INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

HAIR TRANSPLANT forum INTERNATIONAL

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COLUMNS

FEATURE ARTICLES

New Instrumentation for Three-Step Follicular Unit Extraction

Robert M. Bernstein, MD *New York, New York,* William R. Rassman, MD *Los Angeles, California*

When we published the technique of follicular unit extraction (FUE) in 2002, Dr. Rassman and I described a 2-step process for this new hair transplant procedure.[1] The first step was to use a sharp, circular instrument to separate the follicular units from the surrounding tissue and then to remove them from the scalp using fine forceps. The success of the hair restoration varied from patient to patient, so we developed a simple test (the FOX Test) to see which patients were good candidates for this type of procedure. Hair transplant patients that were FOX 1 had virtually no transection (damage) to follicles during their removal and those with worse FOX ratings exhibited more transection, with FOX 5 patients having excessive damage during the extraction.[1,2]

The 3-step technique for FUE is based upon Dr. Harris's concept of using a blunt instrument to prevent damage to follicles during the process of separating the follicular unit from the surrounding donor tissue. The three steps are:

1. Scoring: Using a sharp punch
2. Blunt dissection: Using a dull instrument
3. Extraction: Using fine forceps[3,4]

The 3-step procedure decreased the amount of transection in virtually all hair restoration patients and thus enabled a greater number to be classified as FOX 1. However, the 3-step procedure introduced a new problem with FUE, that of buried grafts.[4]

Why Use a 3-Step Technique?

The need for the 3-step procedure has two basic anatomic underpinnings (Figure 1). The first is that the angle of the hair that sticks out above the surface of the skin is not the same as the angle of the hair follicle below the skin's surface. In addition, the angles differ from follicle to follicle. Therefore, it is literally impossible to exactly align the cutting instrument with the hair follicle as it passes into the depths of the dermis.

The second issue is that although the follicles in the follicular units are gathered or grouped on the surface (Figure 2) and in the mid-dermis (Figure 3), as they sit deeper into the skin they spread outward so that by the time they enter the subcutaneous fat they have become random (Figure 4). Therefore, a cutting instrument that easily fits around the follicular unit on the surface of the skin (Figure 2) will cut off the root of the follicles as it passes into the fat (Figure 4).

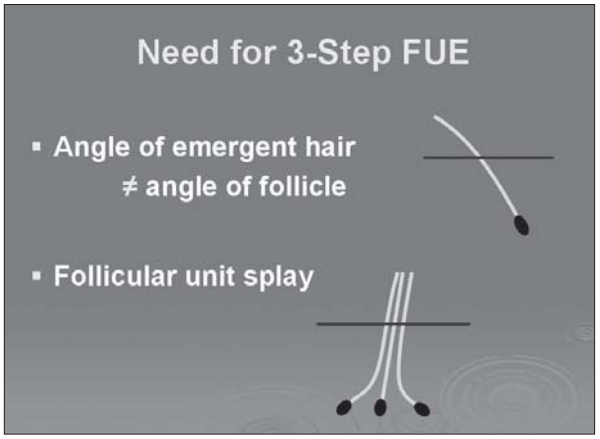

Figure 1. The anatomic features of the follicular unit that make blunt dissection important.

A solution to the problem is to use an instrument that would pass around the follicular units and essentially gather up the follicular bulbs that are spread out

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President's Message

Paul T. Rose, MD, JD *Tampa, Florida*


Paul T. Rose, MD, JD

The New Year is often a time to reflect on the past months, take stock of one's accomplishments and failures, and plan for the future. I can tell you that as a Society we have had a remarkable share of successes.

In my first message I covered much of the work of the ISHRS Executive Committee and Board of Governors in the past year. What I can tell you now is that we are seeing real benefits from the work of so many who have volunteered to assist us.

Most if not all of you should know about the Practice Census Survey results cited in the November/December 2005 (Vol. 15, No. 6) issue of the *Forum*. Much of the data derived from that study has been published for the public. The ISHRS has put out a press release that has been received by the major and local media organizations. We are beginning to get inquiries about our organization and the work that can be done in hair restoration.

Importantly, the Practice Census demonstrated that hair restoration is an increasingly common procedure in the world, and our procedure is better received. More men and women are being treated, and there is growing awareness of eyebrow and eyelash hair transplants. Nevertheless, we know that we could be reaching far more people, far more potential patients.

I would like to report that the Board of Governors has approved a plan to seek media placement on a nationally syndicated TV show in the United States, preferably *Oprah*. We believe that this will ultimately benefit national and international members. We are also seeking to establish relationships with media personnel to obtain similar exposure outside the U.S. and Canada. Toward this end, the Executive Committee has approved the formation of an Ad Hoc Committee on Media Relations. This Committee will be involved in media interaction and hopefully assist members in obtaining training for dealing with print, TV, and radio media. We hope to produce a media guide to provide members with access to important facts about the ISHRS and responses to frequently asked questions.

I am happy to report that the initial efforts of Dr. Tony Mangubat and the related Ad Hoc Committee to explore membership in the American Medical Association's Specialty and Service Society caucus has paid off. We have recently been informed of our acceptance. As Tony (Mangubat) would say, it is "another feather in our cap," and it adds to our credibility.

From the Practice Census Survey we learned that many members are interested in practice diversification. In response to that desire we have formed an Ad Hoc Committee on Practice Diversification. This year at the annual meeting will be the first time that we will offer a workshop related to practice diversification. The workshop will introduce interested members to such products and techniques as Botox® and fillers, and possibly lasers and IPL devices. It is our hope that various manufacturers will seek to exhibit at the meeting and introduce members to the array of products available to physicians and their patients.

In view of the interest in low level light lasers and similar devices, we have also formed an ad hoc committee to look at these products. The mission of this committee will be to inform our members about proper usage and the efficacy of these therapies.

More good news. A major hurdle has been passed in our efforts to become ACCME accredited (Accreditation Council for Continuing Medical Education). Thanks to the enormous efforts of Dr. Paul Cotterill, Victoria Ceh, and the other members of the CME Committee, we "sailed" through the last test (i.e., in-person interviews). In March 2006 we will be informed of the decision of the ACCME of whether we are officially accredited. It is looking good.

To keep the membership apprised of another part of the strategic plan, I can report that the first strategic planning meeting of the Hair Foundation has taken

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Co-Editors' Messages

Robert S. Haber, MD *Cleveland, Ohio*


Robert S. Haber, MD

1990 was an eventful year. George Bush Sr. was the U.S. President, the Communist Party relinquished power in the Soviet Union, the Cold War ended, Nelson Mandela was freed by South Africa, and Iraq invaded Kuwait, beginning the Persian Gulf War. Additionally, East and West Germany reunited, Mikhail Gorbachev won the Nobel Peace Prize, Milli Vanilli admitted to lip-syncing, *Seinfeld* debuted, and Driving Miss Daisy won the Academy Award for Best Picture. In sports, San Francisco won the Super Bowl, Cincinnati won the World Series, and West Germany won the World Cup. Furthermore, the Hubble Space Telescope was launched, we noted the deaths of Jim Henson, Greta Garbo, and Sammy Davis Jr., and gasoline cost $1.04 per gallon US.

And in September, O'Tar Norwood published the first issue of the *Forum*.

With this issue, the *Forum* begins its 16th year of publication. That's older than some of the lectures we keep hearing from time to time. The first issue was 4 pages and was created on a typewriter. This issue is 36 pages, and in 2005 the *Forum* published a total of 228 pages. Each issue is created with electronic submissions from around the world, edited in cyberspace, and professionally laid out and published.

Sixteen years ago, most of today's hair transplant surgeons had yet to place a single graft, state-of-the-art was still 4mm plugs, and scalp reductions were hugely popular. Sixteen years ago, many of the kids whose company we enjoyed in Sydney either didn't exist or were babies and toddlers.

Sixteen years ago, the ISHRS was still three years away from its birth, and the huge impact the Society would have on hair restoration around the world was yet to be seen. The *Forum* helped make clear the need for the Society by identifying the worldwide hunger for knowledge and the willingness of prominent surgeons to share their tips and techniques.

The *Forum* has played a significant role in the advancement of our field, and the editors that preceded Jerry and myself—O'Tar, Richard Shiell, Dow Stough, Russell Knudsen, Bill Parsley, and Mike Beehner—skillfully fostered its growth and significance.

And now, as a feisty teenager, this publication serves a worldwide readership and continues to provide a mechanism for sharing ideas and concepts that has never been more valuable than it is today. In this issue, we have important articles by Mike Beehner on graft survival and ergonomics, a detailed report on FUE instrumentation by Bob Bernstein, and a technique for treating plugginess by Steven Chang. We also present a collection of learned opinions about a challenging transplant dilemma, and a thoughtful opinion piece by Bill Rassman.

This year will see the publication of our first peer-reviewed paper, and we are excited about broaching this academic realm. We are also pleased to be bringing back the Surgical Assistants Corner, and expect that it will again be a vital conduit of communication. As always, remember that this is your *Forum*, so send in your thoughts, complaints, and ruminations for all of us to enjoy.

Bob Haber, MD

Jerry E. Cooley, MD *Charlotte, North Carolina*


Jerry E. Cooley, MD

It was nineteenth-century American poet John Godfrey Saxe who wrote the humorous poem that popularized the Indian fable about six blind wise men who attempted to describe the essence of the elephant by touching only a single part of the animal. Depending on which part of the animal that was touched, the wise men concluded it was a wall, a spear, a snake, a tree, a fan, or a rope. A heated debate ensues as each is absolutely convinced they have found the truth, and so they argue and debate about "an elephant not one of them has seen." Saxe concludes: "Though each was partly in the right… all were in the wrong!" We enjoy this story at the expense of the poor blind wise men. Surely we're not like these foolish men when we confidently state our views and opinions. But with a little imagination, we might try to see ourselves in their shoes.

In the poem, each wise man samples only a single part one time before arriving at his conclusion. By chance, they each sampled a part that gave them a completely inaccurate view. Trying a tool or technique only one time may be as successful as touching the elephant once. Chance dictates that we'll likely get an incorrect conclusion. The same can be said of many of our hair growth studies. Having insufficient numbers leads us to incorrect results because of random variation. But now imagine one of those blind men bumping into the elephant over and over again until every part has been touched. A much more complete mental picture emerges. The bottom line is that adequate testing is necessary before we can arrive at our conclusions.

Another way we mistake the elephant for something else is because of bias. If random variation gives us results that are scattered all around the truth, bias is a systematic error that always pushes the results in one direction or the

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Cooley's Message

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other away from the truth. For example, if one of the blind men always wore mittens or was much shorter than the others, an inaccurate view would result no matter how many times the elephant was sampled.

Our own biases can be subtle. If we try a new technique, we may want it to work and so we think we see better results even when there is no difference. We may use the technique on patients who were destined for better results for other reasons, but we conclude it was due to our new technique. Or we may develop a reputation for being proficient with a particular technique and develop a biased view of hair loss patients as more and more patients seek us out for this particular technique. Blinding and randomization help reduce bias in pharmaceutical studies, but these concepts aren't always easy to apply with surgical techniques.

And, of course, we are biased when money is involved. If we make our living largely from one type of technique, we'll be biased against anything that challenges that. And we have to disclose those "conflict of interests," however sure we are that our judgment has not been affected by that grant we got from *XYZ Pharmaceuticals*.

So as we stumble around the next elephant, perhaps we can look a little wiser by acknowledging our limitations, taking effort to reduce chance and bias in our evaluations, and show a little humility when describing our views.

Jerry Cooley, MD

Please Pardon Us...

The editors of the ISHRS *Forum* would like to apologize to the authors of "Hair Transplantation without Post-operative Edema" (*Forum,* September/October 2005; Volume 15, Number 5) for leaving off co-authors **Sepideh Pojhan, Anesthesiologist**, and **Susan Emami, MD.**

To Submit to the Forum

Please send all submissions electronically via e-mail. Remember to include all photos and figures referred to in your article as separate attachments (JPEG, Tiff, or Bitmap). Be sure to ATTACH your file(s)—*DO NOT* embed them in the e-mail itself.

An Author Release Consent Form, available at www.ishrs.org, must accompany all submissions.

Any person submitting content to be published in the *Forum* agrees to the following: 1. The materials, including photographs, used in this submission do not identify, by name or otherwise, suggest the identity of, or present a recognizable likeness of any patient or others; or, if they do, I have obtained all necessary consents from patients and others for the further use, distribution, and publication of such materials. 2. The author indemnifies and holds harmless the ISHRS from any breach of the above. *Send to:*

Robert Haber, MD

E-mail: HaberForum@aol.com

Submission deadline:
March/April, February 10

Notes from the Editor Emeritus

Richard C. Shiell, MBBS *Melbourne, Australia* (*Forum* Editor 1996–1999)


Richard C. Shiell, MBBS

Why does a patient come for hair restoration surgery?

If asked, most men would say without hesitation, *"Because I am losing my hair."* In my opinion the more accurate reason is likely to be because they are unhappy about going bald and feel that baldness will greatly decrease their quality of life. Although many in their peer group may be seemingly unconcerned about hair loss, a minority see it as the major cause of discontent, and hope that hair restoration will make everything right again. Sometimes it works this miracle for them but, if the patient attains what he perceives to be a poor result, then the problem may be greatly aggravated.

What is the best way to perform hair transplantation (HT)?

There are approximately 600 paid-up physician members of the ISHRS and possibly 10 times that number of doctors performing HT worldwide. The HT procedure involves many different steps from the initial consultation to the final stitch removal some days later. When one considers the possible variations within each one of these steps, the permutations resulting from this variety of choice results in literally thousands of variations in hair transplant techniques. The reader may like to list the variations possible within steps such as anaesthesia, graft removal, donor site closure, recipient site creation, and graft implantation.

Even within the more recent technique of follicular unit hair transplantation, (the commonly accepted *"Gold Standard"* of hair restoration), there are now hundreds of minor variants and more choices are being introduced each year. Earnest consideration is now being given to "trichophytic" closure of the donor site, a range of different graft storage solutions, and a fresh approach to the direction and angularity of the recipient slits.

With all these innovations and the multitude of choices, it would be thought that some general agreement may have been reached about the superiority of at least one simple parameter. If this is so, I cannot think of what it could be. At the time of writing this column in January 2006, and after 25 years of donor site closure, we have still not decided on such fundamentals as the optimum type and gauge of donor site suture material. Experts such as Dow Stough are adamant that staples give the best closure while Walter Unger uses 2-0 Nylon sutures. This author uses 4-0 while many others prefer dissolving sutures. When it comes to spacing and depth of stitch and whether to close in one or two layers or leave the sutures for 7, 10, 12, or 14 days, the situation becomes even more confusing. The debate over graft size is equally rigorous and controversial.

So who is right?

As the Red Queen says in Alice in Wonderland: *"You are all right and you shall all have prizes."*

The amazing thing about HT is that with all this variation between techniques, patients have always been reasonably happy with their own results—even when 4mm plugs were the only game in town.

It is true that everyone knows someone with a *"bad"* transplant (and in the mind of the public, hair transplants are almost universally "bad"), but an estimated 98% of patients seem to have been happy with the results of their own procedures. These figures do not appear to have changed substantially over the past 30 years in spite of considerable changes in technique leading to miniaturization and decreased detectability of grafts.

Why is there so little change in public attitude to hair transplantation?

Well firstly, from the public perception, the only transplants seen are the detectable ones. Members of the public do not differentiate between "very detectable" and "moderately detectable," and both are regarded as failed cosmetic procedures. Most people remain totally unaware of the large number of completely undetectable examples of hair transplants around them in the community.

Patients, however, remain very happy with their surgical results and when satisfaction is over 90%, it is difficult to measure small changes in attitude with any degree of accuracy. Neither can we measure discontent by an increase or decrease in the number of litigation cases. These have always been so few that small changes from year to year have no statistical significance.

Patients are becoming fussier, however, and more demanding of their cosmetic surgeons. This is probably because people are psychologically conditioned by the surgeon's own promotional campaigns, the media, and the movies to expect results that are near perfection.

This produces the frustrating effect that the better our results become, the more is expected of us as surgeons. I think the best analogy may be obtained if you consider our approach to the automobile. We were quite content with our motor vehicles 40 years ago. They were not nearly as reliable as those we have today but they mostly started on command and stopped when required (even if they took a little longer to do so). The more expensive models had radios and heaters but no air-conditioning, and they had fewer safety features than we accept as normal today.

In spite of their imperfections, we loved our cars, and I am sure that the vast majority of us do not feel any more affection towards the engineering marvels that we drive today. In fact we might be even *less satisfied* today because we now *expect more* from our vehicles—More miles per gallon, less oil consumption, longer periods between servicing, improved reliability, more "bells and whistles"—and all for a

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cheaper price, relative to our annual salary, than we paid 4 decades ago.

So it may be with hair transplants. Rather than **fewer complaints,** I think I am hearing **more** grumbles about FUT than I heard about plugs, reductions, or minigrafts in past decades. Fortunately, a solution can generally be found for the perceived problems of such patients and the complaints seldom lead to litigation.

Where have we gone "wrong"?

There is no doubt that many patients obtain stunning results and the words *"not even my hair dresser picked it"* are heard with increasing frequency at 6-month reviews. Unfortunately, there is always the other side of the coin. This is the patient with relatively poor-quality donor hair who obtains a sparser than expected result or the patient with a wide scar in the donor region, when a *pencil-line* scar was promised at the initial consultation. These less desirable results may only represent a tiny percentage of our output, but unhappy patients can have a powerful effect when they get together and air their grievances on the Internet.

Experienced doctors generally warn patients orally of the possibility of a less than optimal result and have it clearly laid out in the pre-operative literature. These doctors also excel in case selection and make sure that few patients with over-high expectations (or Body Dysmorphic Disorder, in particular) ever gain entry to their operating lists. Such individuals may be impossible to satisfy, however reasonable the results may appear to other observers.

What are the solutions?

I must confess that I have no immediate or simple answer. We cannot go back to the old days of large grafts, as once the "genie" of miniature grafts was out of the bottle it would not go back in and we all had to shape-up to the new techniques or leave the profession. While it is natural for us all to be competitive and for patients to seek the "best" procedures, these small increments of improvement come at ever-increasing cost to the patient. We are at danger of pricing ourselves out of the market.

I think it is important that photographs of post-operative results shown to patients should exhibit some imperfections. Otherwise, like the concert violinist who is always trying to live up to his heavily engineered recordings, we will be setting ourselves a standard that, in practice, is almost impossible to attain.

Forum Co-editor Dr. Jerry Cooley, in an e-mail dated 21-Dec-05, wrote:

> *"I think all of us are unconsciously biased by the staff we have in terms of preaching which technique is best."*

I have no doubt that what Dr. Cooley says is completely true, but the corollary is that there may be another 1,000 surgeons out there, each with his own staff preaching slightly different techniques. These surgeons often produce results that are, in the opinion of their patients, equally as good as our own.

Summing Up

With the above few paragraphs in mind we should be a little more cautious in promoting ourselves or condemning the techniques of others. In the hands of experienced surgeons, almost any technique that is well executed can produce extremely satisfying results for the patient. However, in the hands of the inexperienced or inattentive surgeon, with poorly supervised staff, even the *"Gold Standard"* procedure of FUT can produce a very disappointed patient.

Richard C. Shiell, MBBS

President's Message

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place. This organization is in its early infancy, but through the cooperation of Procter and Gamble (P&G) and in particular, Ms. Angela Begley, the idea has transformed into reality. At that first meeting the broad goals for the Foundation were formulated as well as a suggested plan for structure. A primary goal of the Foundation will be to disseminate practical and truthful information to consumers about hair, hair loss, and hair products, as well as surgical and medical treatments for hair loss.

A recurring issue has been the American Board of Hair Restoration Surgery (ABHRS). I can report that we have continued to make progress in making this certification a reality for more members. The ABHRS Board has tried, and I believe has succeeded in, producing criteria that will be more inclusive and offer members alternative pathways leading up to ABHRS certification.

On the negative side, I unfortunately have some things to report. I am disappointed that efforts to have a unified European Hair Restoration Surgery Society have been resisted, but I remain hopeful that with time there will be unification. We are indeed fortunate to have members with such great intellects and surgical skills in Europe. It is my feeling and that of many of my colleagues on the Board of Governors that this expertise should be shared in a meeting and all those who are interested brought together. We will certainly try to keep a dialogue going.

Also on the loss column I would have to include some comments made by members about the ISHRS being too closed and self-serving. I appreciate the comments and want all the members to know that the Society is open to input from any of our members. We try to include all who wish to be on committees but there are only so many positions. I will say that if you are interested, participating on committees does help to introduce you to the Executive Committee and Board of Governors. We are all open to your comments, positive and negative. Our position at meetings has been to include as many speakers as possible to demonstrate the diversity of our members and the contributions they seek to make to our field.

Fiscally we remain in a very stable position. We did incur some losses from the meeting in Australia but that was expected. In fact, our losses were less than projected and the benefits far outweighed the financial bump.

Overall, I think that we have had quite a positive year.

As this year ends, I want to thank the staff at the ISHRS and all who have contributed as committee chairs, members, and moderators. Lastly, I want to thank all the membership for your support. I hope that you have had a wonderful Holiday Season.

Warmest wishes,

Paul T. Rose, MD, JD

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