and cleanses skin.
- Improves skin tone.
- Enhances skin circulation.

**Hydrotherapy Contraindications**

**The contraindications of hydrotherapy include:**
- Open or draining wounds.
- Topical infections.
- Skin rashes.
- Freshly shaved skin (salt glow).

**Application of Hydrotherapy**

Hydrotherapy can be applied with water and the addition of *herbs, shampoos, salt pastes, and other ingredients*. Some therapists combine these treatments with a massage, while others use hydrotherapy modalities exclusively.
Sitz Bath

A sitz bath is a partial, warm bath, covering the pelvic region and up to the navel. The bath chamber is designed so that the legs remain out of the bath. Water temperature ranges from 90 degrees to 102 degrees Fahrenheit for three to eight minutes, if the desired effect is for a tonic or stimulating treatment. For a sedative, calming effect increase the time to twenty to forty-five minutes. Salt or alum can be added to the water.

Be sure to ask the client to void prior to the sitz bath.

The feet can be placed in a tub of water that is warmer than the sitz bath to provide increased circulation. The client must be covered with a dry sheet for protection and comfort. After the sitz bath, the client can take a thirty-second shower, or plunge or pour may be used.

A sitz bath is indicated for relief of painful menstruation and is contraindicated if the client has pelvic inflammation. Be sure to assist the client to get out of the sitz bath and allow to rest after completion.

Swedish Shampoo and Turkish Shampoo

The Swedish Shampoo involves brushing the body with warm, soapy water, using circular or linear motion. After completion of the shampoo, pour a pail of water heated to 105 degrees Fahrenheit over the client’s skin. Then follow with a lukewarm shower.

A Turkish Shampoo is similar to the Swedish Shampoo, except the final pail of water is a cooler temperature of 90 degrees Fahrenheit.

Salt Rub or Salt Glow

Salt glow or salt rub is the rubbing application of wet salt on the skin. Salt glows are used to exfoliate the skin, causing a tonic and stimulating effect. Contraindications include freshly-shaven skin, abrasions, cuts, or skin rashes. The application of the wet salt mixture is accomplished using brisk friction. Application must be light and must be avoided on ruddy skin or thin skin, due to the adverse effects of injury to superficial blood vessels. Caution should also be taken over bony prominences and sensitive areas. Note the condition of the skin after completion.

Some spas have specially designed tables for this treatment and others have rooms designed for salt glows. The client may lie on a table or stand.

Salt glows, Swedish Shampoos, and Turkish Shampoos may be conducted outside, as long as the area is private and quiet.

Hydrotherapy applications can be a beneficial addition to the massage therapist’s services, and most can be started without a tremendous outlay of financial resources. Just
as it is with any massage modality, the massage therapist must be thoroughly familiar with the method prior to working on the first client.

Cryotherapy

Another popular water therapy modality is cryotherapy, which is the application of cold. Ice therapy is safe, inexpensive, and can be used in the home or in the therapist’s establishment.

The physiologic effects of ice vary according to the length of time ice is applied to the skin. During the initial time from nine to sixteen minutes, the area experiences vasoconstriction or reduced blood flow. The skin appears pale, local edema is reduced, and hematoma formation is controlled.

If the ice application continues another four to six minutes, vasodilation occurs.

After a few minutes, vasoconstriction will occur again. The entire cycle will take fifteen to thirty minutes. This cycle of vasoconstriction – vasodilation – vasoconstriction is referred to as the hunting response.

The alternating response brings blood into and out of the area where the ice is applied, causing tissue debris to be flushed out and oxygen to be brought into the area.

Your client will feel a variety of sensations; coldness, burning, stinging, and numbness. Leave the ice on the body until numbness occurs (approximately five to twenty minutes). As soon as numbness occurs, remove the ice.

Contraindications of Cryotherapy

The contraindications of cryotherapy include:
- Asthma
- Raynaud’s Disease
- Open wounds
- CVA (cerebrovascular accident)
- Allergies to cold or plastic
- Skin rash or skin disease of any kind
- Rheumatoid arthritis
- Sensory impairment
- Aversion to cold

Benefits of Cryotherapy

The benefits of cryotherapy include:
- Reduced edema
- Decreased tissue damage
• Reduced pain
• Hypoxia (temporary decrease in local oxygen supply)
• Reduced muscle spasm
• Stimulated vasodilation
• Reduced inflammation

If ice is applied to an area for longer than twenty minutes, tissue damage or frostbite may occur.

Cryotherapy Application

Some cryotherapy applications include ice massage, ice packs, ice immersion baths, cold mitten friction, and cryokinetics. Some therapists administer a hot foot bath to assist the client with becoming comfortable prior to the application of cryotherapy.

Ice Packs

Ice packs made of plastic or cloth are preferred over commercial ice packs because the commercial ones frequently break spilling chemicals over the body. Place a paper towel or thin cloth over the area prior to the application of ice, to protect the skin. Apply for twenty minutes.

Crushed ice in a towel or slushy ice water in a zipped plastic bag may be easily made. A mixture of 2/3 water and 1/3 alcohol will prevent the mixture from freezing solid and will allow the application to conform to the affected area. Double-bagging will prevent leakage. The effects of ice packs include pain relief, prevention of swelling and bruising, and decreased blood flow.

Cold or Ice Immersion Baths

This method of cryotherapy involves soaking the affected area in a container of icy cold water. It works well for hands or feet. This is uncomfortable for the client. First immerse the affected area in tepid water, and then add ice. Keep the area immersed for five to ten minutes.

Ice Massage

Ice massage is a stimulating and relaxing technique. This method combines circular friction with cryotherapy. Fill a six to eight ounce styrofoam cup 2/3 full and place in the freezer until solid. Tear the edges of the cup to expose the ice. Place the ice on the client’s skin and rub in circular motions. Continue for five to ten minutes. Be sure to stop if the client complains of pain or prolonged numbness.
Cryokinetics

Cryokinetics is used for rehabilitation and reconditioning of an affected area and consists of applying cold, followed by a full range of motion.

The combination of ice and range of motion allows for full functioning uses of joints and muscles. The pain-reducing effects of ice will assist the client to work through the pain of full range of motion and will free restricted muscles.

For best results, apply a cold immersion bath, ice massage, or ice pack to the affected area and allow to remain on the skin until numb. This will take ten to fifteen minutes. Once numb, the client will exercise the body part until the muscle warms up (approximately three to five minutes). Then reapply ice until the client feels numb. The injured area may be iced and exercised from three to five times. Encourage the client to use active range of motion, not passive. Do not exercise until pain develops. **Stop once the client mentions the sensation of pain.**

Cold Mitten Friction

Cold mitten friction should be conducted on a table designed for use. The therapist will need two or more towels, friction mitts, and a pail of ice water 50 to 60 degrees Fahrenheit or less.

The procedure involves dipping the mitts into the icy water and squeezing out the excess water. Start on the legs and work to the top with vigorous friction for five to eight seconds. Dip the mitts again and repeat the process. Cover the area with a towel and rub vigorously until dry. Then move on to another body section. A loofah or coarse mitt can be used for additional friction.

Make sure the client is warm and dry upon completion.

Contrast Method

Local alternation of heat and cold produces a marked stimulation of local circulation called the **contrast method.** The application of both heat and cold is known as the contrast method or contrast bath, and is an extremely useful hydrotherapy procedure.

Two methods include the alternate contrast method and the simultaneous contrast method. **Both cause marked increases in blood flow locally and increased local metabolism to hasten healing.**

The alternate contrast method is most commonly used. Ice is applied to the client’s skin for ten to fifteen minutes. It is then removed and heat is applied for ten minutes. Ice is reapplied for ten to fifteen minutes. This can be repeated two or three times and will enhance the circulatory effect on the tissues.
The simultaneous contrast method includes placing an ice pack and a heat pack side by side on the affected area. An example of its use is a rotary cuff injury where a hot pack is placed under the shoulder and an ice pack is placed on top of the back, near the shoulder. The cycles of vasoconstriction and vasodilation will remove metabolic waste.

**Thermotherapy**

The external application of heat is thermotherapy. Heat can be transferred into the body by **conduction, convection, and radiation**. Conduction is the exchange of thermal energy, while the body’s surface is in contact with the thermal agent, such as hot packs. Convection is a faster process and involves contacting the body’s surface with heat energy through a fluid or gaseous method; such as a whirlpool bath or a steam bath. Radiation is the transfer of heat energy in electromagnetic rays through a conducting medium, such as infrared lamps.

Moist heat is transferred by conduction and convection. Dry heat is transferred by radiation. Moist heat is the best form of heat for enhancing general relaxation.

**Physiologic responses to heat are superficial. When our bodies encounter heat, we react in several ways.**

- Sweating is stimulated and evaporation cools the body.
- Blood vessels near the skin surface begin to dilate and excess heat is lost through the skin. This flushes the skin.
- Our behavior will be altered. Feeling hot makes us uncomfortable and we make environmental adjustments; such as turning on the air conditioner or turning down the thermostat.

**Benefits of Thermotherapy**

1. Alleviates pain by reducing endorphins when applied.
2. Increases white blood cells, stimulating an immune system response.
3. Soothes, comforts, and sedates as long as inflammation is not present.
4. Reduces muscle spasms.
5. Increases blood volume, oxygenation, and nutrition.
6. Distends and softens superficial fascia.

**Contraindications of Thermotherapy**

1. Tumor or malignancy
2. Recent injury
3. Recent contusion
4. Phlebitis
5. Diabetes
6. Hypertension
7. Cardiac impairment
8. Recent burn or sunburn
9. Edema
10. Directly over eyes or external genitalia
11. Cerebrovascular accident
12. Fever
13. Open wounds or skin infections
14. Sensory impairment
15. Pregnancy

Thermotherapy Applications

Heat therapy or thermotherapy applications include, but are not limited to, the following:

1. Whirlpool baths
2. Warm immersion baths
3. Spas
4. Hydrotherapy tubs
5. Paraffin baths
6. Saunas
7. Spinal packs
8. Steam baths

Warm immersion baths and whirlpool baths are tubs for soaking or contain jets of water. Both are drained after each use.

Hydrotherapy tubs or spas are similar to immersion baths and whirlpool baths, but the water is treated to remain sanitary and available for multiple uses.

Soaking can range from fifteen to twenty minutes. If the water is hotter, then shorter treatment time is used. Healthy clients may take one to two per week. Additives such as salt may be used to add to the therapeutic value. Epsom salts can be used.

Whirlpool baths in spa treatments are also known as hydromassage treatments since the jets push tepid water toward the sides of the tank and not on the affected areas. The term spa comes from the name of the town Spa, in the province of Liege, Belgium, where mineral springs were first discovered in 1326. A spa is a health resort or watering area that is a source for mineral water. A spa can also be called a tub.

When warm water immersion is combined with light exercise, a Hubbard Tank is used. This is often used in rehabilitation.

**Whirlpool (105 – 110° Fahrenheit)**

The client must shower first and the therapist must check the pulse prior to beginning the treatment. The pulse should be checked every five minutes. Stop the bath immediately if the pulse rate increases twenty beats per minute and the client becomes dizzy or weak.
Assist the client in and out of the spa and offer tepid water in a plastic cup. Use a cool washcloth on the client’s face to provide comfort.

**Paraffin Baths (122 – 130° Fahrenheit)**

Paraffin wax treatments are used to apply heat energy to the tissues and is most useful with injuries to angular bony arches. The petroleum-based waxy mixture is white and odorless and conforms well to wrists, hands, feet, ankles, knees, and elbows. Paraffin is used for pain relief and softening the skin. Paraffin baths are used for arthritic joints or bursitis, except when joints are hot and swollen.

Paraffin wax is kept at 122 to 130° Fahrenheit. In order to prevent the wax from sticking to the skin, heavy mineral oil is added to the waxy mixture in a five to one solution (five pounds of paraffin wax to one pint mineral oil).

This molten wax can be applied as a pack, a dip, or painted on the affected area.

The client dips the body part in and out of the mixture quickly, allowing the part to cool and promote drying between dipping. The process may be repeated six to twelve times or until a layer of wax ½ inch thick is opaque. Alcohol or lotion may be applied to the area to remove hardened wax.

After dipping, wrap the area with a plastic sheet and then a towel. Allow the client to rest the area up to thirty minutes or until the client reports that he can no longer feel heat. Inform the client to keep the fingers or toes in a relaxed position and to avoid movement to prevent cracks in the paraffin “glove.”

Ask the client to remove the wax covering and form a wax ball that the client can use for finger exercise, or replace the paraffin for your next client.

Never use the paraffin bath with open lesions or with peripheral vascular disease.

**Hot Packs**

Hydrocollator packs, hot compresses, hot dressing, and fomentation packs are all known as hot packs. These packs are moist heat applications used to relieve pain. A hydrocollator holds water between 140 and 160° Fahrenheit. The hydrocollator pack is made of canvas and is filled with silicon granules. The pack will hold heat approximately thirty minutes. Massage therapists use hot packs to prepare an area for massage, since heat will soften fascia and dilate superficial blood vessels. Place a towel or other material on the skin or around the pack to prevent burning the client’s skin.

Make sure the client is comfortable after the pack is applied. Never allow the client to lie on the hot pack. Check the skin periodically for signs of damage or irritation.
Allow the pack to remain on the area for twenty minutes and then proceed with the massage. A cold compress may be placed on the client’s forehead or back of the neck if the client perspires.

**Spinal Pack**

A spinal pack is used to soothe and relax clients during the massage session. It is a long, narrow fomentation pack applied directly on the spine, and insulated with a towel. The spinal pack may be left on for approximately ten minutes.

**Sauna Bath**

A sauna bath is a hot-air bath with a temperature between 160 – 180° Fahrenheit in six to eight percent humidity. The client can remain in the sauna for twenty to thirty minutes once per week. Instruct the client to refrain from eating one hour prior to treatment and to take a cool shower after treatment. A dry sauna induces sweating and is used for insomnia, tension, and removal of toxins.

**Steam Baths**

Steam baths or wet saunas are hot vapor baths given in specially designed chambers at 105 - 130° Fahrenheit and 100% humidity. If the head is exposed from the steam unit, it is referred to as a Russian bath. Steam baths may be given once or twice a week and the client remains in the bath fifteen to twenty minutes. The steam baths enhance the removal of toxins from the body.

Offer a cool shower before and after the treatment and use a cool compress on the client’s head for comfort. Be sure to check the pulse rate and if it increases twenty points, discontinue the steam bath. If the pulse rate increases, place the client in a supine position for ten minutes.

**Liniments**

Liniments are oily, soapy, or alcoholic agents used in massage therapy to create the sensation of heat. Liniments are considered rubefacient, which means they redden the skin. Liniments produce an analgesic effect. Avoid using them near mucous membranes or hands. The most popular and widely used liniments are Chinese and are affordable ($3 - $4 per bottle). As a general rule, Chinese liniments work on Qi stagnation, blood stagnation, or Yin and Yang disorders. A good rule of thumb to remember is that the darker the color, the more warming the liniment. The whiter or clearer the color, the more cooling it is. Tiger balm is an example, with red tiger balm being more warming than the white tiger balm.

Another liniment is Zheng Gu Shui, a “bone-setting” solution that functions to promote blood circulation, helps regenerate bone tissue, and promote blood circulation. It is dark brown-red, so it is very warming. It is used for sports injuries such as sprains and strains.
Zheng Gu Shui can be lightly massaged into an area or applied to gauze and placed on an area for a longer, intense effect. It can be used in combination with heat lamps or packs.

**Wood lock** is a tea-colored patent liniment used for pain. It can be massaged into joints.

**Kwan Loong Oil** is a clear, cooling liquid that is used only in small areas, and not in combination with other modalities. It is particularly helpful for small joints that have inflammation. To use, apply with a cotton ball and allow to dry. It can be reapplied several times a day.

**Die Da Wan Hua You** is used for sports injuries. It is warming, stops pain, relaxes tendons, and aids in soft tissue healing. It can be lightly massaged into muscles or painted on and covered with gauze and bandage.

There are hundreds of Chinese liniments and this is a small sampling. In order to become proficient, it is advisable for massage therapists to take classes in Chinese modalities.

**Herbs**

There are common herbs used in **herbal wraps** that are emollients, tonics, nervines and diaphoretics, or those that have soothing and stimulating fragrances. Examples are:

- Rose petals
- Chamomile flowers
- Lavender
- Comfrey leaves
- Orange or lemon flowers or peel
- Jasmine
- Mint

**Healing bath** herbs vary greatly, depending upon the purpose of the bath. **Tension relievers** include catnip, chamomile, jasmine, mullein, rose, vervain, and violet. Herbs that **stimulate** are citronella, mint, pine needle oil, calendula, lavender, rosemary, sage, nettles or fennel. For **foot baths**, try agrimony, alder bark, burdock, lavender, mustard, sage, or witch hazel. **Vapors** often utilize decongestants, astringents, aromatics, or stimulants such as eucalyptus, peppermint, wintergreen or other mints, menthol, witch hazel, or pine needle oil.

There are a few simple recipes listed below for baths:

- **Refreshing morning bath**  
  Rosemary 4 drops with petitgrain 2 drops or  
  Rosemary 3 drops and grapefruit 3 drops

- **Refreshing morning bath to counteract excessive fatigue**  
  Rosemary 3 drops, pine 2 drops and thyme 1 drop or  
  rosemary 2 drops, thyme 2 drops and grapefruit 2 drops

- **Bath to relieve overworked muscles**
Lavender 3 drops, marjoram 2 drops and juniper 1 drop or
Rosemary 3 drops, marjoram 2 drops and pine 1 drop

- **Baths to aid relaxation and promote sleep**
  Lavender 4 drops, petitgrain 2 drops or
  Lavender 3 drops and marjoram 3 drops or
  Neroli 3 drops and petitgrain 3 drops or
  Camomile 4 drops and lavender 2 drops or
  Lavender 3 drops and frankincense 3 drops or
  Lavender 3 drops and clary sage 3 drops

- **Baths to help with symptoms of colds, flu and other viral infections**
  For evening use: lavender 3 drops, manuka 2 drops and ravensara 1 drop
  or for morning use:
  Ravensara 2 drops, rosemary 2 drops and ti-tree 2 drops or
  For sore throat: lavender 3 drops, thyme 2 drops and ti-tree 1 drop
  For cough: lavender 2 drops, frnakincense 2 drops and sandalwood 2 drops

- **Detoxifying baths**
  For evening use: juniper 3 drops, grapefruit 2 drops and lavender 1 drop
  For morning use: geranium 3 drops, rosemary 2 drops and juniper 1 drop

**Heat or Ice**

Massage therapists may choose between using heat or ice for personal or therapeutic reasons. Both are therapeutic and have added value to a massage. Ice is usually preferred if inflammation is present or suspected, or if edema is present. When soreness prevents following a deep-tissue massage, cryotherapy can be used to cool down the area.

Heat is used to warm the client in preparing for a massage and to relax the client prior to or during a massage.

Consider the following table before making your decision to use heat or cold (next page).

### Comparative Effects of Heat and Cold

<table>
<thead>
<tr>
<th>Physiological Response</th>
<th>Initial Effect of Ice</th>
<th>Prolonged Effect of Ice</th>
<th>Initial Effect of Heat</th>
<th>Prolonged Effect of Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate</td>
<td>Increases</td>
<td>Decreases</td>
<td>Decreases</td>
<td>Increases</td>
</tr>
<tr>
<td>Vascular response</td>
<td>Contraction</td>
<td>Dilation</td>
<td>Dilation</td>
<td>Contraction</td>
</tr>
<tr>
<td>Depth of action</td>
<td>Superficial</td>
<td>Deep</td>
<td>Superficial</td>
<td>Superficial</td>
</tr>
<tr>
<td>Pain-spasm-pain cycle</td>
<td>Interrupts</td>
<td></td>
<td>Interrupts</td>
<td></td>
</tr>
<tr>
<td>Muscle tissue volume</td>
<td>Decreases</td>
<td></td>
<td>Increases</td>
<td></td>
</tr>
<tr>
<td>Facial response</td>
<td>Unchanged</td>
<td></td>
<td>Softens</td>
<td></td>
</tr>
<tr>
<td>Tissue damage</td>
<td>Decreases</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Analgesic</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Anesthetic</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Inflammatory response</td>
<td>Decreases</td>
<td>Increases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------</td>
<td>-------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renal response</td>
<td>Stimulates</td>
<td>Inhibits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digestive response</td>
<td>Stimulates</td>
<td>Inhibits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General response</td>
<td>Excites</td>
<td>Relaxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relaxes</td>
<td>Intense heat excites</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| There are many factors affecting the choice of a thermal modality. The frequency, the timing of the application, the hour of the day, the materials used, the degree of wetness of the application, and the various techniques used (such as pressure and friction) all affect the outcome of the treatment. Always consult the client’s physician when there are exacerbating conditions. **Be cautious! Discontinue the treatment if the client complains of discomfort or has an increased pulse rate or respiration.** Take the pulse before, after, and during prolonged or vigorous heat treatments. **Other precautions include:** |

| 1. The client should be comfortable prior to treatment. |
| 2. The client should not be fatigued prior to treatment. |
| 3. The client should not be dehydrated prior to treatment. |
| 5. Friction and percussion increase the reaction. |
| 6. Eating just before or after treatments, as well as the use of drugs, alcohol, and sugar can decrease results. |
| 7. Children and elderly may not react as expected. |
| 8. Certain conditions reduce the body’s ability to handle the physiologic changes that occur. |

**Sanitation and Safety Measures**

All hydrotherapy equipment must be maintained in **good working order and kept sanitary**. A good rule of thumb is to clean the equipment with soap and water each morning and each evening. Any surfaces that come into contact with the client must be cleaned with each use.

Hot tubs, spas, steam cabinets, whirlpools, and other pieces of equipment with multiple uses must be maintained according to the manufacturer’s recommendations. Wipe up any spills immediately to prevent falls. **Be sure to protect the client’s skin with towels or draping to prevent burns from hydrocollators.**

*See the following checklist for additional information.*

<table>
<thead>
<tr>
<th>Checklist for Preparation of Hydrotherapy Area and General Guidelines for Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Plan ahead and assemble all necessary articles.</td>
</tr>
<tr>
<td>2. Cover furniture, rugs, and other objects that may be damaged during treatment.</td>
</tr>
<tr>
<td>3. Check and monitor the temperature of the water.</td>
</tr>
</tbody>
</table>
4. Ask the client not to eat one hour before the hydrotherapy treatment.
5. Allow at least twenty minutes after the treatment for the body temperature to return to normal.
6. Explain all hydrotherapy procedures, quietly announcing what is coming next and what effect is desired.
7. Remain with the client or within close range (easy calling distance).
8. Place a towel on equipment that will be in direct contact with the client, such as wet tables and steam cabinets.
9. Use a timer to limit the duration of all hydrotherapy treatments. Do not overtreat.
10. Clean steam cabinets, tubs, wet tables, and shower stalls after each use; clean all bath surfaces and flooring at the start of each business day.
11. If water collects on the floor, wipe it up immediately. This will reduce tripping hazards.

Water and the Spa Experience

In the spa setting, hydrotherapy and balneotherapy are the most common terms used to describe the use of water. Balneotherapy is the art and science of bathing for therapeutic and relaxation purposes, while hydrotherapy is used for the prevention and treatment of disease or trauma or to enhance wellness programs. Crenology, not as popular in the U.S., is considered the therapeutic use of water from mineral springs for therapeutic and relaxation purposes.

Whatever modality is used is chosen according to treatment protocol and the equipment to be used. Therapists should be well-trained and have a working knowledge of the body, especially the circulatory system. Contraindications for hydrotherapy treatments are similar to those for other heat treatments: pregnancy, acute or inflammatory conditions, varicose veins, heart disease, hypertension, rashes and extreme obesity. Treatments should not be conducted if the client has recently consumed alcohol or a heavy meal.

The basic tools used by the spa therapist are water temperature, the body area immersed or exposed to water, the duration of the bath or shower or treatment, and chemical factors such as botanical extracts, salts, seaweeds and other natural agents.

Spa equipment can range from hot towel cabinets, hydrocollators and moist heat packs to Vichy and Swiss showers, Scotch hoses and hydrotherapy tubs.

The environment is also a vital component of the spa experience. Often this is determined ahead of time; the therapist may be only able to control temperature and ambience, but beauty and art go hand-in-hand with bathing. New trends that include the importance of environment are Watsu and water dancing pools, floating pools and the new German liquid sound pool that combines the floating experience with light and sound.
Exploring the dimensions of water in its many forms is a great way to learn about the spa experience. Any therapist interested in learning more about spas should attend a seminar or visit the ISPA Website at [www.experienceispa.com](http://www.experienceispa.com) or [www.spaelegance.com](http://www.spaelegance.com).

### Kneipp Hydrotherapy

One of the pioneers of hydrotherapy is Sebastian Kneipp and he has developed over 100 hydrotherapy treatments. Some of these treatments according to Nancy Griffin of Spa Trade include:

- **Washings**: Washings are the simplest and mildest treatment. Cover the body with a film of water using a washcloth. Use additives such as herbs to create a balance between the sympathetic and parasympathetic nervous systems. When the body is covered with cold water, there is a brief vasoconstriction of the peripheral blood vessels, and a stimulation of the sympathetic nervous system. The rapid reaction that follows is the increase of the heat production, or vasodilation through activation of the parasympathetic nervous system.

- **Wraps**: A Kneipp wrap envelopes a body part with wet and dry cloths that are either hot or cold. Effects are achieved through temperature, length of application and additives. Increased circulation promotes the removal of metabolic wastes and increases the oxygen supply.

- **Affusions**: Affusions precisely regulate the direction of the water stream on the body. A “flar” affusion uses a stream of water without pressure, flowing in a fan-shaped form to coat the body or body part. A high-pressure affusion (such as Scotch Hose) delivers a strong mechanical stimulus. The treatment is used with cold, tempered or warm water and can be delivered to the knee, thigh, leg, back, face or full body.

- **Baths**: Kneipp baths, whether partial or full, are usually combined with herbal additives. A brush bath is a combination of a full-body brushing and a warm bath, which intensifies the treatment and the general warming up of the body through the effects of hydrostatic pressure. Additives to the bath can be stimulating or calming.

- **Dew walking**: Walking barefoot on dew-moistened grass to promote circulation and strengthen the immune system

- **Water treading**: “Stork” walking in a body of water filled below the knee, such as a large basin, bathtub, fountain, lake, or ocean to strengthen veins, induce sleep and stimulate metabolism.

- **Snow walking**: Walking barefoot in snow from a few moments up to three minutes to stimulate the system and promote circulation.

### Conclusion

Hydrotherapy is one of the oldest treatments known to man. It can be used in any of its forms; solid, liquid, or vapor. There are a variety of treatment modalities available for the massage therapist to incorporate into a successful practice and expand the business.
References


Damjanov, I.  *Pathology for the Health-Related Professions*.  W. B. Saunders.  1996.


