Massage Today
December, 2002, Vol. 02, Issue 12

Flushing Out Myths

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"The tragedy of science is a beautiful hypothesis slain by an ugly fact."

-Thomas Huxley

There's a statement, seemingly pervasive throughout massage education and massage books, that unspecified toxins accumulate in the body, and that these toxins can be flushed out by massage. I believe this is yet another myth that continues to be passed on as misinformation to massage students. This is not to dispute that there are very real toxins that accumulate in the body, notably persistent organic pollutants (POPs) in fatty tissues and heavy metals in skeletal tissues. [7,8] However, these toxins are too chemically bound to their target tissues to be significantly liberated by the mechanical motions of massage.

A more significant issue is whether metabolic wastes and cellular debris can significantly accumulate and be flushed out by massage. To elucidate a negative response to this, I turn to consideration of the circulation of blood and lymph. If the tissue is to accumulate wastes in a static manner, i.e. not as an instantaneous balance between production and removal, the tissue must be isolated. If we assume that the tissue is isolated from blood circulation, then necrosis (cellular death) is the rapid consequence. Such gangrene is, for example, one of the results of the vascular pathology of diabetes. We have to conclude that non-gangrenous tissue must be receiving oxygen and nutrients via circulation and that, for this to continue, venous return flow must also be occurring. If the toxins are accumulating, they cannot be doing so within the reach of the circulatory system. Perhaps we should look instead in the interstitial spaces served by the lymphatic system.

As noted by Bruno Chikly, the lymphatic system is a second pathway back to the heart, parallel to the blood system [2, pg. 27]. Chikly further notes that "about 1.5 to 3.5 liters of lymph per day circulate through the thoracic duct, although the total volume of the flow of lymph has yet to be precisely measured" [2, pg. 51] and expands on the process of lymphatic circulation.

> "Part of the constituents of the blood will filter out of the blood capillaries. This blood capillary filtrate will join the surrounding tissues, passing through the interstitial environment (interstitium) - the interstices between each cell, to be further reabsorbed in the lymphatic capillaries. The lymphatic system fine tunes the drainage of the interstitium (connective tissue) and thus constitutes a sort of "overflow" for the water and excess substances in the interstitial environment. In fact, if the lymphatic system did not recover the protein-rich liquid (a large part of which the venous system cannot recover), the body would probably develop major systemic edemas (protein loss), auto-intoxication and die in 24 to 48 hours [2, pg. 27]... About 75 to 100 g. proteins per day can escape from the blood circulation; this is about 50% of the protein circulating in the blood plasma per day. These proteins are transported in the lymphatic vessels. Proteins which have escaped into the interstitium are recovered by the lymph circulation [2, pg. 29]."

What arises is a picture of tissue far from being in static isolation. If neither necrosis nor severe edema is to result, the tissue environment must be continually bathed in the fluid circulations of blood and lymph, ruling out the accumulation of free toxins. Where there are restrictions, such as adhesions between fascial planes, they must be of a more macroscopic nature, still allowing for the microscopic flow of circulation, just as water can flow through cheesecloth.

Based on the above considerations, I can only conclude that the flushing of toxins is yet another persistent myth. However, this does not imply that massage is powerless to benefit the body. While massage does not appear to directly increase overall blood flow [4], it can be used to relax muscle hypertonicity. Lowering the level of muscle activity will locally reduce the need for energy and oxygen and the rate of production of metabolic wastes. It will also reduce the muscular pressure on surrounding tissues, effectively improving circulation and recovery from use. This, however, is not massage moving out toxins, but massage facilitating a better homeostasis. It is just this improvement in homeostasis by which, I believe, massage facilitates recovery from exercise and allows a higher level of training to occur.

In cases of excess lymphatic fluid production (overloading a normally functioning lymphatic system), or partial lymphatic system compromise, lymphatic drainage massage may be helpful in promoting the process of lymphatic filtering. The key sign here is the existence of edema. Normally, local muscle contractions promote sufficient lymph drainage. A notable exception exists with breast tissue. Since there is no contractile tissue within the breast to assist lymphatic drainage, overall tissue movement becomes important [3, pg. 101].

There remains a consideration that some clients respond to a massage with reactions of flu-like aches and malaise. Such symptoms have often been attributed to the toxins released. Dispelling with the concept of toxins means that we must seek other explanations for such post-massage malaise. Chaitow notes that *fibromyalgia syndrome* (FMS) and *chronic fatigue syndrome* (CFS) are the distant end of spectrums of dysfunction that can include aches, malaise, and flu-like symptoms [1, pg. 6]. He believes that a great many people are somewhere on those spectrums. Some of the models of dysfunction that Chaitow presents include a sort of systemic allergic reaction characterized by a great deal of pain, either muscular and/or joint-related [1, pg. 33]. Chaitow also notes the hypothesis that the inability to produce an adequate cortisol response to a stress can result in symptoms: "Deficiency in cortisol is characterised by fatigue, weakness, muscle and joint pain, bowel symptoms, nausea, increased allergic reactions, mood disturbance" [1, pg. 68]. I tend to think of a body's neurochemical system on the edge of its ability to adapt being pushed temporarily beyond the edge by accommodating to the work being done. This reaction may be exacerbated by effects of athletic overtraining or by a genetic metabolic predisposition [5,6].

> "When people are very ill, as in FMS/CFS, where adaptive functions have been stretched to their limits, ANY treatment (however gentle) represents and additional demand for adaptation (i.e. it is yet another stressor). It is therefore essential that treatments and therapeutic interventions are carefully selected and modulated to the patient's current ability to respond, as best as this can be judged. - Leon Chaitow [1, pg. 240]"

To explain the effects of massage, think not of flushing out toxins, but flushing out tensions - not just in the sense of emotional holding, but in the basic sense of muscles "idling" with the throttle open. As with good mechanics, we're simply readjusting the throttle to a reasonable idle rate. Underlying this way of looking at things, however, is a fundamental shift in orientation from mechanically moving something that accumulates to changing a dynamic balance within the living human body. It is, I believe, an important shift away from mythology and toward better understanding of our work.

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