T
he effects of Combined Decongestive Therapy (CDT) can be remarkably enhanced using simple techniques involving the mind-body connection. These techniques, which are based on basic physiological facts and research, can assist lymphedema clients to bring their attention and awareness to the affected limb with empowering, long-term results.

During initial lymphedema assessments, it is common for clients to talk about their arm or leg in a global, unspecific way. Often, they are confused as to what led to the edema and the symptoms seem rather mysterious. It is very common with lymphedema to have decreased or altered sensation in the affected area. This is due to the cutting of sensory nerves during surgery, altered neurological functioning due to edema and the predominance of unpleasant sensations. Prior to finding appropriate treatment, lymphedema clients may see no hope of treating their condition. This can lead to a mental desire to pay less attention to the limb, which is causing so much trouble, in an effort to deal with painful emotions such as fear and hopelessness. However, a critical skill in successful, long-term management of lymphedema is the ability to feel and interpret sensations from the affected area.

Every CDT therapist is already increasing awareness of the affected area by using intermittent gentle touch (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage). Sensory nerve receptors are known to adapt to stimuli (manual lymph drainage).

Sensory nerves travel in two important pathways. The dorsal column carries nerves which rapidly transmit information about "precise localizations and fine gradations of intensity, phasic or vibratory sensations…and sensations which have to do with fine distinctions of pressure" (Juhan, 179). The spinothalamic system has a much slower transmission rate (Juhan, 115) and carries information with regards to pain, thermal sensations, crude touch and crude pressure to mention a few (Juhan, 179). Therefore, it is possible to send the brain the faster messages of specific touch to displace the slower pain sensations. In this way, manual lymph drainage can decrease pain and allow the individual actually to be aware of more precise sensory information from the affected area.

This increased sensory awareness can be heightened by asking the individual to pay attention and report these sensations back to the therapist while the therapist works. This audio-feedback can help the person to be more conscious of what is going on in their own body. The client also can be taught how to palpate the limb for density and fibrosis. While doing this, there are actually two streams of information coming to the brain—from the limb itself and the fingertips, which have a vast number of sensory nerves. We are more conscious of our fingertips than other areas of the body and can use this heightened awareness to bring awareness to other areas of the body (Feldenkrais, 155).

This increased awareness can create feedback for the individual, which can help the LE client assess how activity levels, stress and climate actually are affecting their own body. With heightened awareness, the feedback can be received on a fairly subtle level, thereby allowing management strategies such as rest, bandaging and self-massage to be used throughout the day, moment to moment. This type of management is more effective than waiting for severe symptoms which require more dramatic strategies.

Mental imagery is another simple, effective tool that can be used with lymphedema clients to increase awareness, lead to positive feelings and improve lymphatic flow. Mental imagery (MI) can be defined as "cognitively reproducing or visualizing an object, scene, or sensation as though it were occurring in overt, physical reality" (Warner & McNeil, 1988). Mental practice (MP) is the "covert rehearsal of a physical activity in the absence of any observable muscular movements" (Denis, 1985). For the purposes of discussing cognitive effects on the lymph vessel system, we will use MI and MP interchangeably.

The lymph vessel system is innervated by the autonomic nervous system (ANS) (Mchale, 1985). It has been demonstrated repeatedly that systems controlled by the ANS can be affected by the mind. An early study on curarized animals showed evidence for conscious influence on the ANS (Miller & Dicara, 1968). More recently, it has been shown that biofeedback techniques can be used to significantly lower heart rate (Goodie & Larkin, 2001), improve gut transit (Emmanuel & Kamm, 2001) and lower blood pressure (Yucha et al, 2001, Nakao et al, 2000, Henderson et al, 1998). Autogenic feedback training can be used also to increase blood pressure in paralyzed individuals and astronauts (Cowings et al, 1994).

The effects of mental imagery on the lymph vessel system have been shown in several studies. For example, in an early study on curarized animals showed evidence for conscious influence on the ANS (Miller & Dicara, 1968). More recently, it has been shown that biofeedback techniques can be used to significantly lower heart rate (Goodie & Larkin, 2001), improve gut transit (Emmanuel & Kamm, 2001) and lower blood pressure (Yucha et al, 2001, Nakao et al, 2000, Henderson et al, 1998). Autogenic feedback training can be used also to increase blood pressure in paralyzed individuals and astronauts (Cowings et al, 1994). Through biofeedback, individuals can mentally have an effect on physical functions such as brain activity, muscle tension and skin temperature (Basmajian, 1988). MI has been used successfully with cancer patients to increase longevity.
Much research has been done with respect to MI and MP in sports. Research has shown that during MI, areas on both sides of the brain, other than the visual processing area, are activated (Bretting et al., 1986, Porro et al., 2000). During MI or MP, EMG activity has been measured in muscles that would be used in the activity being imagined (Suinn, 1983). The exact mechanism of how the mind can affect physical functioning is still being researched. However, scientist James Oschman explains this by saying, “mentally rehearsal an action sends information throughout the body via the peripheral and other conductive systems to all of the relevant cells” (Oschman 2000).

At this time in history, we do not have the technology to easily measure the rate of lymphatic flow in a conscious living human, making direct research in this area extremely difficult. However, if we extrapolate from research on other autonomically controlled systems in the body, it seems plausible that MI/MP could affect the lymph vessel system in a similar fashion. If we look further at what research on MI/MP has taught us, we can develop a strategy for using it in the management of lymphedema.

Research shows that people work better with individualized images (Warner & McNeill, 1985), be they symbolic (something which represents the desired outcome) or realistic (recreating the feel of the activity) (Fansler et al., 1985). It has been demonstrated that MI enhances feelings of control (Warner & McNeill, 1985) and also can lead to a feeling of serenity (Warner & McNeill, 1985). Visualizing positive outcomes increases the success of MI results (Fansler et al., 1985) and it has been suggested that people also may experience positive emotions associated with the imagined successes (Paivo 1985). Studies have shown that integrating physical practice (PP) and MP get the best performance results (Weinberg, 1982).

Based on this type of research and clinical experience, we have designed a visualization technique for lymphedema clients, which includes education about the LVS, individualized images (rivers, streams, highways, feelings of water flowing, etc.), imaging that the patent pathways are flowing optimally (visually or kinesthetically) and using this technique in conjunction with self- or therapist-performed manual lymph drainage (Langfield & McFarland, 2000). Clinically, we have noticed that when clients mentally image their lymph vessel system functioning along patent pathways, they relax, have feelings of control and well being, and become more aware of the affected area. When this is done in conjunction with therapist-performed manual lymph drainage, we have observed that the tissues relax and respond to the physical technique more quickly. Some clients report that it is harder to image optimal flow in congested areas, yet easier in areas which are flowing well. This suggests that some people have the ability to receive information from the body as well as give it using mental imagery. Clinical results suggest that further research into this fascinating area is warranted.

Bringing the clients attention to the area affected by lymphedema through touch, audio feedback, self-massage and mental imagery/practice increases awareness in a positive way. They can easily be incorporated into an existing CDT program. Clients can learn to assess their edema and make appropriate choices with regard to activity level, the need for self-help techniques, accessing appropriate medical help and lifestyle modifications. These simple techniques give clients the ability to successfully manage their lymphedema over the long term and become empowered in caring for themselves.

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