

Endermologie: Taking a Closer Look

Recent laboratory investigations have shown that various maneuvers in Endermologie treatment, such as smoothing, kneading, and bouncing, create unique waveforms. Furthermore, the amount of pressure generated with each maneuver depends more on the operator's technique than on the suction setting or the force of the spring-loaded rollers. This might explain the variable clinical results for Endermologie that have been reported. (*Aesthetic Surg J* 2001;21:259-260.)

Endermologie (LPG Systems, Miami, FL), or mechanically-assisted deep soft tissue massage, remains a controversial adjunct to lipoplasty and other forms of body contour surgery. At Vanderbilt University Medical Center, we have taken a strong interest in this system of soft tissue treatment since the publication of our first study in 1998.¹ Our investigations to date have been primarily in the laboratory. We are currently working with LPG Systems to develop a protocol for a study in which each patient serves as both subject and control. The study would compare postoperative results after suction-assisted lipoplasty and ultrasonic-assisted lipoplasty with or without the addition of postoperative Endermologie treatments. If properly done, this study should answer the question of whether Endermologie is really an effective clinical adjunct to lipoplasty.

In the meantime, we continue to investigate the effects of deep soft tissue massage on the subcutaneous architecture in our established pig model.¹ Our most recent findings have demonstrated a unique *signature* waveform for each of the many maneuvers used during a standard Endermologie treatment. The significant alteration in the waveform and the amount of pressure (the area under the curve as well as the peak pressure) created by various maneuvers such as smoothing, kneading, and bouncing is evident in the Figure. Other maneuvers used in Endermologie treatment also create unique waveforms. The highest pressures are actually generated by the "figure-of-8" maneuver; however,

this is a very peaked waveform, and the continuous increased pressures are higher in other techniques that provide a much greater area under the curve, such as smoothing and kneading.



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It has yet to be determined which of these various maneuvers or which combination of these maneuvers is responsible for the structural and architectural changes that we have demonstrated in the subcutaneous tissues of our experimental animals. It would be very expensive to actually pinpoint the effect of each maneuver on the amount of collagen deposition in the subcutaneous fat because of the large number of animals needed to test each maneuver.

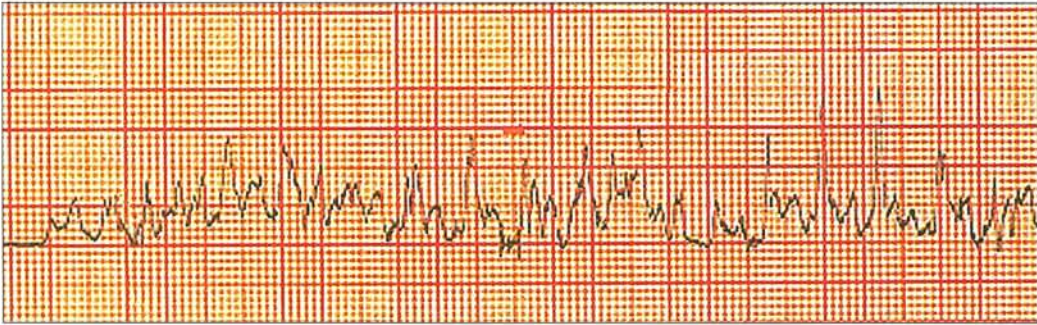
Another interesting finding has been that the suction setting on the Endermologie machine and the pressure generated by the spring-loaded rollers are only minor contributors to the overall pressure generated by each maneuver. The maneuver itself is the primary force that creates the subcutaneous pressure increase and pattern. Furthermore, the amount of pressure generated with each of the maneuvers varies considerably from one operator to another. Our burly resident, who was working in the laboratory when the initial studies were done, was trained by LPG Systems to do the maneuvers. However, the smaller LPG technician who had trained our resident was able to generate greater pressures with each maneuver, simply because her technique had been perfected through greater experience and practice.

Endermologie remains an interesting and potentially valuable adjunct to our body contouring procedures. However, the fact that it is so operator dependent may explain some of the variable clinical results that have been reported. ■

Smoothing



Kneading



Bouncing

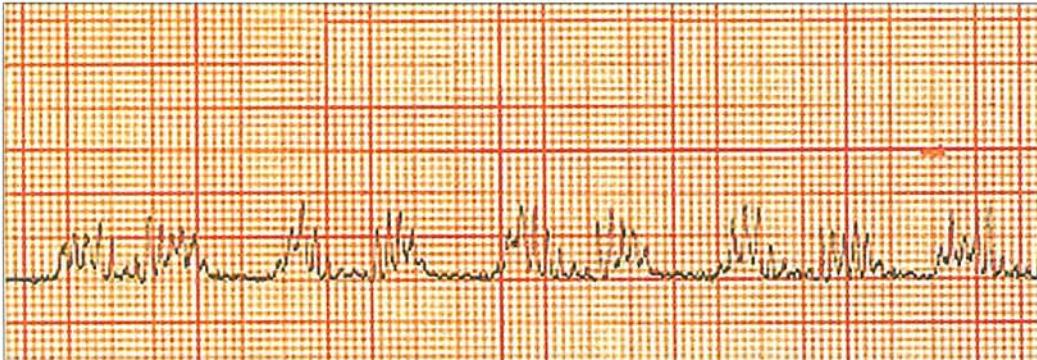


Figure. Waveforms demonstrate significant alteration in the amount of pressure created by maneuvers such as smoothing, kneading, and bouncing.

Reference

1. Adcock D, Paulsen S, Davis S, Nanney L, Shack BR. Analysis of the cutaneous and systemic effects of Endermologie in the porcine model. *Aesthetic Surg J* 1998;18:414-420.

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