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President's Message

Jennifer H. Martinick, MBBS *Perth, Australia* jennifer@martinick.com

ISHRS 20th anniversary— growing and maturing

Our 20th anniversary meeting in the exotic Atlantis Hotel on Paradise Island in the Bahamas marks a significant milestone and celebration of our medical mission.

Education, excellence in patient outcomes and camaraderie are core objectives that underpin the International Society of Hair Restoration Surgery's *raison d'être*. Witness to this is borne year after year at Society meetings around the globe where the exchange of ideas and research pushes new frontiers in the science of hair restoration. This remarkable evolution of hair restoration has lifted the social acceptance of our work amongst the medical and wider community and ultimately transformed the self-esteem and lives of millions of patients around the world.

Testimony to our global collegiality and commitment to excellence was evident again at recent meetings at Orlando, Seoul, and Rome. Attendance at the Korean 2012 meeting jumped a massive 250% on the previous year's attendance figures, signalling that the future for hair transplanting in Asia is bright. And, social and demographic indicators point to further exponential growth in membership from this region.

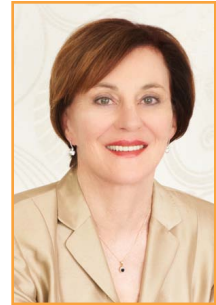
At Rome, delegates heard that more physicians are investigating follicular unit extraction (FUE) and there is also great enthusiasm for conducting more research into the use of platelet rich plasma (PRP) in hair restoration. Physicians at this meeting also expressed confidence in the safety of finasteride medication.

Our Orlando meeting heard how 15 physicians have invested in ARTAS®—a system using guided technology and precision robotics to harvest healthy follicular units from a patient's scalp. While there is interest in the Artas technology, members are seeking assurances that it is sufficiently evolved. Reports suggest that transection rates—which should never be above 2%—are still 7% with ARTAS.

In keeping with the Society's support for education into all aspects of hair restoration surgery, a number of research grants are being offered.

Of growing interest to our Society's members is the donor harvesting technique of FUE. All surgical techniques face a learning curve in regards to their evolution; FUE is no different. Further research is needed to improve its outcomes and investigate the use of new instrumentations. While FUE has merits in certain circumstances, there is a need to ensure that, unlike the plug method that has attracted so much derision, it is not commercialised too early.

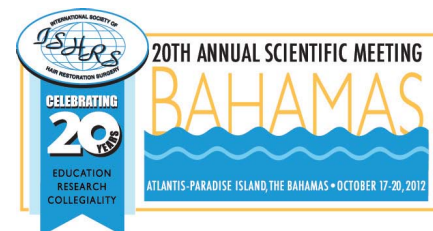
It has taken decades of clinical practice and research to refine the marriage of science, mathematics, and artistry to deliver the completely natural looking transplants created with FUT. It is only appropriate that further research is undertaken by our Society's members into FUE before it is widely promoted to our valued patients. ♦



Celebrating 20 Years!

In celebration of ISHRS's 20th anniversary, we are dedicating the next issue of the *Forum* as a special, commemorative issue.

See page 147 to submit your special memory or message!



Co-editors' Messages

Nilofer P. Farjo, MBChB *Manchester, United Kingdom* editors@ISHRS.org



It has been a busy few months with conferences so far this year. You would think that attending several meetings within a short space of time is not conducive to learning new material. However, it never ceases to amaze me that there always is something or someone that is inspirational either in the lectures or in the live surgery workshops. I always come away feeling that there is more that I could be doing to

improve my own practice. The breadth of backgrounds that we all come from is a definite positive in introducing new ideas from a different perspective. Take, for example, Dr. Tommy Hwang's article on graft depth and prevention of post-operative folliculitis. Time will tell if this solves the problem but it just illustrates the point that someone trying something new may solve a common problem. A talk by Dr. Shelly Friedman at the Orlando Live Surgery Workshop and at the Asian Association meeting on his method of treating folliculitis was also very useful. These are two methods that I will personally try.

Another meeting reported on in this issue is the annual European Hair Research meeting. Here we see how researchers and clinicians are bringing new ideas to the forefront on hair research topics. Dr. Angela Christiano, for example, discussed the principles of her genetic research in alopecia areata (AA) and how these can be utilised to identify other genetic conditions. The association of the same genes in AA as in other conditions has now led to plans to trial a drug newly available for rheumatoid arthritis that may also work in AA. We see that the group Nothen et al. (see *Review of the Literature*) have used the same genome-wide variability studies to look at associations of genes in AGA. Dr. Christiano also discussed the role of epigenetics (see *Cyberspace Chat*). She linked the roles of genes, epigenetics, and the environment. At next year's World Congress of Hair Research there will be an introduction to genetics that I personally am looking forward to attending. We will learn, for example, that a Manhattan plot is not an expensive piece of property in New York but a genetic mapping technique. It seems to me that there are exciting times ahead in the field of genetic research. ♦

William H. Reed, MD *La Jolla, California, USA* editors@ISHRS.org



This month's issue has many topics that interested me including the one on Body Dysmorphic Disorder (BDD) by Dr. Rajput. His article exemplifies the enthusiasm and effort of the individual practitioner whose sharing has evolved our field. His study, which modifies the standard questionnaires for obsessive-compulsive disorders to be more specific to hair loss, is original and illuminating. Of course, with

the informal, unvetted changing of questions, his study can't be used to define BDD as it occurs in HT, but, even without a control group, it demonstrates the relief from anxiety that the hair loss sufferer feels by realizing that hair loss is manageable and, perhaps, by undergoing hair transplantation. This article discusses the concept of BDD, which invites further discussion.

DSM-IV defines BDD as "a preoccupation with an imagined defect in appearance; if a slight physical anomaly is present, the person's concern is markedly excessive" (American Psychiatric Association 1994). It is perhaps not surprising that standard allopathic medicine takes this approach as it implies both a labeling based upon a disease model ("preoccupation") and it removes the judgment of the condition's significance from the patient to allow the "priest"/physician to call it "imagined" or to judge it as "slight" and accompanied with "a markedly excessive" concern. No doubt there are rare patients who fit this description from everybody's perspective except the patient's, but what therapeutic usefulness does this label provide us? Is not everyone who consults us burdened with enough "concern" and "preoccupation" to make time to visit and consider spending thousands of dollars in an attempt to relieve the distress? Do not many people consider hair transplantation "excessive"?

Looking forward from the time of consultation, I see no benefit to labeling someone with BDD. Identifying excessive expectations

and inflexibility are what is important and are more quantifiable as well. Anxiety is too amorphous and it is too difficult to predict its response to treatment/surgery. Some, even the great majority, of the most distressed and neurotic and who best beg to be labeled as BDD, turn out to be the most rewarding cases to deal with. It is very true that they often require the most effort both pre- and post-operatively; I would be incomplete in my discussion if I didn't say that there have been times during the relationship when I've regretted my involvement with a particular patient, but these occurrences usually are worked through and are few compared with the frequency of satisfaction for both the patient and the surgeon. I think the key is making very clear a set of easily achievable expectations that can be referred to post-operatively (photos, chart notes). It is particularly important that there are no unpleasant surprises post-operatively, but this should be a goal for all patients. Knowing the possible need for more than one procedure creates a nice buffer and can also help filter out the "Unreasonable" from the "BDD."

What about the use of the term BDD post-operatively? Is this not an approach that risks letting the surgeon and his team "off the hook" too easily? How can we separate the patient's dissatisfaction from our contribution to his post-operative mind-set? Were the expectations set up by the surgeon and his staff sufficiently clear and detailed? Was the "theater" well performed? By "theater," I mean that, whether we accept it or not, we are healers with a long heritage that goes back to the rattle shakers, folk rituals, and chants. Along these same lines, what we do today is still very much "theater" and empathic-based communication. Regardless of whether we feel up to the role, each day at work is "Showtime" to recall a vaudevillian's exhortation. How we and our team members (front office, consultants, technicians) interact with the patients has a major role in determining their impression of the surgery and its results. (My only recall of my first surgery 18 years ago was that I never saw the surgeon again

⇒ page 120

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Pardon Us...

In the last issue, we published an incorrect email address for Dr. Marino A. Rios. His correct address is: drrios@elpbizclass.com

INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

Vision: To establish the ISHRS as the leading unbiased authority in hair restoration surgery.

Mission: To achieve excellence in patient outcomes by promoting member education, international collegiality, research, ethics, and public awareness.

Editorial Guidelines for Submission and Acceptance of Articles for the Forum Publication

- Articles should be written with the intent of sharing scientific information with the purpose of progressing the art and science of hair restoration and benefiting patient outcomes.
- If results are presented, the medical regimen or surgical techniques that were used to obtain the results should be disclosed in detail.
- Articles submitted with the sole purpose of promotion or marketing will not be accepted.
- Authors should acknowledge all funding sources that supported their work as well as any relevant corporate affiliation.
- Trademarked names should not be used to refer to devices or techniques, when possible.
- Although we encourage submission of articles that may only contain the author's opinion for the purpose of stimulating thought, the editors may present such articles to colleagues who are experts in the particular area in question, for the purpose of obtaining rebuttal opinions to be published alongside the original article. Occasionally, a manuscript might be sent to an external reviewer, who will judge the manuscript in a blinded fashion to make recommendations about its acceptance, further revision, or rejection.
- Once the manuscript is accepted, it will be published as soon as possible, depending on space availability.
- All manuscripts should be submitted to editors@ishrs.org.
- A completed Author Authorization and Release form—sent as a Word document (not a fax)—must accompany your submission. The form can be obtained in the Members Only section of the Society website at www.ishrs.org.
- All photos and figures referred to in your article should be sent as separate attachments in JPEG or TIFF format. Be sure to attach your files to the email. Do NOT embed your files in the email or in the document itself (other than to show placement within the article).
- We CANNOT accept photos taken on cell phones.
- Please include a contact email address to be published with your article.

Submission deadlines:

August 5 for September/October 2012 issue

October 5 for November/December 2012 issue

Reed message

↩ from page 119

after the surgery and, when I asked to see the graft preparation during surgery, I saw a slab of scalp tucked underneath a plate that I still feel was headed for the trash can if they didn't need it to make the graft count.) Theater. And the anxious patient that we are inclined to label BDD is a hyper-responsive audience.

The parent of BDD, the disease model of modern medicine, is not a bad way to get the maximum information transmitted in medical school, but is this approach anything but a point for departure? This is perhaps not a question for the surgeon whose challenge is to pursue technical excellence, but rather it is a fundamentally important question for the physician. We are both physician and surgeon in hair transplantation and this can explain the complexity that keeps us interested in our work for many years. Using a system of labeling to understand and transmit our ideas in medicine is sometimes useful and sometimes can have positive therapeutic consequences. I do not agree that the use of BDD in hair transplantation and in our relationship with the individual patient is one of those instances. ♦

Notes from the Editor Emeritus

Jerry E. Cooley, MD Charlotte, North Carolina, USA jcooley@haircenter.com



Our field has come a long way. Where has this progress come from? Nowadays we see a greater emphasis on applying “evidence based medicine” to the practice of hair restoration surgery. We hear the call for more scientifically based studies, with rigorous controls and study design. We see our meeting planners valiantly striving to conform to ACCME guidelines, attempting wherever possible to weed out biased presentations based on low-quality evidence.

This certainly makes sense since progress in the field of medicine has only occurred via the scientific method, right? Treatments and new surgical techniques should only be accepted if they have sufficient evidence for their safety and efficacy. Implicit in this notion is that a large group of patients has been studied, with appropriate controls in place, with sufficient follow-up. True study effects are accepted only after ruling out bias and chance.

This is right, isn't it? It has to be. But let's take a sobering look at our situation. Can you name a single surgical study, and by that I mean a well-designed, randomized, controlled clinical trial, that has impacted what you do as a hair restoration surgeon? Finasteride and minoxidil studies don't count, as we're just looking at clinical trials focusing on surgical interventions. Using the criteria developed to judge the quality of medical clinical trials, we have to conclude that there is essentially no “evidence base” to modern hair restoration surgery.

Please don't get me wrong. I am not opposed to studies, statistics, or the scientific method. In fact, my opinions are based on a high regard for these principles. I recently worked with statistician Jamie Reiter, PhD to create a webinar that outlines some important elements of study design and biostatistics (available at www.ishrs.org). I believe that all of us would benefit from gaining an understanding of what goes into proper study design, even if we never perform a single study.

But we should be honest with ourselves. Applying evidence based medicine to the practice of surgery is difficult, and applying it to hair restoration surgery is that much more so. Let's look at one of the most important results we may wish to study, namely graft survival. If we have a particular intervention that gives a 10% improvement, we may need to study 100 patients to prove this is a real result and not due to bias or chance. Assuming you have time and energy to commit to this, how successful do you think you will be getting good follow-up on all these patients one year after their procedure? And can you imagine doing detailed hair counts or “hair mass” studies on 100 patients?

Let's assume such a study is carried out. For example, a large study is carried out to compare graft survival in FUT strip surgery versus FUE. There are 50 patients in each arm of the study, and they are roughly similar in every way that could affect results. The only difference is that in one group grafts are harvested via FUE and in the other by strip. Miraculously, they all return after one year to have photographs and detailed hair counts done. The mean graft survival for the FUT group is 92% and the mean graft survival for the FUE group is 78% ($p < 0.05$).

Aha! There you have it, graft survival is better in FUT vs. FUE!

But is that all there is to the story?

What would you think of this study if you learned that the surgeon who carried it out had 20 years of experience doing strip and 2 years doing FUE? Would you not conclude that this doctor needs to improve his or her FUE skills? So how do you evaluate a surgical study without also knowing the background of the clinic that performed it (e.g., the surgeon's expertise, the staff's expertise, the results this particular clinic is known for producing)?

This is what I am opposed to: promoting “pseudo-studies” and the knee-jerk dismissal of anecdotes and clinical observations as rubbish and quackery. By “pseudo-studies,” I mean small studies that, though well intended, are unable to exclude bias and chance as leading explanations for the observed results. I would much rather hear an experienced surgeon present a technique modification, saying, “You know, I think my results are better this way,” and showing well-done photographs to support this, than I would hear him or her say, “results were X% better” as if these were true, generalizable, and reproducible. I would hate to see our scientific meetings become overloaded with these pseudo-studies, where the real education occurs at the coffee breaks (“So Frank, what are you doing different these days?”). Gems and pearls should come from the podium for everyone to hear.

I return to my original question: Where has progress in hair restoration surgery come from? We have to conclude that it has come from anecdotes, clinical observations, and case studies from experienced surgeons willing to share their experiences. We need to create an environment that fosters this sharing. There is no reason this cannot be done in a scientific fashion, too. For starters, new ideas and techniques should be biologically plausible. For example, a doctor claims their results are better using a new wound healing material. Rather than clamoring for a small study, we would do well to ask what the ingredients are and what supporting material is available in the wound healing literature, where *in vitro*, animal, and even human studies may be found.

In conclusion, here is what I am proposing: 1) a better understanding of the complexities of study design, 2) an appreciation of how bias and chance can explain our findings, whether we are presenting study results to colleagues or just trying to figure out for ourselves whether a new technique is effective, 3) de-emphasizing small, poorly designed studies in favor of more scientific “clinical sharing,” and 4) if you are thinking of performing a “study,” please consult with your colleagues first and then a statistician!

I welcome your comments and feedback. ♦

Intra-patient graft length

from front page

Discussion

The current state of FUT utilizing the natural growth pattern of human scalp hair was introduced in 1988 by Dr. Bobby Limmer. Today, FUT constitutes the primary method of hair restoration practiced worldwide.⁶ To perform FUT properly, the importance of matching the graft size/length and the incision size/depth is well known. Follicles vary in length from 3-6mm between patients and can vary according to one's race and personal characteristics.⁷ Therefore, the incision depth should be assessed for each individual patient. A blade that is of fixed length or is used with no depth control can penetrate too deeply into the subcutaneous fat in some patients. Improper depth controlled graft placement can yield problems such as pitting, tenting, folliculitis, epidermal cysts, ingrown hairs, and other problems.^{1-4,8} Dr. Jerry Wong measures several grafts to determine an average depth when setting blade depth,⁹ but he does not measure the exact intra-patient variation of graft length. Correct incision depth varies from patient to patient, but previously it was believed that there would be little difference in the graft length in the same individual.

Despite performing proper hair restoration surgical techniques to create the appropriate depth for recipient sites, failed depth control problems still occur in some patients. It is the aim of this study to evaluate the follicular lengths in the same individual to determine whether there is a significant intra-patient graft length difference. According to our research, the length of the graft can vary significantly in the same individual; for example, the majority of Korean patients showed a 1-1.5mm length difference while 18.5% showed a 2mm difference, 4.2% showed a 2.5mm difference, and 1.7% showed a 3mm difference between the longest and shortest graft in 1-hair FUs. These differences are also seen in 2-hair FUs but less difference in 3-hair FUs. The majority of Caucasian patients showed a 1-1.5mm difference in 1-hair FUs while 4.2% showed a 2mm difference, and 8.3% showed a 2.5mm difference in 1-hair FUs as well as a significant difference in 2- and 3-hair FUs, but less than Korean patients. Therefore, the intra-patient graft length difference is seen in both Asians and Caucasians, with greater differences found in the Asian patient compared to the Caucasian patient. The causes of intra-patient graft length differences are 1) genetically determined length difference, 2) hair cycle, and 3) transection during graft preparation.

Therefore, if we make the same depth incision in the same individual, the long grafts will fit in the incision site but the short grafts will be placed into the deeper layer. For example, if a single patient has 6mm, 5mm, 4mm, and 3mm length grafts in the donor area, and if we make incisions at a 6mm depth, then a 6mm graft will fit in the incision site adequately but a 3mm graft will be located 3mm deeper than the proper depth and could result in folliculitis, cysts, or pitting.

This author (Tommy Hwang) also carried out a preliminary study regarding graft placement according to the graft length in the same individual (Figures 3 and 4). Each of the groups of 25 grafts examined, according to the number of hairs per FU, were implanted into a 1cm² box on the vertex in a 46-year-old MPHL patient. In Figure 3, group A is properly depth controlled according to the length of graft whereas group B is not controlled

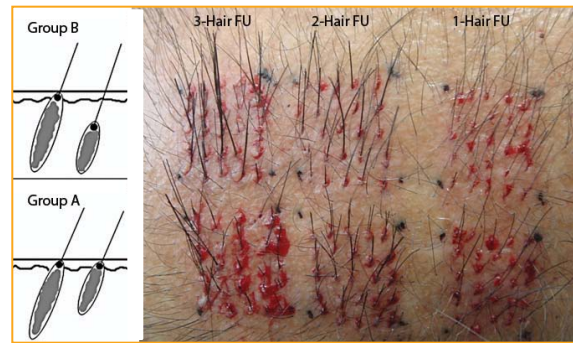


Figure 3. 1 cm² boxes, containing 25 grafts per box, were implanted according to the number of hairs per FU. Group A is proper depth controlled according to the graft length. Group B is not controlled according to the graft length.

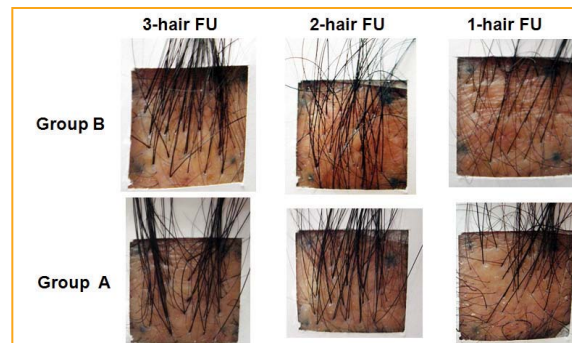


Figure 4. Graft survival was measured at 7 months post-op. Group A showed 90.1% (3-hair FUs), 98% (2-hair FUs), and 100% (1-hair FUs) survival rates. Group B showed 86.7% (3-hair FUs), 86% (2-hair FUs), and 76% (1-hair FUs) survival rates.

according to graft length. The graft survival was measured at 7 months post-operatively (Figure 4). Group A showed 90.1% (3-hair FUs), 98% (2-hair FUs), and 100% (1-hair FUs) survival rates whereas group B showed 86.7% (3-hair FUs), 86% (2-hair FUs), and 76% (1-hair FUs) survival rates. Preliminary results indicated that the proper depth controlled group, according to the graft length, showed higher survival rates compared to conventional methods (non-controlled according to the graft length). Therefore, it is presumed that higher survival rates can be achieved with proper depth controlled graft placement. However, further research and controlled studies are necessary to confirm the results and the exact survival rate.

Transection of the grafts can sometimes occur during graft preparation with FUT and FUE. These transected follicles should also be placed superficially, compared to the intact hair follicles to avoid deeper location in the recipient site. In order to prevent complications such as pitting, tenting, poor survival, folliculitis, and cysts, we need to classify grafts within the same individual into same length groupings (Figure 5) and make proper incision depths according to each group. With this method, this author has reduced or prevented these complications in most of my patients during the past 9 months (Figure 6).

Conclusion

According to the results, there are significant intra-patient graft length differences. Therefore, we need to classify the grafts according to the graft length in order to create proper depth-controlled incisions. This extra step can help to yield a superior result and help to minimize complications such as folliculitis, pitting, and poor survival. This is the first trial to evaluate the intra-patient graft length differences in the field of hair transplantation and further research is suggested.

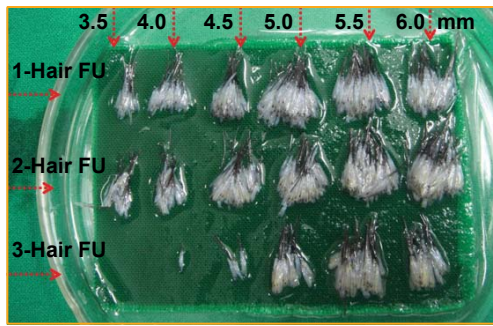


Figure 5. Graft grouping according to length.

References

1. Elliot, V.W. Insertion of multi-FU grafts. In: W.P. Unger, R. Shapiro, R. Unger, and M. Unger, eds. *Hair Transplantation*, 5th Ed. London: Informa Healthcare, 2011; 407.
2. Karamanovski, E. Problematic graft quality and handling. In: W.P. Unger, R. Shapiro, R. Unger, and M. Unger, eds. *Hair Transplantation*, 5th Ed. London: Informa Healthcare, 2011; 408.
3. Nusbaum, B.P. Recipient area complications. In: W.P. Unger, R. Shapiro, R. Unger, and M. Unger, eds. *Hair Transplantation*, 5th Ed. London: Informa Healthcare, 2011; 423.
4. McMichael, A., and D.G. Sanchez. Folliculitis and the follicular occlusion tetrad. In: J.L. Bologna, J.L. Jorizzo,

and R.P. Rapini, eds. *Bologna: Dermatology*, 2nd Ed. Elsevier, 2008.

5. Cooley, J.E. Dilemmas in hair restoration. *Hair Transplant Forum Int'l.* 2005; 15:207-208.
6. Limmer, B. The history of follicular unit transplantation In: W.P. Unger, R. Shapiro, R. Unger, and M. Unger, eds. *Hair Transplantation*, 5th Ed. London: Informa Healthcare, 2011; 349.
7. Martinick, J.H. The pitfalls of FUT incisions and how to avoid them. In: W.P. Unger, R. Shapiro, R. Unger, and M. Unger, eds. *Hair Transplantation*, 5th Ed. London: Informa Healthcare, 2011; 351.
8. Cooley, J.E. Complication of hair transplantation. In: W.P. Unger and R. Shapiro, eds. *Hair Transplantation*, 4th Ed. New York: Marcel Decker, 2004; 571.
9. Wong, J. Mega session follicular unit transplantation. In: W.P. Unger, R. Shapiro, R. Unger, and M. Unger, eds. *Hair Transplantation*, 5th Ed. London: Informa Healthcare, 2011; 363-370. ♦



Figure 6. 5 weeks' post-op. No folliculitis, pitting, or cysts found.

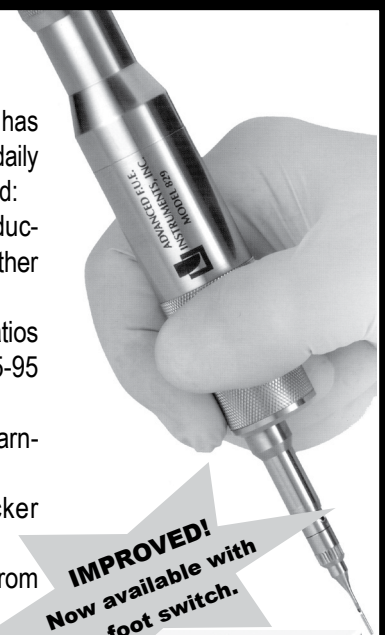
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- Ergonomically weighted and balanced housing for maximum accuracy, improved efficiency and reduced physician fatigue.
- Significant advantages in size, weight and durability over other oscillating mechanisms.
- Patented punch design with interior relief for friction-free graft extraction without twisting or desiccation.
- Graduated punch tip for greater precision in scoring.
- Reusable punch tips provided in standard 0.9, 1.0 and 1.25 mm diameters.

Proven Effective in Clinical Applications

The designated motorized F.U.E. device has been proven effective in the “real world” of daily clinical use—not just on the drawing board:

- Demonstrated heat and friction reductions of as much as 75 percent over other motorized devices.
- Typical implant attempt-to-success ratios of approximately 97 percent, with 85-95 percent growth rates.
- Easy to master, with faster, shorter learning curve.
- Less invasive, less trauma, quicker healing.
- Also ideal for infill of linear scars from previous strip harvesting.



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