the attainment of the requested and expected successful surgical results. As a result, the aesthetic surgeon is not only a medical doctor but also an artist.

In light of this, I believe that showing patients who are considering undergoing an aesthetic operation digital image profiles, which effectively discount all the artistic requirements mentioned above, to convince them to have a procedure is an inappropriate and unrealistic approach. I do not permit my patients to see their own prospective photographs, which are produced through digital imaging techniques by making *standard* modifications on a *commercial* program. Because such prospective photographs lead to false impressions and unrealistic high hopes on the part of the patient, such an approach does not seem ethical to me. Even though it takes more time and effort, I prefer to tell the patient about legal, tested, and registered techniques and to share the more factual and realistic results of the operation that he or she will undergo. These results are yielded through actual anatomical details, including angles, distances, and ratios.

Patients should not be expected to trade the representatives of a profession whose past is full of dedicated effort and self-sacrifice for a misleading practice such as digital imaging techniques. I would like to remind my colleagues who show their patients projected postoperative photographs and who approach their patients at this level, that potential complications may occur during the operation and postoperatively. I urge them to think more about their approach before they practice it. Becoming a plastic surgeon is a tiring, troublesome, but rewarding process. It requires teamwork and utmost attention. However, the use of digital imaging programs can result in all such efforts being completely overlooked. Even the riskiest and most difficult operations may be perceived by the patient as requiring only a simple technician's level of competence.

DOI: 10.1097/01.PRS.0000143912.30739.78

Nedim Sarifakioglu, M.D.
Department of Plastic and Reconstructive Surgery
Fatih University School of Medicine
Ankara, Turkey

Correspondence to Dr. Sarifakioglu
Angora Evleri
F-6 Blok No. 40
06800 Beysukent
Ankara, Turkey
nsarifakioglu@fatih.edu.tr

A NOVEL USE OF THE RHYS-DAVIES EXSANGUINATOR

Sir:

Skin preparation with disinfectant solution for hand surgery patients is difficult to perform single-handedly. It requires the help of either an assistant or the scrub nurse or surgeon to use an extra set of sterile gloves.

This problem may be circumvented by the novel use of the Rhys-Davies exsanguinator (Trellebourg Woodville Rail, Derbyshire, United Kingdom) to support the arm after exsanguination and inflation of the tourniquet (Fig. 1). The arm is raised above the sterile surface, allowing it to be cleaned and draped single-handedly.

DOI: 10.1097/01.PRS.0000143911.09271.3C

FIG. 1. The Rhys-Davies exsanguinator supports the arm above the sterile surface, allowing the arm to be cleaned and draped single-handedly.

Andrew N. Morritt, M.B.Ch.B, M.R.C.S.(Eng.)
Roderick Dunn, M.B.B.S., D.M.C.C., F.R.C.S.(Plast.)
Andrew Lubgan
Department of Plastic, Reconstructive, and Hand Surgery
St. James's University Teaching Hospital
Leeds, United Kingdom

Correspondence to Mr. Morritt
Department of Plastic, Reconstructive, and Hand Surgery
St. James's University Teaching Hospital
Leeds LS9 7TF, United Kingdom
andrewmorritt@hotmail.com

INCREASING THE ACCURACY OF STERILE MARKER PENS

Sir:

Accurate preoperative skin marking is important in determining the quality of the final result in plastic surgery operations.[1,2] Various writing instruments, such as cotton-tipped applicators, splintered tongue blades, toothpicks, and surgical marking pens of various types, have been used to mark the surgical sites.[3] Among these methods, disposable pens are the easiest and most practical method of skin marking.[1] The lack of tattooing,[3] loss of effectiveness with repeated sterilizations,[4] and fading with skin scrubs are the prominent drawbacks of these pens. Also, despite the presence of versatile tips that can make precise, fine lines when the pen is held vertically and broader lines when the pen is held at an angle, our experience with the accuracy of sterile marker pens is that even the smallest possible mark may be thicker than desired. Such inaccuracies are especially important in operations such as cleft lip repair and scar revision (e.g., W-plasty) of the face. The use of straight surgical needles or sharp, pointed wooden sticks may solve this problem, but their use may be cumbersome, since the applicator has to be dipped into the ink pot repeatedly and generally an extra hand is required to hold the ink pot.[4] Therefore, in operations where delicate marking is desired, we shape the tip of the marker pen with a no. 11 blade and convert it into a much thinner applicator (Fig. 1). We have been doing this for the last few years and are satisfied with the accuracy. We believe

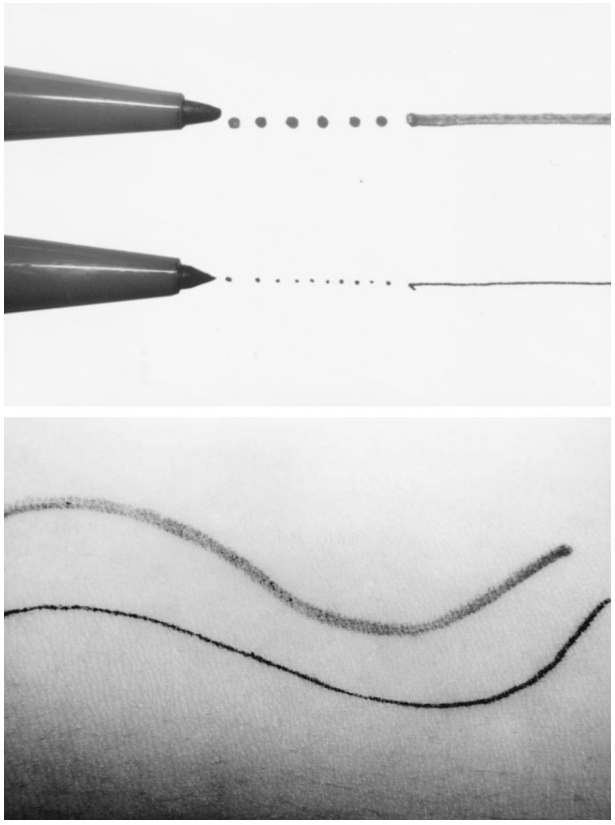

FIG. 1. Lines drawn on paper (*above*) and skin (*below*) demonstrate the thickness of the marker's tip before and after shaping.

that the addition of greater accuracy to the practicality of markers pens will make them more effective.
DOI: 10.1097/01.PRS.0000143910.99685.C4

Serdar Tuncer, M.D.
Fatih Kabakas, M.D.
Sinan Nur Kesim, M.D.
Department of Plastic and Reconstructive Surgery
Istanbul Faculty of Medicine
Istanbul University

Correspondence to Dr. Tuncer
Cavitpasa Sok. No. 20/9 Hosgor Apt.
Goztepe 81060
Istanbul, Turkey
serdartuncer@hotmail.com

REFERENCES

1. Govila, A. Skin marking made easy and economical. *Br. J. Plast. Surg.* 41: 554, 1988.
2. Tatla, T., and Lafferty, K. Making your mark again in surgery. *Ann. R. Coll. Surg. Engl.* 84: 129, 2002.
3. Granick, M. S., Heckler, F. R., and Jones, E. W. Surgical skin-marking techniques. *Plast. Reconstr. Surg.* 79: 573, 1987.
4. Sarifakioglu, N., Terzioglu, A., Cigsar, B., and Aslan, G. Skin marking in plastic surgery. *Plast. Reconstr. Surg.* 111: 946, 2003.

EFFECTS OF LIPOIC ACID AND A REDUCED-CALORIE DIET ON SKIN FLAP SURVIVAL IN A RAT MODEL

Sir:

Random-pattern skin flaps are commonly used in reconstructive surgery. Experimental skin flap models in rats have been widely used to study the effects of potential therapies, such as angiogenic factors,[1] immunosuppressants,[2] antioxidants, and hyperbaric oxygen,[3] on skin flap survival. We conducted an experimental study to investigate whether flap survival could be improved by lipoic acid, a biological antioxidant capable of scavenging free radicals,[4] inhibiting lipid peroxidation,[5] and recycling endogenous antioxidant systems.[6] During our investigation of lipoic acid, we also, though inadvertently, discovered a correlation between *preoperative* daily caloric intake and flap survival.

Seventy-two male Sprague-Dawley rats weighing approximately 250 g were used. Rats were separated into nine test groups of eight animals each (Table I). Animals were placed on preoperative and/or postoperative feeding regimens (Table I, *row C*). At the end of the preoperative feeding period, rats were anesthetized intramuscularly with ketamine and xylazine at 75 mg/kg and 7.5 mg/kg, respectively, following which a 3 × 12-cm dorsal, cranial-based, full-thickness, random-pattern skin flap was elevated and reapproximated with surgical staples. At 10 days after elevation, the flaps were evaluated for viability. One-way analysis of variance was applied to flap survival data. Bonferroni and Dunnett post hoc tests were used to determine significant differences among test groups. A p value of ≤ 0.05 was considered statistically significant.

In our initial study (groups 1 through 5), rats were fed 30 g of standard rat chow (LabDiet no. 5001; PMI Nutrition International, St. Louis, Mo.) daily supplemented with lipoic acid (Table I, *row A*). Groups 2 and 3 received lipoic acid as an oral dietary supplement, while groups 4 and 5 had lipoic acid injected intraperitoneally (Table I, *row B*). Group 1 received no lipoic acid supplementation (control). In group 3, which was fed the highest dietary content of lipoic acid (200 mg/kg per day), we determined that two of eight rats had consumed only 50 percent of their daily allotted diet. These animals had a body mass reduction of approximately 15 percent by the end of the 1-week preoperative feeding period (Table I, *row E*, group 7). Surprisingly, these animals demonstrated the most dramatic improvement in flap survival. Follow-up studies were undertaken to confirm these findings. As shown in Table I, *rows C* and *D*, groups 6 through 9 were placed on a restricted diet of 15 g of chow per day for 7 days preoperatively and/or postoperatively. Groups 7 through 9 also received lipoic acid supplementation (Table I, *row A*). The two group 3 animals, which consumed only 50 percent of their diet in the initial experiment, were included in the group 7 data. All animals had access to water ad libitum.

The results of our studies are shown in Table I, *row F*, and Figure 1. Lipoic acid supplementation, both dietary and injected, produced a significant increase in flap survival rates (groups 3 through 5). Animals on a reduced-calorie diet *without* lipoic acid (group 6) similarly displayed increased flap survival. The most significant flap improvement, however, was seen with the combination of lipoic acid and a reduced-calorie diet (groups 7 and 8). The data further suggest that improved flap survival rates resulting from *preoperative* treatments are not enhanced by continued postoperative treatment (group 8 versus group 7; group 4 versus group 5).