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Forty Steps to Harvest a Graft

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ABSTRACT

Over the past two decades, the stages or steps of follicular unit excision (FUE) harvesting have been described in the medical literature. This article details and identifies the sequence of steps necessary to distinguish the ideal donor harvesting parameters for each patient. The physician's knowledge and skills should allow for a personalized (and often modified) approach to the different areas of the patient's scalp.

Understanding and performing the sequential steps to harvest intact follicular units (FUs) without damage or injury is an important part of the successful completion of the process. Not all doctors follow the same process or steps for harvesting follicles. In fact, the first few FUs harvested should be used to help identify and establish the necessary parameters to obtain the ideal harvested graft later. Naturally, extra effort may be required to determine the correct sequence and technique for each patient.

It also is important to understand that there may be anatomical differences between areas of a patient's scalp, and it may be necessary to adapt and adjust accordingly. This article describes the 40 steps that we believe are essential for the effective harvesting of uninjured grafts. A single error in any single step may be the difference between success and failure.

Keywords: dermoscopy, excision, harvesting, *in vivo* splitting/dissection, punch, scoring, tactile sensation, transection, working distance

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INTRODUCTION

Follicular unit excision (FUE), which was first described in the medical literature around 2002 (then termed follicular unit extraction), has become one of the most popular harvesting techniques for hair transplantation.¹ This rise in popularity may be due to the latest development of FUE equipment, newly designed punches, and the use of implanters. Novice or untrained physicians are lured by the appearance of FUE's simple operation; however, this lack of experience often leads to high rates of transection, poor growth, and overharvesting and destruction of the donor area. Contrary to what many people believe, however, the high failure rate that can be observed in FUE actually may be due to a lack of knowledge of the anatomy of follicles and the dermis, a poor understanding of the concepts of scoring and excision, and the unrealistic expectations of harvesting techniques. Only with extensive training and experience can it be possible to reach a level of proficiency.

We describe the "40 steps to harvest a graft" as

1. the basic conditions for scoring, harvesting, and safely obtaining FUs; and
2. the basis for minimizing partial and total transection rates and other graft damage.

For doctors, these 40 key steps can help identify and prevent follicular damage and allow for the development of strategies to avoid such potential damage. Although this goal can often be achieved after the first few attempts of harvesting, sometimes multiple attempts may be required. Due to the changes in the anatomy of different areas of the scalp, the subtle differences in each harvest attempt usually require correction of subsequent attempts. In addition, if any of the above steps are not followed, the integrity of the harvested grafts and the final cosmetic effect of the hair restoration procedure may be compromised.

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President's Message

Paul J. McAndrews, MD, FISHRS | Pasadena, California, USA | president@ishrs.org

Dear ISHRS Colleagues,
I hope you and your families are happy and healthy. St. Patrick's Day falls within the month of March, which makes it lucky. The month of March in 2021 was especially a month of hope, gratitude, and opti-

mism. We are fortunate and lucky with immense optimism that the latest vaccines will halt the spread of the COVID-19 virus and the world will get back to normal in the near future.

I am grateful that this hope and optimism is spilling over to the ISHRS. The ISHRS Board of Governors recently decided to continue with the Lisbon Hybrid World Congress in October of 2021. The ISHRS's 3 pillars are education, collegiality, and research. The connections created with colleagues and exhibitors by the "in-person" portion of the Hybrid World Congress is an important part of learning, collaborating, and advancing the specialty. The BOG understands the financial hardships its members have sustained over the last year and also wants to ensure the mission of the organization moves forward. The ISHRS has a very solid financial reserve in place and believes this is the exact situation to use a portion of it. The registration fees for the Lisbon World Congress **will be decreased**. Hooray!! ISHRS members who are bored with the virtual meeting format and miss the collegiality of the in-person meetings can get together with their colleagues in Lisbon. The ISHRS members who are still worried about traveling and have health concerns can still attend the Lisbon meeting virtually. I strongly believe that the ISHRS is on the cutting edge when it comes to our annual meetings, and this will be no exception. Dr. Marie Schambach, chairperson for the World Congress, has been hard at work securing our keynote speakers and the World Congress itinerary. I have the utmost confidence that the hybrid meeting will be spectacular.

The Global Council just met, and all of the societies unanimously and enthusiastically agreed to sign on to a unified letter regarding the "Fight the FIGHT" campaign. This letter concerning the illegal and unlicensed practice of medicine will be sent to boards of medicine and ministries of health around the world. The "Fight the FIGHT" website and microsites are already in 5 languages, and with the GC societies' help, we are translating it into an additional 13 languages. A big thank-you to Ricardo Mejia, Arthur Tykocinski, and the entire "Fight the FIGHT" committee for their tireless hard work.

All the ISHRS committees that were paused during 2020 secondary to COVID are now active again. In addition, please go the ISHRS website to see the various CME-approved webinars for 2021 at <https://ishrs.org/2021-cme-webinars/>.

The American/International Board of Hair Restoration Surgery (ABHRS) will hold its Board Exam on September 18

for the written exam and September 25 for the oral exam. Both the written and oral exams will be done virtually this year. Contact ABHRS.org to register. You must register by June 1, 2021.

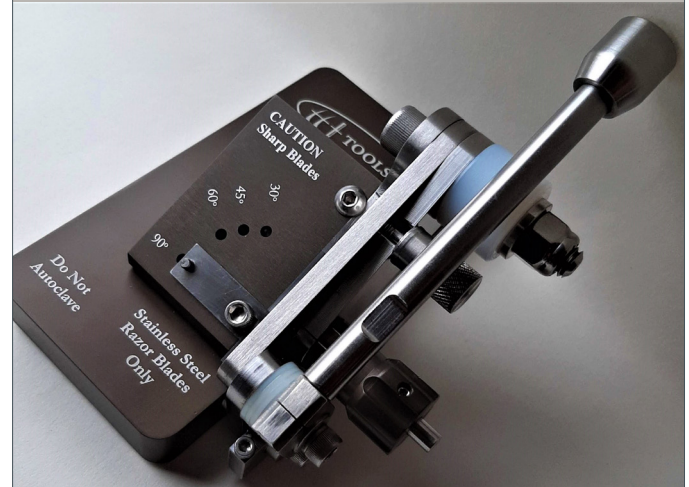
I greatly look forward to seeing most, if not all, of you in Lisbon! And keep optimistic thoughts that the world will be back to normal in the near future. ■

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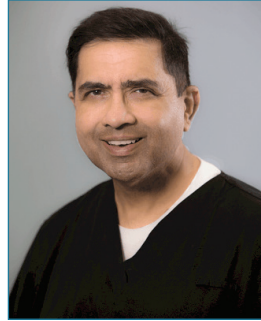
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The *Forum* has been receiving a large number of submissions, and we continue to encourage original articles, letters to the editors, and commentary. All items worthy of inclusion will be published and will support a collection of strong regular columns including Literature Review, Hear from the Assistants, Hair Sciences, How I Do It, Hair's the Question, Conversations with ABHRS Diplomates, and more. Have you read something with which you disagree or have an alternative perspective? Let us know and your comments can help further educate our members and initiate stimulating debate.

Our members have been busier not only writing, but I assume also doing more surgeries as the pandemic seems to have driven up demand for cosmetic procedures. Articles published in the lay press have described how at least in the U.S. aesthetic surgery is experiencing a boom, with the most common explanation, as journalists will typically view the world with pop-culture blinders, attributed to the latest trend—social media. As people look at themselves more during Zoom get togethers or on Instagram selfies, so the story goes, they become more critical of appearances, particularly facial. While I think there is some credibility in this explanation, I believe it is a combination of a variety of factors that have all worked to drive up the demand for aesthetic surgery. First, certain parts of our economy have done very well this past year, resulting in people with large amounts of income for discretionary spending. Second, with travel and dining and social events limited, there is more disposable income allocatable to aesthetic surgery. Finally, in times of turmoil, people seek ways to allow themselves to feel better or more attractive, and priorities get diverted from work and more towards using one's money to enjoy life more.

I hope that, at least for those who wish to be as hair restoration surgeons (I know I do), you are experiencing the kind of boost to your practice that I am describing, and if not, assuming this is a goal of yours, I suggest you seek out the advice of those clinicians whose practices you admire. You all are "in the know" and should be able to select out those who are providing the highest level of work in the most professional and caring environment. Most likely these colleagues specialize in FUE, perhaps supplemented with BHT, to meet the demand of patients who in most cases are in fact best treated by this approach, although certainly there is, in my experience, a subset of patients who can also be appropriately treated with FUT. Follow these busy colleagues' lead and spend less time worrying about what others are doing and more on optimizing your techniques. Mauro Speranzini's cover article is a wonderful place to start for it covers every step of decision-making and execution of the FUE procedure from start to finish.

➤ CONTINUES ON BOTTOM OF PAGE 41



Aditya K. Gupta, MD, PhD, FISHRS |
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I can hardly believe it has been one year since COVID-19 was declared a pandemic. It sometimes feels that this has been one of the longest years in recent memory, and at other times, it feels the shortest. We have lost many medical heroes during this time, including one of our own, Dr. Cándido Ulises Mejía, who worked on the front lines against this virus. I wish his family, friends, and colleagues all the best during this trying time.

The COVID-19 pandemic has forced us to find new ways to work and collaborate, including the organization and administration of the upcoming ISHRS 2021 World Congress. That being said, our president, Paul McAndrews, has encouraging news regarding the upcoming congress, and I invite our readers to refer to Marie Shambach's message for further updates. ABHRS president Sam Lam also provides an update on the now-online oral and written exams.

Aside from the many negative aspects of this past year, we have also seen opportunities for further research in a variety of fields, including hair loss. Many articles in this issue touch on this research, including a letter from Carlos Puig, who invites us to report on his website our patients with COVID-19-related hair loss. As well, our literature review summarizes an interesting review article that discusses the possible association between COVID-19 and androgenetic alopecia.

Our lead article this issue, "Forty Steps to Harvest a Graft" by Mauro Speranzini and Solon Eduardo Gouveia Souza, is a great "back to basics" article describing the multiple steps to harvest grafts that many experienced surgeons may take for granted. Rodney Sinclair also discusses more "basic" science in his article, "Minoxidil: What It Is and How It Works," in which he provides insight into the biological and biochemical processes that are affected by this often used drug. Continuing this "back to basics" theme, Editor Emeritus Robert Haber reminds us of one of the basic tenets of the ISHRS.

Lastly, our columnists have outdone themselves once again, providing interesting commentary and expertise; I encourage all to check out this issue's columns by Timothy Carman, Sara Wasserbauer, Gregory Williams, and Marwan Noureldin. An additional thank-you to Jeffrey Epstein, my co-editor, Cheryl Duckler, our managing editor, and Victoria Ceh, our executive director, for their constant collaboration and excellent work. ■



Notes from the Editor Emeritus, 2005–2007

Robert S. Haber, MD, FISHRS | *Cleveland, Ohio, USA* | Bobhaber2@gmail.com

I belong to a number of Facebook groups limited to board certified dermatologists. Recently, someone posted to a group that he was about to perform his first NeoGraft® case, and he wanted to know if he should offer exosomes as well. It became clear that he intended to delegate the entire procedure to the presumably unlicensed personnel provided by NeoGraft. There are several ISHRS members in this group as well, and we politely but effectively explained the surgical nature of a hair transplant, and the risks of inappropriate delegation. He eventually stated that he would reconsider his choice, and is currently in the process of applying for membership in the ISHRS. So clearly while some people choose to follow the illegal delegation model out of greed, others do so out of ignorance, and this underscores the importance of educating our colleagues and bringing them “into the fold.”

In Ohio alone, physicians in at least 40 offices, mostly plastic surgeons, follow the model this poster was about to embark upon, not one of which had any prior experience in hair surgery. This is the U.S. version of the Black Market at its worst, an insidious cancer invading our field. I’m certain most of these physicians are fine people who would never deliberately put their patients at risk of harm, but the lure of easy money, and the ignorance of the complexities of hair restoration, sent them on a pathway to the dark side of medicine. In the United States, possibly the only pathway available to us to combat this trend is to convince the state Boards of Medicine to explicitly identify the surgical aspects of a hair transplant and the credentials an individual must possess in order to perform these steps. Only then will physicians be held accountable and potentially face consequences. It is up to each of us to try to achieve this goal, which has been an elusive one for several years.

I write this column close to the one-year anniversary of the COVID-19 shutdowns in the U.S. I don’t think anyone thought that not only would we still be wearing masks today,

but that some are predicting we have another year or more of the same ahead of us, in spite of the slowly growing number of vaccinated individuals. A year ago, some of our respected colleagues believed that COVID-19 was less of a concern than the flu, yet the death toll in the U.S. recently passed the 500,000 mark, and only cancer and heart disease killed more Americans in the past year. The virtual ISHRS meeting of 2020 was by all measures a success, and while I know we all crave a face-to-face meeting for 2021, it’s quite possible that we will once again be forced to see each other from a distance. Someday we will all be together again, and I hope that ample social time is scheduled for that meeting!

All this time prevented from traveling due to COVID has allowed a stronger focus on “Life Outside of Medicine.” For me that means tending to my beehives and developing novel beekeeping equipment, which has also required me to start learning woodworking. There is something immensely satisfying about the smell of freshly cut wood, and when a design fits together perfectly and functions properly, it’s not unlike the feeling that comes with a well-designed and executed hair transplant. My chickens are healthy, and the automatic feeding system I created keeps us from having to venture outside quite so often in the frigid months of a Cleveland winter. And this week I tapped my Maple trees and my Black Walnut. The next several weeks will involve daily sap collection and lots of boiling, but the end result will be a gallon or so of delicious syrup to enjoy for the following year. I also recently purchased a 3D printer, and I’m teaching myself to design and 3D print items for my bees, chickens, trees, and woodworking projects, as well as items that help solve long-standing problems in my medical practice. The ability to go from idea to design to prototype in a matter of hours is very gratifying, and watching a part being built and listening to the whirring and other peculiar sounds emitted by the machine is mesmerizing!

I miss all my ISHRS friends from around the world; I hope everyone is staying healthy and busy, and I look forward to when we can all be together again! ■

➤ CONTINUED FROM PAGE 40

Resist being seduced into believing that anything is more important than achieving the best results for your patients—at least the type of patients who will value your quality work. There are plenty of them out there, informed self-educated individuals who can distinguish excellent from mediocre work, appreciative of your expertise and caring much more than your efforts to take down disreputable clinics or clinicians. Become the best technician and diagnostician you can, and complement that expertise with managing your office to make sure that your patients are properly cared for and educated. It really is not rocket science, merely the fundamentals.

In addition to the techniques and knowledge of surgery and medical management, be attentive to what is one of the most exciting developments: regenerative medicine. There is a need for committed researchers, clinicians, and educators to emerge, and as hair restoration surgeons we need to nurture and welcome these innovators who come both from within our field as well as from other fields who wish to share their knowledge. As a society, the ISHRS must retain its core founding values of education and camaraderie, and welcome all who have something to offer and who wish to learn. Consistent with this open invitation is Rodney Sinclair’s thought-provoking article on the alternative administration of minoxidil sublingually. ■